

SIGNALING TECHNOLOGY

—
MAIN CATALOGUE
EDITION 21

THE COMPLETE SPECTRUM
OF SIGNALING TECHNOLOGY.

Visual Signaling Devices | Obstruction Lights
Audible Signaling Devices
Combined Visual-Audible Signaling Devices
Signal Towers | Ex Signaling Devices
Art Illumination

We help
improve
safety.

Safe planning and efficient implementation of signaling projects.

Safety for man, machine and the environment is our top priority. This applies both to our signalling products and solutions and to the handy tools with which we support you in the planning, project development and implementation phase of your application.

The Pfannenberg 3D-Coverage planning method can thus be used to make an objective and reliable statement about the actual performance of products in a room. The planning tool, the Pfannenberg Sizing Software (PSS), helps you with the standard-compliant dimensioning. After entering individual values, it provides qualified recommendations for suitable signalling devices, their positioning and installation instructions. Planners and architects benefit from the tender texts available free of charge. Your advantages: more planning safety and cost efficiency.

In addition to the proven xenon technology with high signal effect in optical signal devices, which has an optimal cost-benefit ratio, we have added further LED based products to our portfolio. In this way, we take the different applications into account so that you can select the appropriate technology depending on your application. If xenon technology offers advantages in the area of "alerting", LED technology is predestined for applications in which high operating hours and flexibility are required.

Also, in our Edition 21: The side cut out tabs allow you an even faster orientation. Summary chapters for all Ex, SIL/PL and feature-monitored devices provide a better overview and easier product selection.

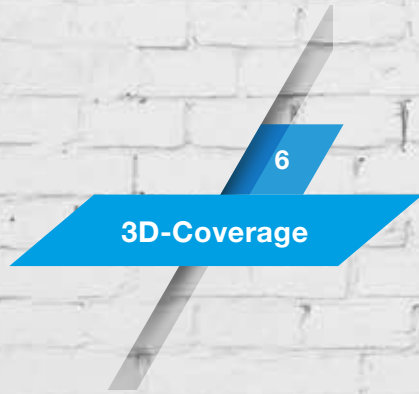
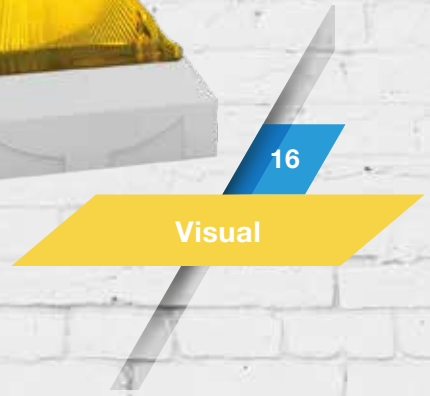
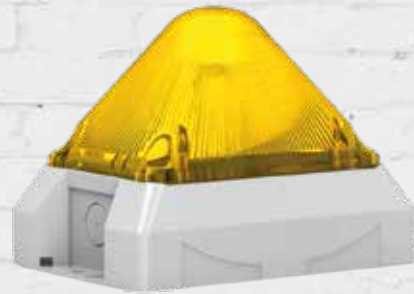
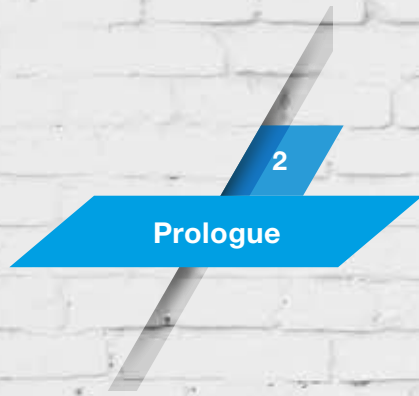
New and unique in the portfolio are the flashing lights PYRA-L with an enormous signalling area for large halls, the ultra-bright LED light in the widespread ABL/ABS housing and the first LED multifunction light for safety-related systems up to SIL 2 / PLd.

We offer the perfect answer for all requirements with our standard program, which can be delivered at short notice, our solution-oriented consulting approach, worldwide services and our experience in many industrial sectors. Like almost no other company, we can provide you with comprehensive advice and supply from a single source – from standard to the most demanding special solutions.

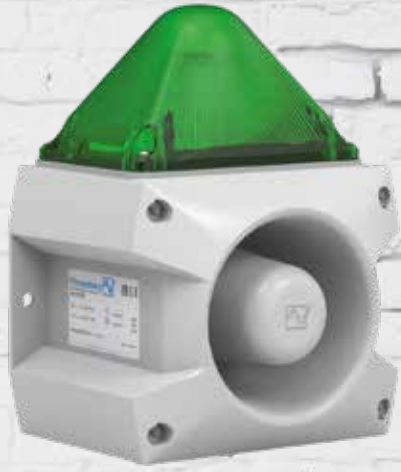
We see ourselves as your sparring partner and our engineers and experts will be happy to work with you to find the best possible solutions for your requirements. Please feel free to contact us.

Andreas Pfannenberg, CEO





Safety and efficiency – these are the areas for which Pfannenberg signaling devices are ideal solutions. With innovative designs, robust construction, and a legacy of fulfilling demanding requirements, Pfannenberg has the experience and know-how to help with your next industrial signaling application. But, Pfannenberg has even more to offer: also have a look at our thermal management solutions on page 134.



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Combined



94

Signal Towers



80

Function monitored



106



134

Thermal Management

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Know How + Service

Pfannenberg 3D COVERAGE



A visual representation of device performance in any space.

A holistic approach to alarm notification planning. Pfannenberg presents 3D-Coverage, a method for determining the actual effective coverage area for audible and visual signalling devices. Now planners can gain confidence in knowing whether signals can be perceived in relation to different environmental conditions and requirements.

For alarm system planners, specifying engineers, system integrators, and safety managers.

Gain confidence in system design and goals.

Naïve assumptions regarding the performance of signalling devices often lead to under-sizing, which may result in a project being rejected. Expensive upgrades and retrofits may then be required to remedy the situation. 3D-Coverage gives planners the confidence needed upfront for proper sizing with respect to environmental conditions and code requirements. The result is a system that will perform to expectations and be approved.

For all types of alarms in any application.

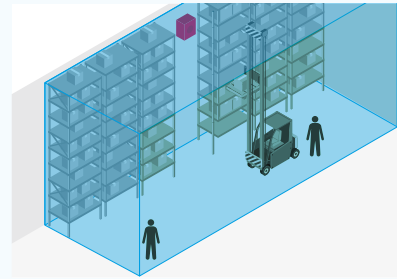
Regardless of whether the signal is intended for a fire alarm, machinery safety, gas leak alarm, or general workplace safety, 3D-Coverage supports designing the optimal alarm solution. When coverage area and ambient conditions are taken into account, the safety of people and machines is assured.



“There are many certified signalling devices to choose from. 3D-Coverage shows me at a glance how well they perform.”

Consulting/Specifying Engineer

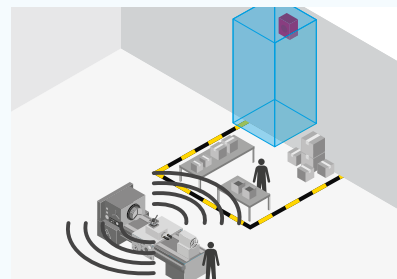
Job: fire alarm systems in industrial factories, storage facilities, and logistics terminals



“3D-Coverage clearly shows whether my colleagues at the workbenches are really safe.”

Safety Manager

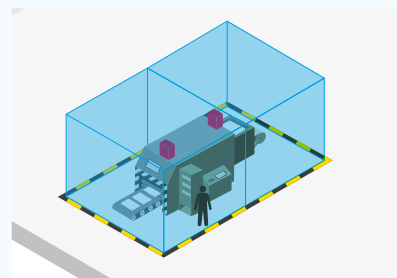
Job: gas detection alarm systems and workplace safety



“3D-Coverage facilitates compliance with machine safety requirements at specific levels of ambient noise.”

Operations Manager

Job: machine and tool safety in factories



What is specified on paper is not an indication of performance in a defined space.

The effective coverage parameter.

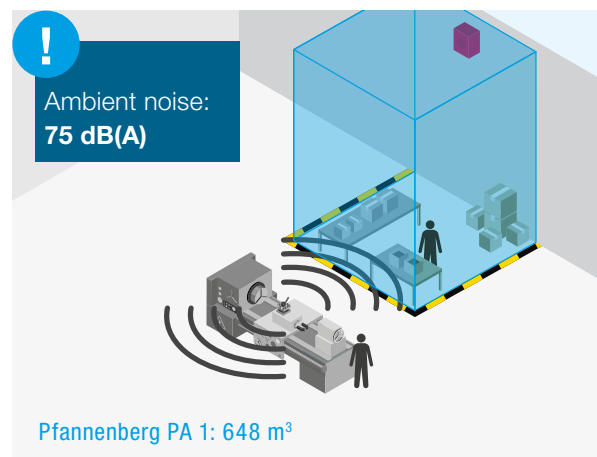
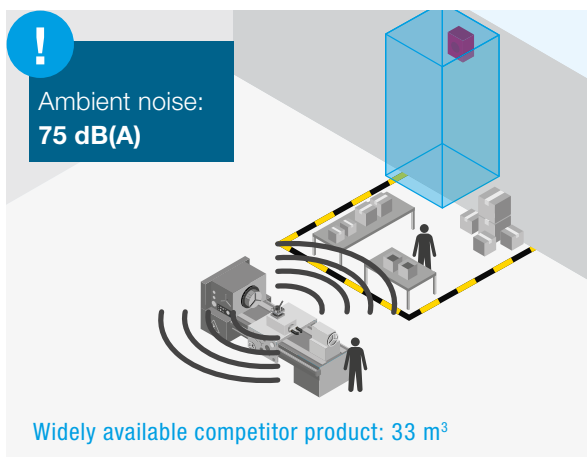
When designing reliable signalling solutions, one needs to be certain about the area that is to be effectively covered by the signal. 3D-Coverage provides the necessary dimensions to accomplish this since traditional information that is provided on a technical data sheet is insufficient.

3D-COVERAGE PERFORMANCE COMPARISON

2 Sounders of the 100 dB(A) performance classes using, for example, the standard DIN signal (DIN 33404-3) and an exemplary offset of Δ 10 dB(A) in accordance with DIN VDE 0833.

PERFORMANCE CLASS	AMBIENT NOISE	OFFSET	REQUIRED SOUND LEVEL	A	B	C	Pfannenberg 3D COVERAGE
Widely available competitor product 100 dB(A)	70 dB(A)	10 dB(A)	80 dB(A)	6.7 m	5.4 m	5.4 m	195 m ³
	75 dB(A)	10 dB(A)	85 dB(A)	3.7 m	3 m	3 m*	33 m³
	80 dB(A)	10 dB(A)	90 dB(A)	2.1 m	1.7 m	1.7 m*	6 m ³
Pfannenberg PA 1 100 dB(A)	70 dB(A)	10 dB(A)	80 dB(A)	16 m	14 m	16 m	3,584 m ³
	75 dB(A)	10 dB(A)	85 dB(A)	9 m	8 m	9 m	648 m³
	80 dB(A)	10 dB(A)	90 dB(A)	5 m	4.5 m	5 m	113 m ³

*NB: Lower than the minimum installation height!



very simplified form

Result:

Despite an identical performance class, there are significant differences in the coverage volume (A x B x C). With ambient noise at 75 dB(A), the Pfannenberg PA 1 sounder achieves a value more than 19 times greater than that of the inferior device.

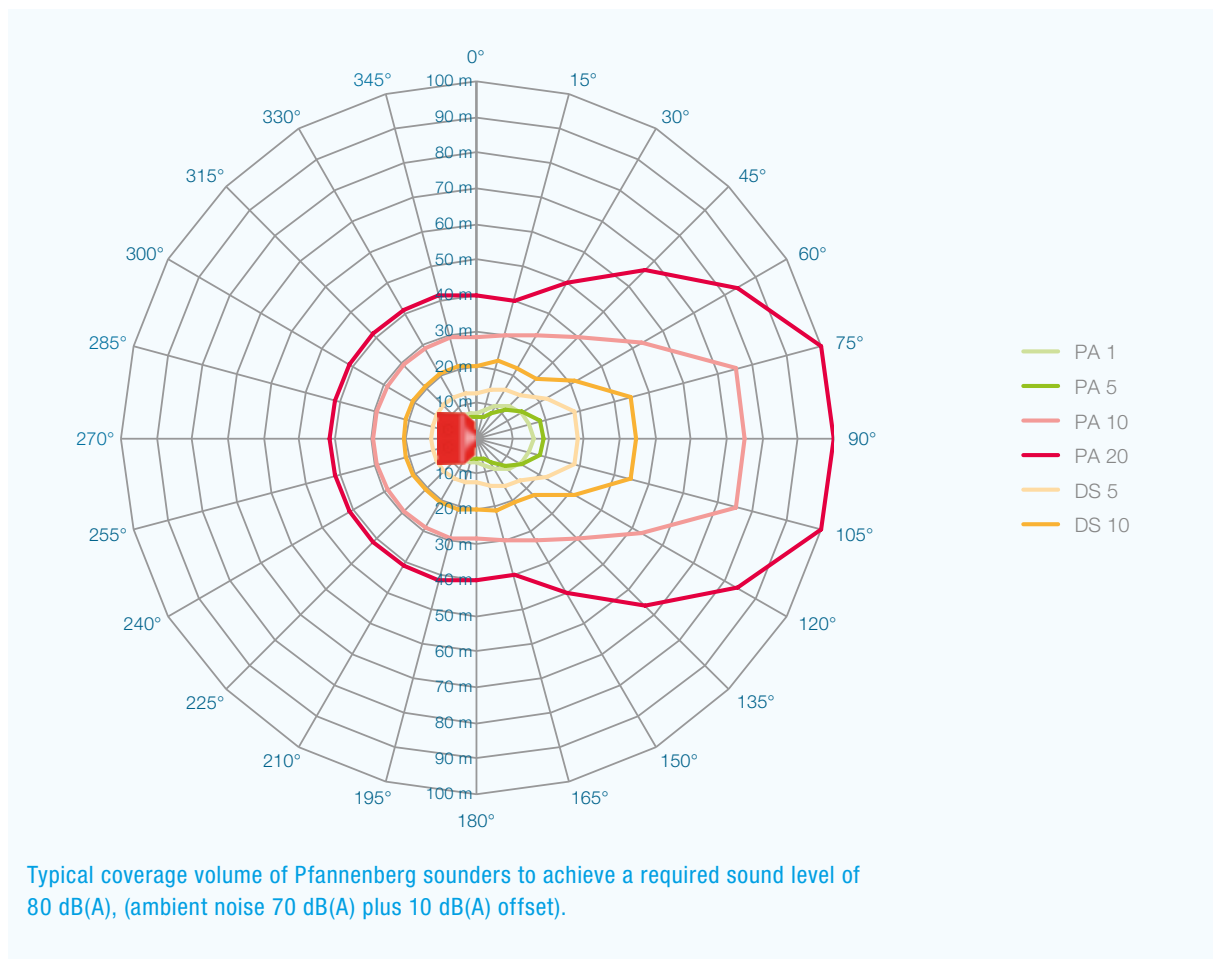
Balanced range of sounders for spaces of all sizes.

3D-Coverage for audible signalling devices.

In order to determine the actual effective coverage area for an audible signalling appliance, ambient noise and the desired alarm level offset must be considered when sizing the device. Performance by dimension is the only way to be certain that the desired alarm criteria is met by the device.



Larger coverage volume from superior technology



Audible transmission of a sounder.

Sounder performance is a function of the acoustic driver, the electronics behind it, and the mechanical design of the horn. Not all sounders are created equal. When mapping the sound propagation over a wide dispersion, it becomes clear that some devices are better than others. While it may be evident that the highest output is at a 90° angle in the front of the device, for purposes of effective coverage, it is just as important to consider how sound is transmitted outwards to the sides, top, and bottom. Pfannenberg has optimised all aspects of sounder technology to create the largest coverage area.

Sound generating technology.

Piezoelectric oscillators are used for generating sound in many audible notification appliances since they are inexpensive and have low power consumption. Although these attributes may be appealing, the actual loudness of these devices is much lower than electro-dynamically produced sound, which is the technology used in Pfannenberg sounders. This greater sound generating capacity leads to a larger effective coverage area thereby producing a more effective alarm signal and resulting in fewer devices being needed. Although on paper the piezoelectric device may seem to be a good option, the actual performance to power ratio is noticeably inferior.



True performance revealed.

Applications for visual signalling.

Whether signalling for alarm, warning, or indication, the technology used to generate light, the radiation characteristics of lenses and optics, and lens colour are all important characteristics to consider when designing a system to achieve an effective, perceivable signal.

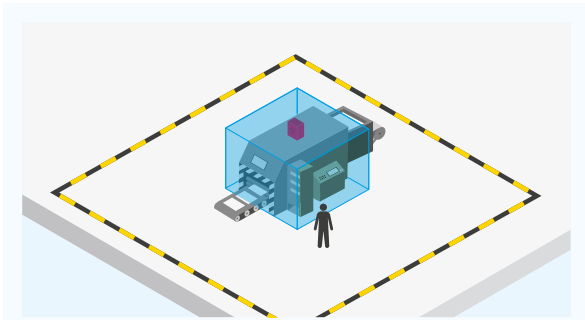
3D-Coverage for visual signalling devices.

The required coverage volume of visual signalling devices varies by local code and application. With 3D-Coverage, it becomes easier to determine effective coverage when overall performance is evaluated with respect to the requirements.

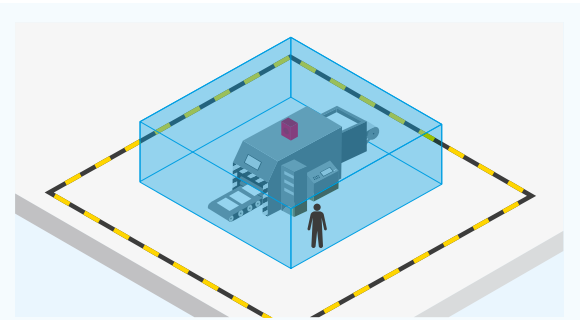
3D-COVERAGE PERFORMANCE COMPARISON

Two flashing lights (red cover versus clear) in alarm and indication applications.

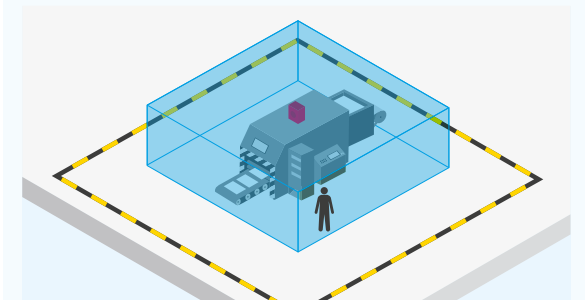
FLASHING LIGHT	INTENSITY	LENS COLOUR	ALARM		INDICATE	
			AREA A x B x C	Pfannenberg 3D COVERAGE	AREA A x B x C	Pfannenberg 3D COVERAGE
PYRA M-10	39 cd	red	11.2 x 7 x 14 m	1,098 m ³	50.4 x 31.5 x 63 m	100,019 m ³
PYRA M-10	118 cd	clear	18 x 10 x 22.5 m	4,050 m ³	81 x 45 x 101 m	368,145 m ³



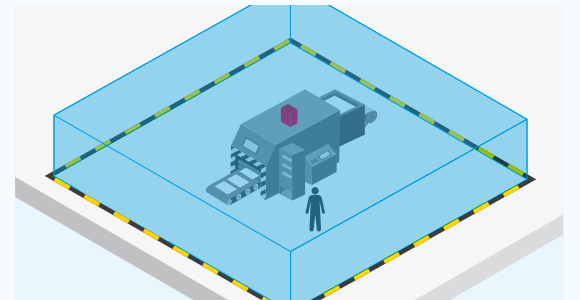
PYRA M red Alarm 1,098 m³



PYRA M red Indicate 100,019 m³



PYRA M clear Alarm 4,050 m³



PYRA M clear Indicate 368,145 m³

very simplified form

Result:

The nominal light intensity of 39 cd and 118 cd result in significant differences in the size of the coverage volume. With a "clear" lens the signal is perceived much more readily. The Xenon technology of Pfannenberg's flashing lights delivers considerably better performance and efficiency than LED technology.

Designing with 3D-Coverage avoids incorrect system sizing.

Guidelines are implemented more efficiently.

Directives such as EN 54-23 require that the ambient conditions within the space in which a signal is to be perceived are taken into account. They specify the output level of signalling devices but do not account for their technical performance surrounding signal transmission – leading to a risk of incorrect sizing. Planning with the aid of 3D-Coverage eliminates this risk. It provides a precise indication of the number of signalling devices required and allows the system to be specified in an efficient, cost-effective manner.

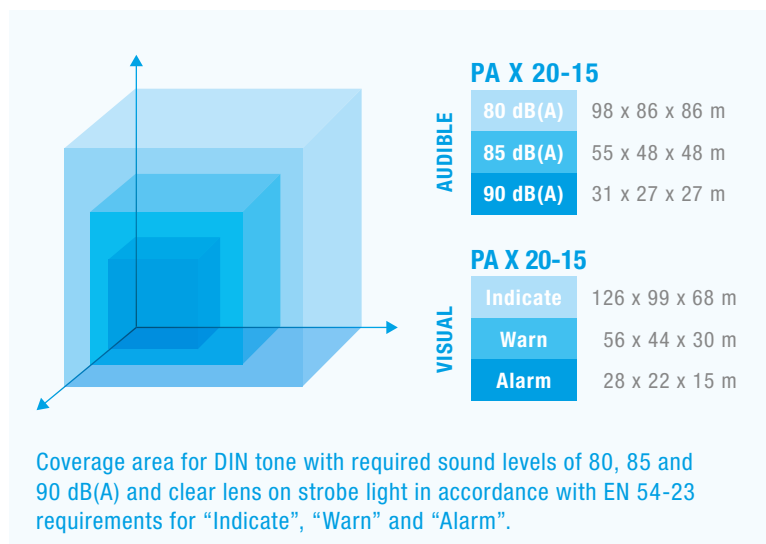
More reliable than marketing data.

Performance data supplied on technical data sheets often results in naïve assumptions about the actual performance of a product. When combined with inadequate consideration of factors such as the ambient noise levels, the danger of insufficient signalling perception is increased. 3D-Coverage takes these factors into account and ensures that audible and visual signals can be heard and seen.

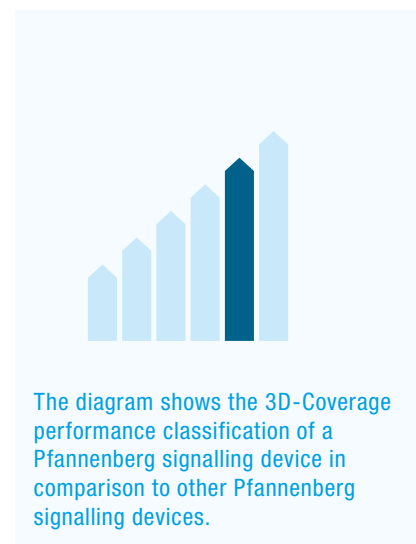
3D-Coverage in the catalogue.

The following pages contain the guaranteed coverage volume of each signalling device under different environmental situations. For the audible signalling devices, the performance in a given space assumes the use of the DIN tone at a required sound level of 80, 85 and 90 dB(A). For the visual signalling devices, the performance is given for indicate, warn and alarm (EN 54-23) applications. An additional classification symbol allows an at-a-glance comparison with the performance of other Pfannenberg signalling devices.

3D-Coverage performance data, A x B x C



Performance classification

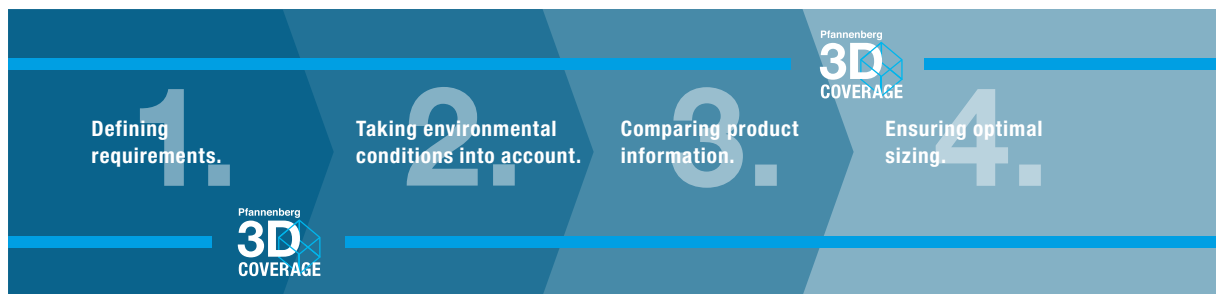
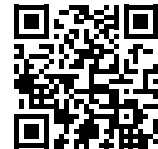


3D-Coverage in the video.



The 3D-Coverage video explains how you can use the planning method 3D-Coverage to gain planning safety by visualising the actual performance in a space when dimensioning visual and audible signalling devices in only four steps.

Simply scan the QR code.



PSS – the perfect planning aid.

For planning with individual values, Pfannenberg Sizing Software (PSS) is a user-friendly online tool which provides an instant, informed recommendation for the optimum signalling devices and their positioning. It enables you to avoid expensive over-specification and risky under-specification at the planning stage or when reviewing the configuration. PSS is available online and can be downloaded at www.pfannenberg.com/pss.



Download



pss-pfannenberg.com



info@pfannenberg.com

Understanding visual coverage – the effective coverage area for each device varies with requirements for alarm, warning, or indication.

Whether Xenon or LED technology, the purpose of the signal is the important consideration.

For each signalling device, the largest effective coverage area is achieved for “indication” requirements, whereas the smallest is achieved for requirements intended to “alarm” people, since the signal should also be perceived indirectly, i.e. without a direct view of the light. The following examples highlight various applications for “alarm”, “warning”, and “indication”:

INDICATE

Indication requirements are used to inform machinery operators of certain functioning conditions, or nearby personnel of the status of a situation which is generally low priority. The illumination requirement is typically limited to a localised area.

- status of a machine, process, or test procedure.
- lack of raw material / material supply is nearing depletion.
- quality defect, pass/fail information.
- process has ended, standby position.
- notification and display of errors.
- display of room occupancy.

WARN

Warning requirements are used to alert personnel of nearby danger or inform that a process or condition is in need of attention. These are medium priority situations.:

- moving vehicle or machine – get out of the way.
- dangerous situation – proceed with caution, safeguards have been removed.
- status is critical, ready for handling – action required.
- attention is necessary.
- process out of tolerance – corrective action needed.
- health hazard – stay clear.
- caution – a status change is being executed.

ALARM

Alarm requirements are used when abrupt evacuation is needed or for emergency situations which require immediate action. These situations demand the highest priority for abrupt action.

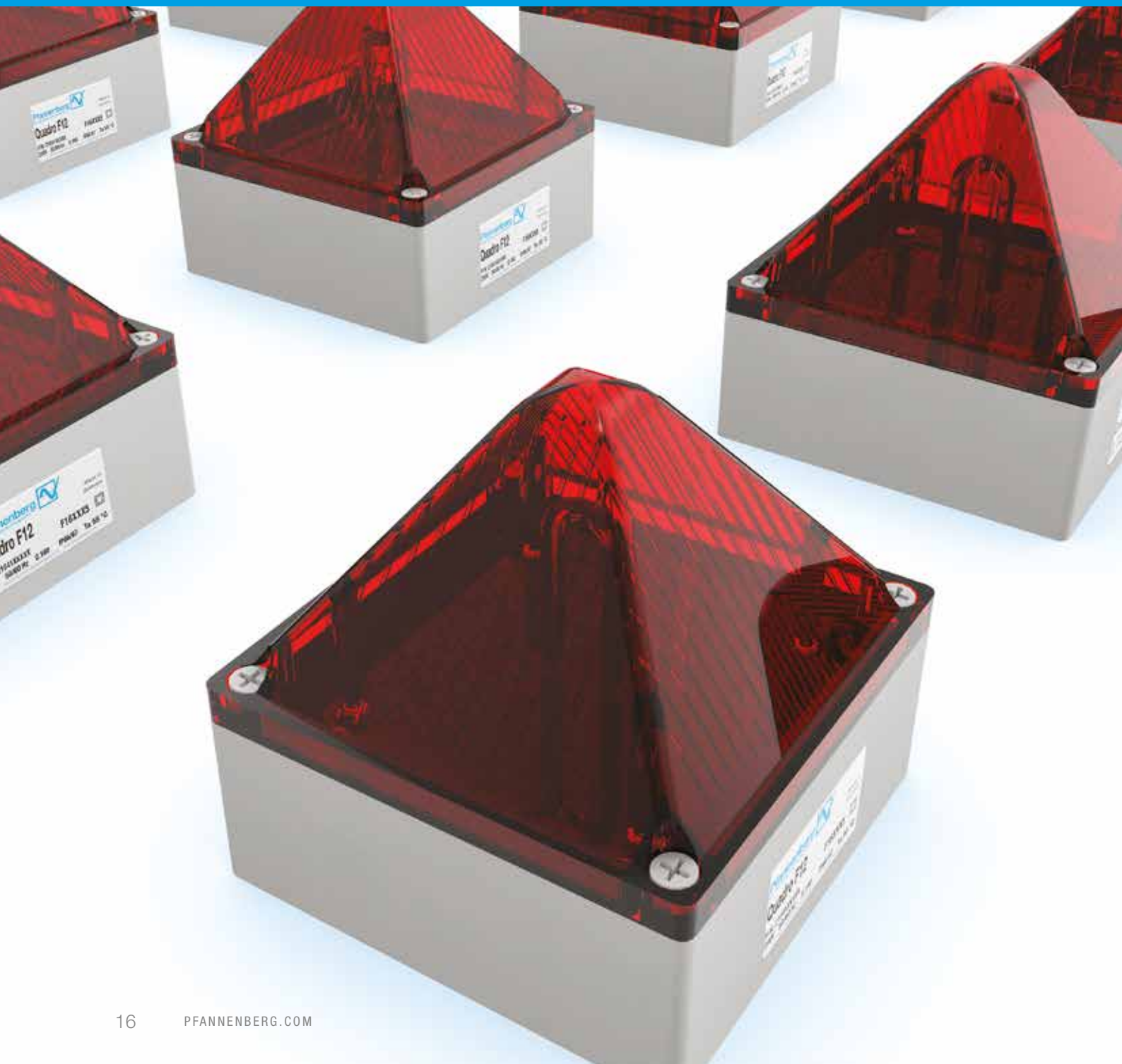
- evacuate immediately – fire or gas leak detected.
- acute health risk – toxic substances identified.
- process is abnormal or out of control – immediate action needed.
- maximum tolerance exceeded – immediate attention required.

Ambient noise level for certain areas.

CATEGORY	GROUP	AREA	SOUND PRESSURE LEVEL dB(A)	
Distribution	Logistics	High rise rack with forklifts	60	
Distribution	Logistics	Loading and unloading, handling	65	
Industry	Automotive	Presses	90-110	ⓘ
Industry	Automotive	Automation area	80	
Industry	Automotive	Storage	70	
Industry	Steel	Production	85-110	ⓘ
Industry	Steel	Storage	73	
Industry	Steel	Logistics	75	
Industry	Logistics	High rise rack with forklifts	70	
Industry	Logistics	Refrigerated warehouse	70	
Industry	Logistics	Loading and unloading, handling	75	
Industry	Textile	Production, looms	85	
Industry	Textile	Production, others	78	
Industry	Chemical	Process technology	78	
Industry	Chemical	Loading outdoor	80	
Industry	Wood	Storage	73	
Industry	Wood	Assembling	80	
Industry	Wood	Packaging, commissioning	80	
Industry	Wood	Shipping, dispatch	75	
Industry	Plastics	Loading	75	
Industry	Plastics	Production	85-88	
Industry	Animal feed	Production	70-75	
Industry	Animal feed	Filling, bottling	70	
Industry	Manufacturing	Production	65-75	
Industry	Manufacturing	Loading	70	
Public	Train station	Rail tracks	85	
Public	Train station	Passenger traffic, entrance	70	
Public	Airport	Waiting rooms	65-70	
Public	Airport	Aircraft handling	80-90	ⓘ
Public	School	Classroom	65	
Public	School	Assembly hall	75-80	
Public	University	Assembly hall	70-80	
Public	University	Lecture hall small	65	
Public	University	Lecture hall big	70	
Public	University	Library	60	
Public	Office	Single office room	55	
Public	Office	Open-plan office	65-70	
Public	Office	Call centre	75-80	
Public	Office	Administration building	60	
Public	School	Sports centre	75-80	
Public	Shopping mall	Passage	70-78	
Public	Hotel	Room	55	
Public	Hotel	Corridor	60	
Public	Hotel	Reception	65	

ⓘ >90 dB – additional visual alarm needed

Visual signalling notification appliances.




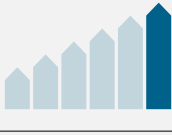

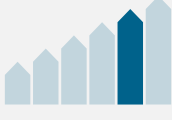

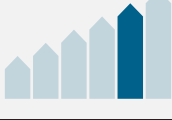

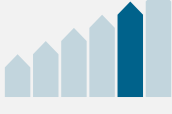



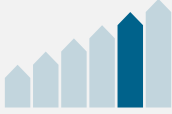

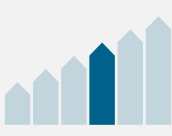

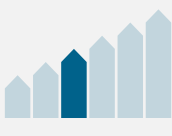

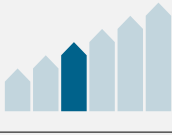

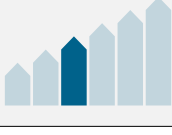
Visual signalling devices ensure safety at first sight.

Regardless of whether you use flashing lights or continuous lights – Pfannenberger's visual signalling devices are 'eye-catchers' that can save lives in every respect. They ensure any process status can be displayed in a timely manner. Thanks to their unmistakable demand for action, they offer the best prerequisites for running trouble-free production processes.

Benefit from top quality standards and a unique complete range.

Protecting man, machine and the environment.

Visual signaling devices at a glance

	TYPE	3D-COVERAGE LEVEL ¹	LIGHT INTENSITY	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS					PAGE
						GL	EAC	UL	EN 54-23	VdS	
FLASHING LIGHTS											
	PMF 2030		30 J	IP 55	bracket mounting 170.5 x Ø 130 direct mounting 185 x Ø 177		●				20
	PMF 2015		7 J						●		
	ABL / ABS		15 J	IP 54	without bracket 242 x Ø 80	● ²	●				22
	PY X-L-15		15 J	IP 66 IK08	157 x 212 x 144		●	●			24
	PY X-L-15-CPR		15 J	IP 66 IK08	157 x 212 x 144		●		●	●	
	Quadro F12		13 J	IP 66/67 IK08	130 x 130 x 130		●				26
	PY X-M-10		10 J	IP 66 IK08	124 x 166 x 114		●	●	●	●	28
	PY X-M-05		5 J	IP 66 IK08	124 x 166 x 114		●	●	●	●	
	WBL / WBS		5 J	IP 54	200 x Ø 54	● ²	●				22
	PY X-S-05		5 J	IP 66 IK08	85 x 109.5 x 80.6	● ²	●	●	●	●	30


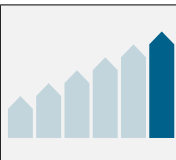

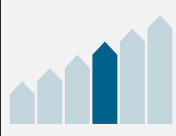



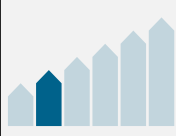


¹ with a clear lens

● available ○ pending ² option


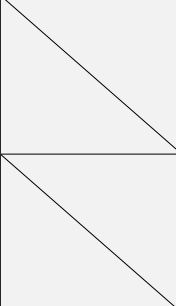

Visual signaling devices at a glance

TYPE	3D-COVERAGE LEVEL ¹	LIGHT INTENSITY	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS					PAGE
					GL	EAC	UL	EN 54-23	VdS	


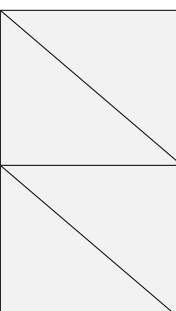

LED LIGHTS

		315 cd	IP 55	bracket mounting 170.5 x Ø 130 direct mounting 185 x Ø 177		●					32
		75 cd	IP 54	without bracket 242 x Ø 80		●					34
		75 cd	IP 66/67 IK08	130 x 130 x 130		●					36
		27 cd	IP 55	130 x 130 x 396		●					32
		5 cd	IP 55	128 x 166.2 x 111.2		●					38

TRAFFIC LIGHTS

		80 cd	IP 66 IK08	130 x 130 x 396		●					40
		60 cd	IP 65	177 x Ø 140		●					

OBSTRUCTION LIGHTS

		32 cd	IP 68	240 x Ø 114		●					42
		18 cd				●					

¹ with a clear lens

● available ○ pending ² option

PMF Flashing Lights



XENON

LED versions
on page 32
and 90

Robust, solid-state design

Xenon flash tubes are secured by a mechanical clamp and unlike rotating lights with motorised elements there is no risk of failure due to moving parts.

Highly effective light beam

Fresnel lens optics provide a brilliant horizontal light stream for long distance signal transmission.

Up to 30 joules flash energy

High energy impulse creates an intense light flash for effective signal coverage in large areas.

Powerful 360° omnidirectional signalling

for large distances (indoor and outdoor).

Exceptional performance

withstands extreme temperatures and is safeguarded against potential voltage fluctuations.

Very good perceptibility

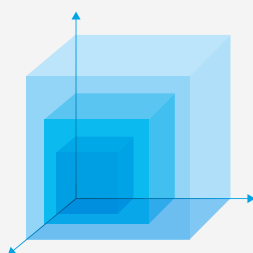
over great distances; low power consumption.

Versatile mounting

choose direct mount for flat surface installation or bracket mount for attachment to walls or pipes.



3D-Coverage performance data, A x B x C



PMF 2015

Indicate	54 x 171.9 x 171.9 m
Warn	24 x 76.4 x 76.4 m
Alarm	12 x 38.2 x 38.2 m

PMF 2030

Indicate	144 x 450 x 450 m
Warn	64 x 200 x 200 m
Alarm	32 x 100 x 100 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS



protection system



operating temperature



on request



PRODUCT	PMF 2015		PMF 2030	
	direct mounting	bracket mounting	direct mounting	bracket mounting
ARTICLE NO. 230 V ●	21007104000	21007104010	21010104000	21010104010
ARTICLE NO. 24 V ●	21007804000	21007804010		
ARTICLE NO. 230 V ●	21007105000	21007105010	21010105000	21010105010
ARTICLE NO. 24 V ●	21007805000	21007805010		

DATA

Light source	xenon flash tube: quad, double flash		xenon flash tube	
Operating range	195–253 V		195–253 V	
	AC 50 60 Hz		DC	
Nominal current consumption			450 mA @ 230 V	
	2 flashes	0.08 A	0.65 A	
Flash energy and flash rate	7 J @ 1 Hz = 60 flashes/min		max. 30 J @ 1 Hz = 60 flashes/min switchable to 20 J	
Light intensity (DIN 5037) ¹	250 cd		1,500 cd	
Max. viewing distance	366 m		898 m	
Operating temperature	–40 ... +55 °C			
Protection system according to EN 60529	IP 55 (vertical mounting)			
Service life of light source	light emission still 70 % after 8,000,000 flashes			
Material	lens	/ ● ● ● ● polycarbonate (PC), fresnel characteristic		
	housing	acrylonitrile butadiene styrene (ABS)	polycarbonate (PC)	acrylonitrile butadiene styrene (ABS)
Dimensions (X x Y + Y2)	177 x 185 + 0 mm	130 x 170.5 + 90 mm	177 x 185 + 0 mm	130 x 170.5 + 90 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

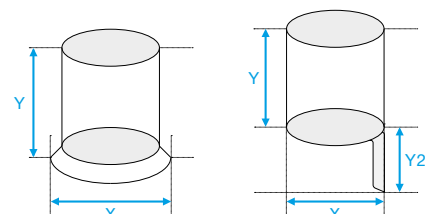
Choice of lens colours: clear | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



WBL/WBS | ABL/ABS

Flashing Lights



LED versions on page 34

Powerful

Extremely bright and highly visible flashing strobe light for signalling in large manufacturing areas and warehouses as well as outdoor spaces.

Flash tube

Xenon strobe generates highly visible light without sensitive filaments. A steel fixing clamp provides additional resistance to shock and vibration.

GL

Germanischer Lloyd approved versions available for maritime applications and areas prone to high shock and vibration conditions.

IP 54 enclosure rating

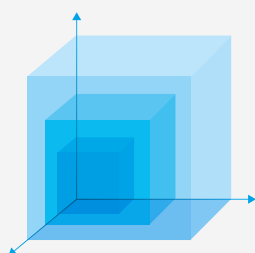
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Robust and reliable

With corrosion resistant anodised aluminium housing and mounting bracket, as well as a high strength polycarbonate lens, the signal light is ideal for tough industrial requirements.



3D-Coverage performance data, A x B x C



WBL/WBS

Indicate	63 x 62.1 x 62.1 m
Warn	28 x 27.6 x 27.6 m
Alarm	14 x 13.8 x 13.8 m

ABL/ABS

Indicate	127.8 x 160.2 x 160.2 m
Warn	56.8 x 71.2 x 71.2 m
Alarm	28.4 x 35.6 x 35.6 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS



protection system



operating temperature



option



WBL/WBS

ABL/ABS

PRODUCT		WBL	WBS	ABL	ABS
ARTICLE NO.	●	21003103000	21003803000	21001103000	21001803000
ARTICLE NO.	●	21003104000	21003804000	21001104000	21001804000
ARTICLE NO.	●	21003105000	21003805000	21001105000	21001805000

DATA

Light source	xenon flash tube			
Operating range	185–255 V	18–35 V	185–255 V	18–30 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	0.07 A	0.25 A	0.18 A	0.7 A
Flash energy and flash rate	5 J @ 1 Hz = 60 flashes/min		15 J @ 1 Hz = 60 flashes/min	
Light intensity (DIN 5037) ¹	61 cd		226 cd	
Max. viewing distance	181 m		348 m	
Operating temperature	–40 ... +55 °C			
Protection system according to EN 60529	IP 54			
Service life of light source	light emission still 70 % after 8,000,000 flashes			
Material	lens	polycarbonate (PC)		
	housing	aluminium (Al Mg Si 1), anodised		
	base	polycarbonate (PC) with fibre glass		
Dimensions (X x Y)	54 x 200 mm		80 x 242 mm	

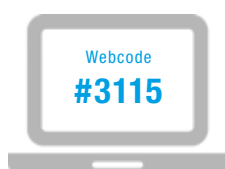
ACCESSORIES	PAGE	ARTICLE NUMBER	
Protective cage	44	28710500041	28710500042

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

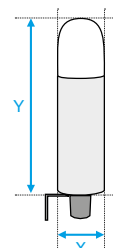
127 115 110 48 42 24 V AC 110 60 48 36 12 V DC.	Choice of lens colours: clear white yellow amber red green blue.	WBL-PX – WBL with inrush current limitation below 6 A for only 110 µS.	DWBL/DWBS – 2.5 J, 54 mm diameter aluminium enclosure.	Versions with 30 45 90 120 flashes per minute.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PYRA X-L Flashing Lights



Powerful

Extremely bright and highly visible flashing strobe light in an elegant pyramid design.

Variable flash frequency

Adjustable for different applications: 0.1 | 0.5 | 0.75 | 1 Hz.

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Circuit loading stability

24 V DC versions incorporate constant current regulators for stable and efficient system operation.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Synchronised operation

of several lights according to EN 54-23.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments.

Inrush current regulator (DC version)

Provides electrical protection for control devices such as switching components and relays.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Flash tube

A steel fixing clamp provides additional resistance to shock and vibration.



Redundant electrical contacts

Provides ease of wiring and daisy-chain connection.

EN 54-23 certified (CPR version)

Satisfies EU requirements for fire alarm safety.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

3D-Coverage performance data, A x B x C

PY X-L-15 PY X-L-15-CPR	
Indicate	108 x 103 x 70 m
Warn	48 x 50 x 31.2 m
Alarm	24 x 25 x 15.6 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS



protection system



impact-proof housing



operating temperature



DC version



PY X-L-15



CPR version



CPR version



warranty



VISUAL

EN 54-23 / VdS

PRODUCT	PY X-L-15		PY X-L-15-CPR
ARTICLE NO.	● ●		21561801020
ARTICLE NO.	● ●	21561103000	21561803000
ARTICLE NO.	● ●	21561104000	21561804000
ARTICLE NO.	● ●	21561105000	21561805000
ARTICLE NO.	● ●		21561805020
ARTICLE NO.	● ●		on request
ARTICLE NO.	● ●	21561103055	21561803055
ARTICLE NO.	● ●	21561104055	21561804055
ARTICLE NO.	● ●	21561105055	21561805055

DATA		PY X-L-15		
Light source		xenon flash tube		
Operating range	187–255 V	19.2–28.8 V	19.2–28.8 V	
	AC 50 60 Hz	DC	DC	
Nominal current consumption	150 mA @ 1 Hz	540 mA @ 1 Hz	700 mA @ 1 Hz	
Flash energy and flash rate	15 J @ 0.1 0.5 0.75 1 Hz			
Light intensity (DIN 5037) ¹	190 cd			
Max. viewing distance	320 m			
Operating temperature	–40 ... +55 °C			
Protection system (EN 60529)	IP 66			
Impact resistance as per EN 50102	IK08			
Service life of light source	light emission still 70 % after 8,000,000 flashes			
Material	lens	● ● ● ● ● ● polycarbonate (PC)		
	housing	PC/ABS, RAL 3000 ● PC/ABS, RAL 7035 ●		
Dimensions (X x Y x Z)	212 x 157 x 144 mm			

ACCESSORIES	PAGE	ARTICLE NUMBER
Tamper-proof sealings	44	28300000002
Surface gasket	44	28111500002

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

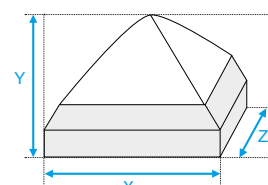
24 V AC 115 V AC.	Choice of lens colours: clear white yellow amber red green blue.	White enclosure.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Quadro Flashing Light



LED versions
on page 36

Positive enclosure sealing

Leak path risk is eliminated since the lens fastening screws are located outside the sealing gasket area.

IP 66/67 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Impact resistant housing and lens

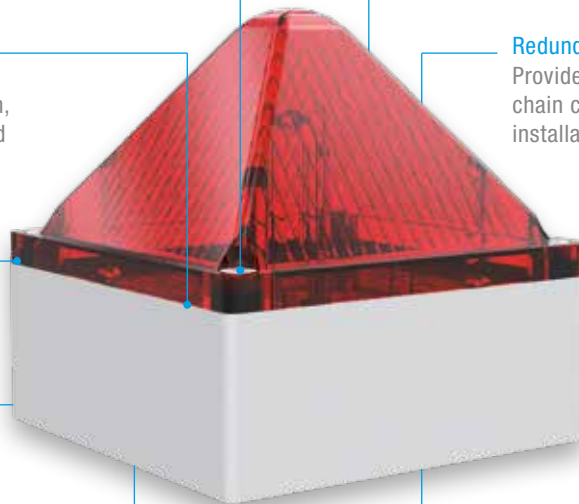
Achieves IK08 impact rating to endure harsh environments.

Inrush current regulator

Provides electrical protection for control devices such as switching components and relays.

Safe operation

in all possible thermal (weather) and environmental conditions around the world.



High quality, long life components

Provides the utmost in reliability and longevity.

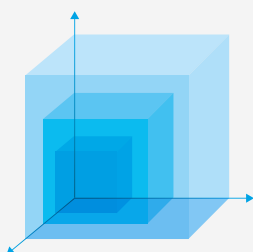
Redundant electrical contacts

Provides ease of wiring and daisy-chain connection for multi-unit installations.

Flexible wiring schemes

Multiple cable and conduit entries ensure easy installation in any orientation.

3D-Coverage performance data, A x B x C



Quadro F12

Indicate	113.9 x 77.9 x 124.7 m
Warn	50.6 x 34.6 x 55.4 m
Alarm	25.3 x 17.3 x 27.7 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHT



protection systems



impact-proof housing



operating temperature



synchronous operation



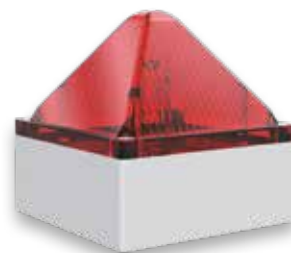
inrush current limitation



EAC



warranty



PRODUCT	Quadro F12		
ARTICLE NO.		on request	on request
ARTICLE NO.		21041103000	21041803000
ARTICLE NO.		21041104000	21041804000
ARTICLE NO.		21041105000	21041805000

DATA	
Light source	xenon flash tube
Operating range	195–253 V
	AC 50 60 Hz
Current consumption	250 mA @ 230 V
Initial current limited to	<7 A / 150 µs
Flash energy and flash rate	13 J @ 1 Hz = 60 flashes/min
Light intensity (DIN 5037) ¹	260 cd
Max. viewing distance	374 m
Operating temperature	-40 ... +55 °C
Protection system according to EN 60529	IP 66/67, mounting arbitrary
Impact resistance as per EN 50102	IK08
Service life of light source	light emission still 70 % after 12,000,000 flashes
Material	lens polycarbonate (PC)
	housing polycarbonate (PC)
Dimensions (X x Y x Z)	130 x 130 x 130 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

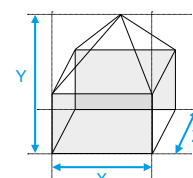
Quadro	Quadro S	Quadro R	Quadro DMX
In 115 V AC and other operating voltages, other colours like blue, green, white, clear.	Multi-unit flash synchronisation for daisy-chained installations and solid-state xenon flash tube.	Solid-state xenon flash tube with integrated random flash function for "sparkling effect". Used for spectacle illumination applications (as featured on the Eiffel Tower).	Solid-state xenon flash tube with integrated DMX control for generating illumination arrangements and light shows.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PYRA X-M Flashing Lights



XENON

Powerful

Extremely bright and highly visible flashing strobe light for signalling in large manufacturing areas and warehouses as well as outdoor spaces.

Captive fasteners

Installation and assembly is simplified and screws cannot get lost.

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

SSM – Soft Start Module

Inrush current regulator provides electrical protection for control devices such as switching components and relays (option).

EN 54-23 certified (SSM version)

Satisfies EU requirements for fire alarm safety.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Circuit loading stability

24 V AC/DC versions incorporate constant current regulators for stable and efficient system operation.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

Impact resistant housing and lens

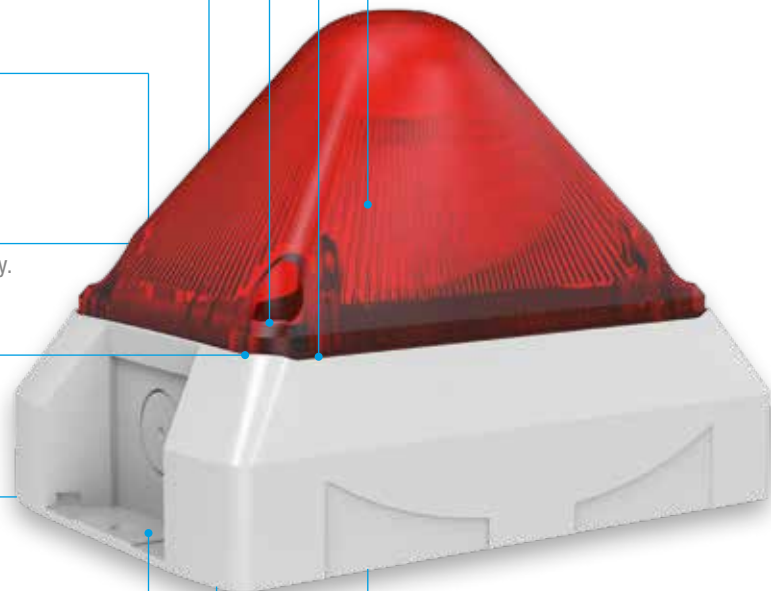
Achieves IK08 impact rating to endure harsh environments.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Flash tube

Xenon strobe generates highly visible light without sensitive filaments. A steel fixing clamp provides additional resistance to shock and vibration.



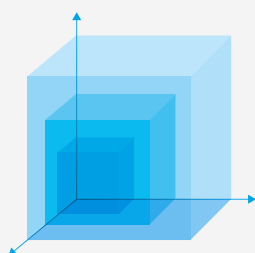
Plug and socket connections

Upper and lower parts combine positively to simplify installation. When separated, electrical hazards are eliminated for handling.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

3D-Coverage performance data, A x B x C



PY X-M-05 | PY X-M-05-SSM

Indicate	56.7 x 28.8 x 61.2 m
Warn	25.2 x 12.8 x 27.2 m
Alarm	12.6 x 6.4 x 13.6 m

PY X-M-10 | PY X-M-10-SSM

Indicate	81 x 45 x 101.7 m
Warn	36 x 20 x 45.2 m
Alarm	18 x 10 x 22.6 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS

IP 66 protection system	IK08 impact-proof housing	+55 °C -40 °C operating temperature	M12 option	UL
EN 54-23 SSM version	VdS SSM version	EAC	10 Years warranty	



PRODUCT	EN 54-23			EN 54-23				
	PY X-M-05		PY X-M-05-SSM	PY X-M-10		PY X-M-10-SSM		
ARTICLE NO.			21550101000	21550811000	21550801005	21551101000	21551811000	21551801005
ARTICLE NO.			21550103000	21550813000	–	21551103000	21551813000	–
ARTICLE NO.			21550104000	21550814000	–	21551104000	21551814000	–
ARTICLE NO.			21550105000	21550815000	21550805005	21551105000	21551815000	21551805005
ARTICLE NO.			21550101055	21550811055	on request	21551101055	21551811055	on request
ARTICLE NO.			21550103055	21550813055	–	21551103055	21551813055	–
ARTICLE NO.			21550104055	21550814055	–	21551104055	21551814055	–
ARTICLE NO.			21550105055	21550815055	on request	21551105055	21551815055	on request

DATA							
Light source	xenon flash tube						
Operating range	187–255 V	AC: 18–30 V DC: 10–57 V	18–30 V	187–255 V	10–57 V	18–30 V	
	AC 50 60 Hz	AC 50 60 Hz / DC	DC	AC 50 60 Hz	DC	DC	
Nominal current consumption	60 mA @ 230 V	AC: 600 mA DC: 280 mA @ 24 V		150 mA @ 230 V	540 mA @ 24 V		
Flash energy and flash rate	5 J @ 1 Hz = 60 flashes/min			10 J @ 1 Hz = 60 flashes/min			
Light intensity (DIN 5037) ¹	56 cd			149 cd			
Max. viewing distance	173 m			283 m			
Operating temperature	–40 ... +55 °C						
Protection system (EN 60529)	IP 66						
Impact resistance as per EN 50102	IK08						
Service life of light source	light emission still 70 % after 8,000,000 flashes						
Material	lens						
	housing	PC/ABS, RAL 3000 PC/ABS, RAL 7035					
Dimensions (X x Y x Z)	166 x 124 x 114 mm						

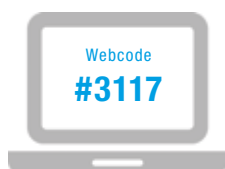
ACCESSORIES	PAGE	ARTICLE NUMBER
Tamper-proof sealings	44	28300000002
Surface gasket	44	28111500000

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

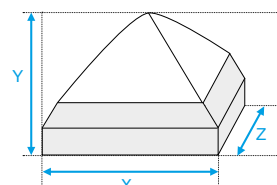
115 V AC.	Choice of lens colours: clear white yellow amber red green blue.	White enclosure.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PYRA X-S Flashing Lights



Plug and socket connections

Upper and lower parts combine positively to simplify installation. When separated, electrical hazards are eliminated for handling.

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

High quality components

Longevity is assured with 70 % light emission even after 8 million flashes.

Panel mounting

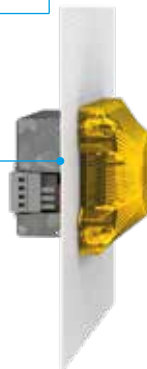
Also suitable for panel mounting.

Captive fasteners

Installation and assembly is simplified and screws cannot get lost.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments.



Safe operation

in all possible thermal (weather) and environmental conditions around the world.

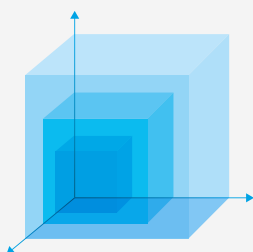
EN 54-23 certified,

and therefore applicable for fire alert.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

3D-Coverage performance data, A x B x C



PY X-S-05

Indicate	45.9 x 39.2 x 50.9 m
Warn	20.4 x 17.4 x 22.6 m
Alarm	10.2 x 8.7 x 11.3 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS



protection system



impact-proof housing



operating temperature



option



UL



24 V DC
48 V DC



24 V DC
48 V DC



warranty

PRODUCT	PY X-S-05			
ARTICLE NO.	21510101000	21510801000	21510101055	21510801055
ARTICLE NO.	21510103000	21510803000	21510103055	21510803055
ARTICLE NO.	21510104000	21510804000	21510104055	21510804055
ARTICLE NO.	21510105000	21510805000	21510105055	21510805055

DATA

Light source	xenon flash tube			
Operating range	184–253 V	18–30 V	184–253 V	18–30 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	55 mA @ 230 V	300 mA @ 24 V	55 mA @ 230 V	300 mA @ 24 V
Flash energy and flash rate	5 J @ 1 Hz = 60 flashes/min			
Light intensity (DIN 5037) ¹	50 cd			
Max. viewing distance	164 m			
Operating temperature	–40 ... +55 °C			
Protection system (EN 60529)	IP 66			
Impact resistance as per EN 50102	IK08			
Service life of light source	light emission still 70 % after 8,000,000 flashes			
Material	lens	polycarbonate (PC)		
	housing	polycarbonate (PC), RAL 3000	polycarbonate (PC), RAL 7035	
Dimensions (X x Y x Z)	109.5 x 85.8 x 80.6 mm			

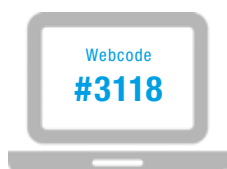
ACCESSORIES	PAGE	ARTICLE NUMBER
Enclosure fitting	44	28300000003
Tamper-proof sealings	44	28300000002
Surface gasket	44	28300000004
Panel mount installation kit	44	28300000010

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

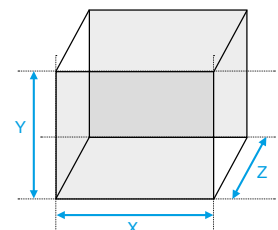
115 V AC 24 V AC 48 V DC 12 V DC.	Choice of lens colours: clear white yellow amber red green blue.	White enclosure.	GL.	CNBOP.	Soft Start Module.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PMF LED Multi- Function Light



xenon versions on page 20 and 84

LED technology – multi-function capability
Durable, low power, high output LEDs with an array of signal action.

Low power consumption
Energy efficient, solid-state design is also shock and vibration tolerant.

Rotating mirror effect
LED's illuminated in a circular chase offer a durable, no-moving-parts alternative to legacy rotating mirror lights.

Inrush current limitation (24 V DC)
As standard with inrush current limitation and flexible wide range power supplies.

Highly insensitive to vibration
with service life exceeding 50,000 hrs.

Day/night switching (LED-HI)
Automatic brightness adjustment to ambient light (day/night switching) can be activated to prevent glare.

Externally controllable operating modes
PMF LED-HI with three different alarms from the same unit:

- blinking light
- flashing light
- rotating beacon effect

 PMF-LED Flex with four different alarms from the same unit:

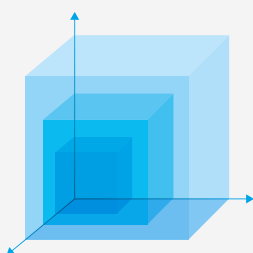
- continuous light
- blinking light
- flashing light
- rotating beacon effect

Energy saving (LED-HI)
Up to 2 out of 4 quadrants can be switched off, energy saving and for directional signalling.

Versatile mounting
choose direct mount for flat surface installation or bracket mount for attachment to walls or pipes.



3D-Coverage performance data, A x B x C



PMF LED-HI

Indicate	64.8 x 166.1 x 166.1 m
Warn	28.8 x 73.8 x 73.8 m
Alarm	14.4 x 36.9 x 36.9 m

PMF-LED Flex

Indicate	11.3 x 62.6 x 62.6 m
Warn	5 x 27.8 x 27.8 m
Alarm	2.5 x 13.9 x 13.9 m

To determine the exact signalling area for your needs, please use the online available Pfanenberg Sizing Software PSS.

LED LIGHTS



protection system



PMF LED-HI



PMF-LED Flex



ultra bright



day/night



inrush current limitation



PRODUCT	PMF LED-HI		PMF-LED Flex	
	direct mounting	bracket mounting	direct mounting	bracket mounting
ARTICLE NO. ●	21155634006	21155634007	21151644006	21151644007
ARTICLE NO. ●	21155635006	21155635007	21151645006	21151645007

DATA

Light source	8 x 2 high performance LEDs			8 x 2 LEDs (3 chip version)			
Operating range	10–30 V			95–253 V	100–350 V		
	DC			AC 50 60 Hz	DC		
Nominal current consumption	@ 1 Hz			max. 300 mA			
	continuous light			60 mA @ 230 V	35 mA @ 220 V		
Operating mode	blinking light	flashing light	rotating all-round light	continuous light	blinking light	flashing light	rotating all-round light
Flash rate of the main flash	1.5 Hz	1 Hz	2.5 Hz	1.5 Hz	1 Hz	2.5 Hz	
Light intensity (DIN 5037) ¹	315 cd, automatically reducible (day/night operation)			27 cd			
Max. viewing distance	411 m			120 m			
Operating temperature	–40 ... +55 °C			–30 ... +55 °C			
Protection system according to EN 60529	IP 55 (vertical mounting)						
Service life of light source	>50,000 hrs						
Material	lens	polycarbonate (PC), fresnel characteristic					
	housing	acrylonitrile butadiene styrene (ABS)	polycarbonate (PC)	acrylonitrile butadiene styrene (ABS)	polycarbonate (PC)		
Dimensions (X x Y + Y2)	Ø 177 x 185 + 0 mm	Ø 130 x 170.5 + 90 mm	Ø 177 x 185 + 0 mm	Ø 130 x 170.5 + 90 mm			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

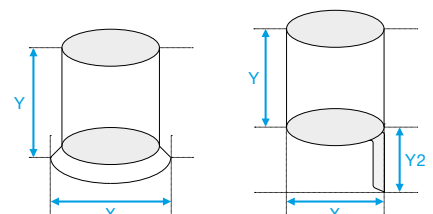
PMF-LED Flex in 24 V AC/DC.	Choice of lens colours: clear amber red green blue.
-----------------------------	---



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



ABL/ABS LED Multi-Function Lights



xenon
versions on
page 22

Extreme bright

Powerful 75 cd (adjustable) LED light with high signalling effect. Selection of several operating modes: continuous light | blinking light | flashing light.

Safe operation

in all possible thermal (weather) and environmental conditions around the world.

IP 54 enclosure rating

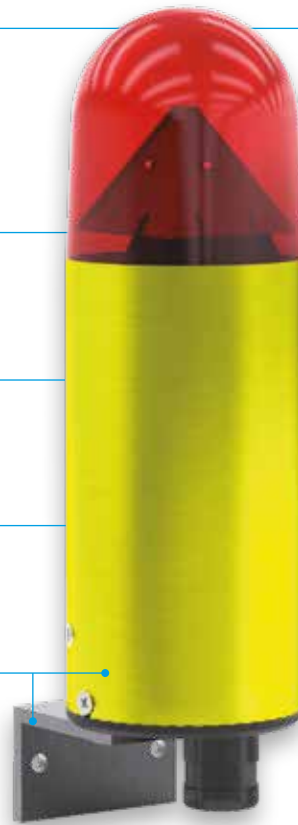
Resistant to shock and vibrations for any indoor and outdoor application.

Safe operation

24 V DC device as standard with inrush current limitation.

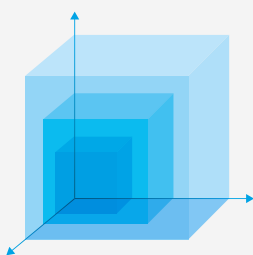
Robust and reliable

With corrosion-resistant anodised aluminium housing and mounting bracket, as well as a high strength polycarbonate lens, the signal light is ideal for tough industrial requirements. Protective metal cage optional available.



Wide range power supplies
as standard for simple and easy worldwide usage.

3D-Coverage performance data, A x B x C



ABL/ABS LED-HI

Indicate	I x I x I m
Warn	W x W x W m
Alarm	A x A x A m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

LED LIGHTS



protection system



operating temperature



brightness adjustable




warranty



VISUAL

PRODUCT		ABL LED-HI	ABS LED-HI
ARTICLE NO.	●	21118643000	21118633000
ARTICLE NO.	●	21118644000	21118634000
ARTICLE NO.	●	21118645000	21118635000

DATA

Light source	LED	
Operating range	90–253 V	11–60 V
	AC/DC	DC
Nominal current consumption (@ 1 Hz flash)	50 mA @ 230 V AC	165 mA @ 24 V DC
Operating modes	continuous light blinking light 1 / 2 Hz flashing light 0.1 / 0.5 / 0.75 / 1 / 2 Hz	
Control of operating mode	internally	internally / externally
Light intensity (DIN 5037) ¹	75 cd (reducible)	
Max. viewing distance	201 m	
Operating temperature	–40 ... +55 °C	
Protection system according to EN 60529	IP 54	
Service life of light source	≥50,000 hrs	
Material	lens	 polycarbonate (PC)
	housing	aluminium (Al Mg Si 1), anodised
	base	polycarbonate (PC) with fibre glass
Dimensions (X x Y x Z)	80 x 242 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER
Protective cage	44	28710500042

For additional models, options and voltages visit www.pfannenber.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

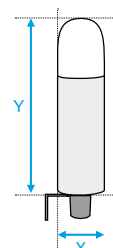
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenber.com



Quadro LED Lights



xenon versions on page 26, 82 and 112

Advanced LED technology

User-adjustable brightness up to 75 cd and selection of several signalling modes: continuous light | blinking light | flashing light.

Safe operation

in all possible thermal (weather) and environmental conditions around the world.

Positive enclosure sealing

Leak path risk is eliminated since the lens fastening screws are located outside the sealing gasket area.

IP 66/67 and IK08 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Inrush current regulator

Provides electrical protection for control devices such as switching components and relays.

Redundant electrical contacts

Provides ease of wiring and daisy-chain connection for multi-unit installations.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.



Wide range power supplies

11–60 V DC and 90–253 V AC and DC!).

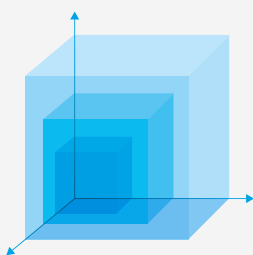
Flexible wiring schemes

Multiple cable and conduit entries ensure easy installation in any orientation.

External selectable operating mode (DC)

Adapt continuous, blinking, and flashing modes to signalling requirements.

3D-Coverage performance data, A x B x C



Quadro LED-HI

Indicate	47.7 x 35.6 x 46.8 m
Warn	21.2 x 15.8 x 20.8 m
Alarm	10.6 x 7.9 x 10.4 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

LED LIGHTS



protection system



impact-proof housing



operating temperature



brightness adjustable



option



warranty



PRODUCT	Quadro LED-HI	
ARTICLE NO. ●	21108643000	21108633000
ARTICLE NO. ●	21108644000	21108634000
ARTICLE NO. ●	21108645000	21108635000

DATA

Light source	LED	
Operating range	90–253 V	11–60 V
	AC/DC	DC
Current consumption (@ 1 Hz flash)	45 mA @ 230 V AC	165 mA @ 24 V DC
Operating modes	continuous light blinking light 1 / 2 Hz flashing light 0.1 / 0.5 / 0.75 / 1 / 2 Hz	
Control of operating mode	internally	internally / externally
Light intensity (DIN 5037) ¹	75 cd (reducible)	
Max. viewing distance	201 m	
Operating temperature	–40 ... +55 °C	
Protection system according to EN 60529	IP 66/67	IP 66/67
Impact resistance as per EN 50102	IK08	
Service life of light source	>50,000 hrs	
Material	lens	/ ● ● ● ● ● ● polycarbonate (PC)
	housing	polycarbonate (PC)
Dimensions (X x Y x Z)	130 x 130 x 130 mm	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

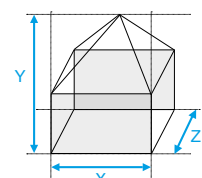
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PD LED Continuous Light



Machinery status light

The complementary pyramid design provides modern aesthetics for the OEM machine builder.

Opaque illumination effect

The coloured lens offers an attractive signal glow and eliminates LED light "hot spots".

For safety-relevant applications, such as x-ray and laser equipment and any other machine.

Rugged LED technology

Shock and vibration tolerant, long service life, reliable operation, zero maintenance, and low power consumption.



LED CONTINUOUS LIGHT



protection system



operating temperature



PRODUCT	PD 2100-LED	
ARTICLE NO.	21120615000	21120605000

DATA

Light source	LED	
Operating range	207–253 V	AC: 18–27 V DC: 19–30 V
Nominal current consumption	12 mA @ 230 V	AC: 115 mA @ 24 V DC: 65 mA @ 24 V
Light intensity (DIN 5037) ¹	5 cd	
Max. viewing distance	52 m	
Operating temperature	–25 ... +45 °C	
Protection system according to EN 60529	IP 55 (if mounted vertically/horizontally)	
Service life of light source	>50,000 hrs	
Material	lens	polycarbonate (PC)
	housing	acrylonitrile butadiene styrene (ABS)
Dimensions (X x Y x Z)	166.2 x 111.2 x 128 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER
Protective cage	44	28710500040

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

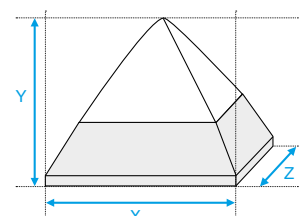
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



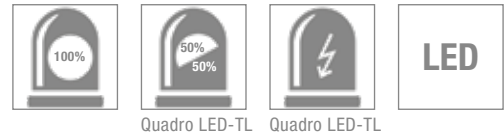
Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



LED Traffic Lights



Quadro LED-TL Quadro LED-TL

Quadro LED-TL

Spectra P 450 TLA

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments

Very bright LED

Face-on LEDs provide far-reaching signals for traffic control and machinery feedback applications.

Mounting

Mounted using external lugs or internal holes that do not impair the IP protection; mounting can be performed in any direction.

Adjustable steady, blinking or flashing light function

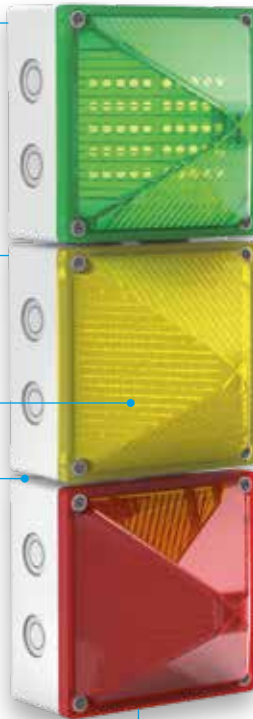
provides indication of special operating conditions, e. g. on cranes or machines.

Optional dimmer:

Light sensor provides automatic attenuation of light intensity for glare avoidance during night time operation.

Field of application examples

Traffic routing in non-public areas, conveyer and storage systems, crane safety, container handling systems.

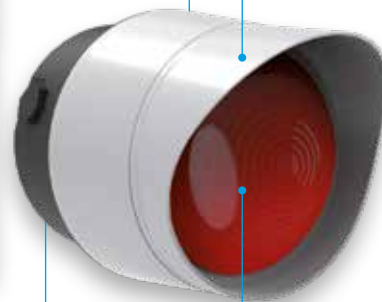


Robust construction

LED technology provides high tolerance to shock and vibration. High quality plastic housing offers corrosion resistance.

Glare protection

Visor shields against sunlight interference.



Highly visible

Clear prismatic lenses and coloured LEDs offer a high degree of signal perception even in daylight and bright surroundings.

Optional mounting bracket

Creates multi-unit signal light array and provides alignment adjustability.

TRAFFIC LIGHTS



Quadro LED-TL



P 450 TLA



Quadro LED-TL



Light sensor optional
Quadro LED-TL



Quadro LED-TL



P 450 TLA



PRODUCT	Quadro LED-TL		P 450 TLA	
ARTICLE NO.	21106640008	21106630008	-	-
ARTICLE NO.			21355645000	21355635000
ARTICLE NO.			21355646000	21355636000

DATA

Light source	4 high performance LEDs each		high output LED array	
Operating range	90–253 V	11–60 V	90–253 V	10–30 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	3x 45 mA @ 230 V AC	3x 165 mA @ 24 V DC	15–40 mA	175 mA
Light intensity (DIN 5037)	>75 cd (reducible)		60 cd	
Max. viewing distance	201 m		180 m	
Operating temperature	-40 ... +55 °C		-25 ... +50 °C	
Protection system according to EN 60529	IP 66		IP 65	
Impact resistance as per EN 50102	IK08			
Service life of light source	>50,000 hrs			
Material	lens	polycarbonate (PC), UV resistant	polycarbonate (PC), UL 94 V0 f1	
	housing	polycarbonate (PC), UV resistant	polycarbonate (PC), UL 94 V0 f1	
Dimensions (X x Y x Z)	396 x 130 x 130 mm		140 x 177 x 140 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER	
Enclosure fitting	45	28112000003	-
Wall brackets	45	-	21399000000

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Models with alternative features available upon request

Quadro LED-TL available as single-element light fixtures in green, amber, or red which may be combined to create multi stage traffic signals or operator feedback lighting.

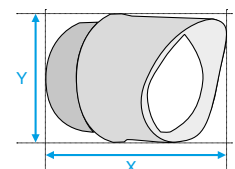
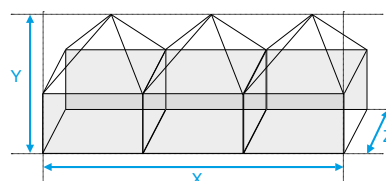
P 450 TLA available as single-element light fixtures in green, amber, or red which may be combined to create multi stage traffic signals or operator feedback lighting.



Comprehensive technical documentation such as

- operating instruction, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



POL LED Obstacle Lights



LED obstacle lights

AVV approved, compliant to ICAO, Annex 14, Volume 1, Chapter 6.

Omnidirectional LED array

Light radiation of 360° offers superb marking of aviation obstructions for night time and twilight safety.

Optional redundancy for added safety:

Incorporates dual LEDs and circuitry to eliminate the need for backup or redundant fixtures.

Automatic switching over

to standby light in case of error or by means of external control system.

Self-monitoring

Integrated functional fault monitoring with dry contact relay permits automatic switchover to backup lighting.

Maintenance free

Shock and vibration tolerant LEDs provide a service life in excess of 50,000 hrs.

Breathable membrane

Integrated within the cable gland to prevent condensation.

Optional plug contact

For simplified installation.



Several versions to serve specific needs

POL 10-M-RA	POL 32-M
10 cd intensity, integrated fault monitoring, redundant LED array, automatic switchover.	32 cd intensity, integrated fault monitoring.
Low intensity ICAO type A, AVV.	Low intensity ICAO type B.

LED OBSTACLE LIGHTS



POL 10



protection system



operating temperature



redundant



option



PRODUCT	POL 10-M-RA		POL 32-M		
ARTICLE NO.		21105641010	21105631010	21105681005	21105671005
DATA					
Light source	LED array (red)				
Operating range	85–265 V		9.6–28.8 V		85–265 V
	AC 50 60 Hz		DC		AC 50 60 Hz
Current consumption, determined arithmetically	60 mA @ 115 V 40 mA @ 230 V		600 mA @ 12 V 350 mA @ 24 V		96 mA @ 115 V 45 mA @ 230 V
Version	monitored, redundant			monitored	
Light intensity (DIN 5037)	18 cd			32 cd	
Light colour	aviation red				
Beam angle	vertical	approx. ±35°			
	horizontal	360°			
Operating temperature	–40 ... +55 °C				
Protection system according to EN 60529	IP 68				
Service life of light source	>50,000 hrs				
Material	lens	polycarbonate (PC)			
	base	polybutylene terephthalate (PBT)			
Dimensions (X x Y)	118 x 240 mm				
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.					

Models with alternative features available upon request

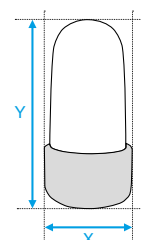
48 V DC.	POL 10-M: 10 cd, monitored.	POL 10-M-R: 10 cd intensity, integrated fault monitoring, redundant LED array, relay contact for external switchover.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Accessories

PROTECTIVE CAGES

For safeguarding the lenses of signal lights against impact from foreign objects. Particularly useful for use on lights installed onto vehicles and fork lifts.

Detailed technical information:



SUITABLE FOR ...	PD	WBL WBS	ABL ABS WBL-M WBS-M
ARTICLE NO.	287105000040	28710500041	28710500042

DATA

Material	steel, powder-coated
Colour	white, similar to RAL 9016

ACCESSORIES PYRA® FLASHING LIGHTS

Detailed technical information:



Enclosure fitting



Surface gasket



Tamper-proof sealing



Panel mount installation kit

PRODUCT		PY X-S	PY X-M	PY X-L
Enclosure fitting	Used for combining multiple PYRA® lights together or installing one device to an electrical enclosure.	28300000003	–	
Surface gasket	For use when surface mounting to an electrical enclosure to maintain the IP rating of the enclosure.	28300000004	28111500000	28111500002
Tamper-proof sealing (pack of 4)	Inserts into the head of the plastic 3/8-turn fasteners of PYRA® devices to disable access to internal components.	28300000002		
Panel mount installation kit	Permits flush mounting of PYRA® lights to enclosure panels through a rectangular cutout. Includes mating electrical connector and mounting hardware.	28300000010	28112000019	

ACCESSORIES TRAFFIC LIGHTS

Detailed technical information:



Enclosure fitting



Wall bracket RAB



Wall bracket TMB

PRODUCT		QUADRO LED-TL	P 450 TLA
Enclosure fitting	For connection (daisy-chaining) of several traffic lights Quadro LED-TL.	28112000003	–
P 400 RAB001 Wall bracket	Wall mount bracket for SPECTRA lights.	–	21394000000
P 450 TMB-2 Wall bracket set for combinations of 2 or 3 lights	Metal wall mount bracket for SPECTRA traffic lights and combinations.	–	21397000000
P 450 TMB-1 Wall bracket for single mounting		–	21399000000

Audible signalling notification appliances.



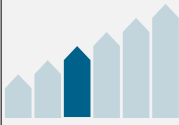

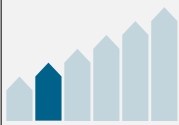

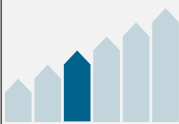



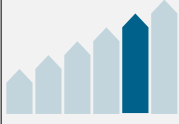


Our range of audible signaling devices for all industrial areas of application.

A baby's cry, cars sounding their horns, the front door bell – acoustic signals are part of our life right from the very beginning. All over the world. Everybody who hears a loud acoustic signal feels called upon to act in some way, regardless of the situation.

On the basis of these conditions, the use of acoustic signaling devices is also of great advantage in the industrial sector. Malfunctions are reported immediately, dangerous situations are displayed without delay. Benefit from our wide range of acoustic signaling devices, which are guaranteed to draw the necessary attention in your company – when it really matters.

Protecting man, machine and the environment.

Audible signaling devices at a glance




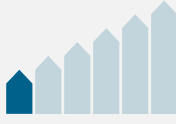

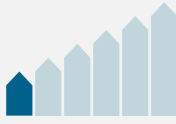
TYPE	3D-COVERAGE LEVEL	MAX. SOUND PRESSURE LEVEL	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS						PAGE
					GL	MED	EAC	UL	EN 54-3	VdS	
SOUNDERS											
 DS 5		108 dB(A)	IP 66 IP 67 IK08	133.5 x 133.5 x 143	● ¹		●	● ¹	●	●	50
 DS 10		114 dB(A)	IP 66 IP 67 IK08	133.5 x 133.5 x 143	● ¹		●	● ¹	●	●	
 PA 1		105 dB(A)	IP 66 IK08 NEMA 4/4X	86 x 109.5 x 80.6	● ¹	● ¹	●	●	●	●	52
 PA 5		107 dB(A)	IP 66 IK08 NEMA 4/4X	135 x 163.4 x 132	● ¹	● ¹	●	●	●	●	
 PA 10		117 dB(A)	IP 66 IK08 NEMA 4/4X	170 x 214 x 156	● ¹	● ¹	●	●	●	●	
 PA 20		122 dB(A)	IP 66 IK08 NEMA 4/4X	170 x 214 x 181	● ¹	● ¹	●	●	●	●	
 PA 130		132 dB(A)	IP 54	285 x 490 x 595			●				56

● available
○ pending
¹ option

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use.

Unless specified otherwise, sound pressure level is measured at a 1 m distance.

Audible signaling devices at a glance

TYPE	3D-COVERAGE LEVEL	MAX. SOUND PRESSURE LEVEL	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS						PAGE
					GL	MED	EAC	UL	EN 54-3	VdS	
ELECTRONIC BUZZERS											
 P 22 DBZ		80 dB(A) @ 10 cm	IP 40	Ø 29 x 62			●				57
 P 28 DMC301		91 dB(A)	IP 65	Ø 35.8 x 38.2			●				
 P 28 DMB530		91 dB(A)	IP 65	Ø 35.8 x 38.2			●				

● available
○ pending
¹ option

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use.

Unless specified otherwise, sound pressure level is measured at a 1 m distance.

DS Sounders

Die-cast aluminium housing

Resistant to UV light, seawater, and many chemicals. Sturdy construction resists vandalism to ensure a high degree of functional safety.

Selectable audible notification

Choice of 32 unique alarm tones with three stages of tone control for distinctive signalling of specific events.

Choice of output levels

Versions for 108 dB(A) and 114 dB(A) sound pressure levels to suit a variety of signal coverage needs.

Strong, metal mounting lugs

Ensures a safe and secure installation onto many types of surfaces.

Electromagnetic sound capsule technology

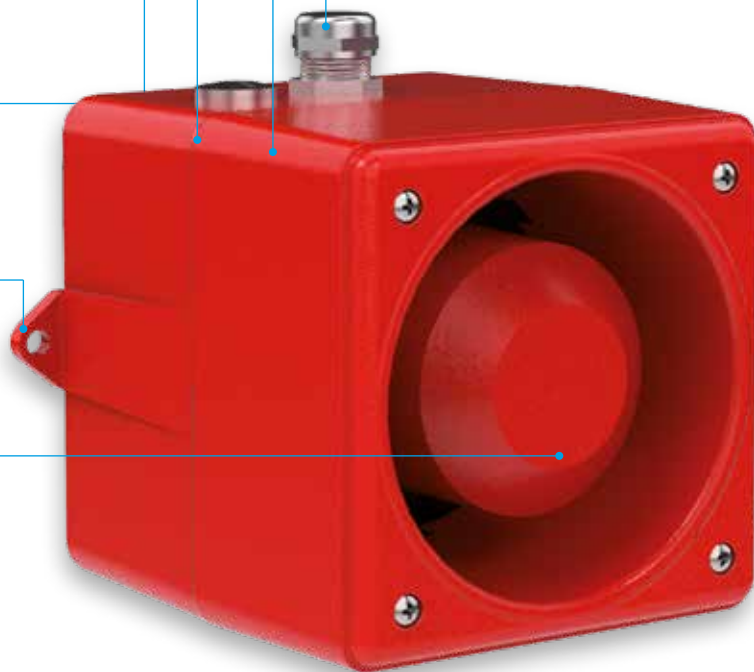
Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

IP 66/67 enclosure rating

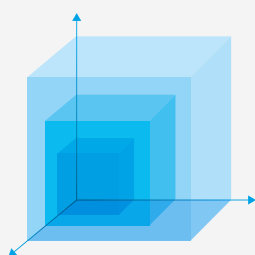
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Stainless steel cable gland

Included to ensure a high degree of electrical connection integrity.



3D-Coverage performance data, A x B x C



DS 5

80 dB(A)	23.1 x 27.5 x 23.1 m
85 dB(A)	13 x 15.5 x 13 m
90 dB(A)	7.3 x 8.8 x 7.3 m

DS 10

80 dB(A)	33.4 x 43.7 x 33.4 m
85 dB(A)	18.8 x 24.5 x 18.8 m
90 dB(A)	10.6 x 13.8 x 10.6 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

SOUNDERS



protection system



operating temperature



acoustic penetration



DS 5



option: external tone selection



EN 54-3



VdS G28609



option



option



EAC



warranty

PRODUCT	DS 5		DS 10	
ARTICLE NO.	23106100000	23106800000	23111100000	23111800000
DATA				
Operating range	195–253 V	19–29 V	195–253 V	19–29 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	0.06 A @ 230 V	0.28 A	0.06 A @ 230 V	0.42 A
Max. sound pressure level	108 dB(A)		114 dB(A)	
Sound pressure level @ DIN tone	107 dB(A)		112 dB(A)	
Sound level reduction	–20 dB via potentiometer (option)			
Alarm tones	32 / 4 tones are externally selectable, tone table on page 61			
Operating temperature	–40 ... +55 °C			
Protection system according to EN 60529	IP 66/67			
Material	die-cast aluminium GD-Al Si12 Cu			
Surface coating	epoxy resin paint			
Cable bushing	2x M20 (1x chrome-plated brass cable fitting, 1x chrome-plated brass blanking plug)			
Dimensions (X x Y x Z)	133.5 x 133.5 x 143 mm			
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.				

Models with alternative features available upon request

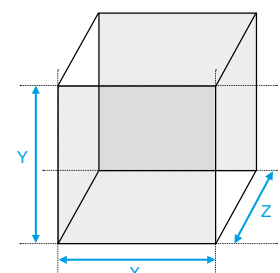
115 V AC.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PA Sounders

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Plug and socket connections

Upper and lower parts combine positively to simplify installation. When separated, electrical hazards are eliminated for handling.

Selectable audible notification

Choice of 80 unique alarm tones with four stages of tone control for distinctive signalling of specific events.

Electromagnetic sound capsule technology

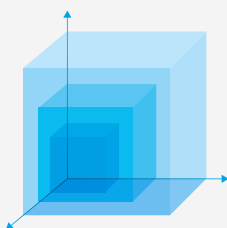
Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.



3D-Coverage performance data, A x B x C



To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

PA 1

80 dB(A)	16 x 13.8 x 16 m
85 dB(A)	9 x 7.8 x 9 m
90 dB(A)	5.1 x 4.4 x 5.1 m

Captive fastener

Installation and assembly is simplified and screws cannot get lost.

Impact resistant housing

Achieves IK08 impact rating to endure harsh environments.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.



Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

PA 5

80 dB(A)	14.1 x 18.1 x 14.1 m
85 dB(A)	7.9 x 10.2 x 7.9 m
90 dB(A)	4.4 x 5.7 x 4.4 m

PA 10

80 dB(A)	52.8 x 73.3 x 52.8 m
85 dB(A)	29.7 x 41.2 x 29.7 m
90 dB(A)	16.7 x 23.2 x 16.7 m



PA 20




80 dB(A)	85.6 x 97.7 x 85.6 m
85 dB(A)	48.1 x 55 x 48.1 m
90 dB(A)	27.1 x 30.9 x 27.1 m

SOUNDERS

 IP 66 protection system	 IK08 impact-proof housing	 +55 °C -40 °C operating temperature	 acoustic penetration	 external tone selection
 inrush current limitation	 M12 option PA 5	 EN 54-3 24–48 V DC	 VdS 24–48 V DC	 UL
 GL option	 MED option	 CNBOP option	 EAC	 10 Years warranty



PRODUCT	PA 1		PA 5	
ARTICLE NO. 	23310100000	23310630000	23350100000	23350630000
ARTICLE NO. 	23310100055	23310630055	23350100055	23350630055

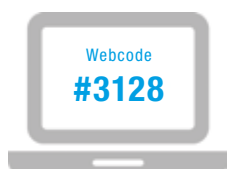
DATA				
Operating range	195–253 V	10–57 V	195–253 V	10–57 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	9–15 mA @ 230 V	6–80 mA	9–15 mA @ 230 V	6–80 mA
Max. sound pressure level	105 dB(A)		107 dB(A)	
Sound pressure level @ DIN tone	104 dB(A)		105 dB(A)	
Sound level reduction	max. –12 dB via potentiometer			
Alarm tones	80 / 4 tones are externally selectable, tone table on page 62/63			
Operating temperature	–40 ... +55 °C			
Protection system (EN 60529)	IP 66			
Material	PC / ABS blend similar to RAL 3000  RAL 7035  RAL 9003 			
Dimensions (X x Y x Z)	109.5 x 86 x 80.6 mm		163.4 x 135 x 132 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER	
Enclosure fitting	58	28300000003	
Surface gasket	58	28300000004	28300000005
Tamper-proof sealings	58	28300000002	
Panel mount installation kit	58	28300000007	28300000008

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Models with alternative features available upon request

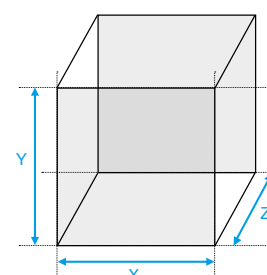
115 V AC.



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SOUNDER

 IP 66 protection system	 IK08 impact-proof housing	 +55 °C -40 °C operating temperature	 acoustic penetration	 external tone selection
 inrush current limitation	 M12 option PA 10	 EN 54-3 24–48 V DC	 VdS 24–48 V DC	 UL
 GL option	 MED option	 CNBOP option	 EAC	 10 Years warranty






PA 10

PA 20

PRODUCT	PA 10		PA 20	
ARTICLE NO. 	23360640000	23360630000	23370640000	23370630000
ARTICLE NO. 	23360640055	23360630055	23370640055	23370630055

DATA

Operating range	95–265 V	10–60 V	95–265 V	10–60 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	20–115 mA @ 230 V	60–485 mA	75–330 mA @ 230 V	120–880 mA
Max. sound pressure level	117 dB(A)		120 dB(A)	
Sound pressure level @ DIN tone	115 dB(A)		120 dB(A)	
Sound level reduction	max. –12 dB via potentiometer			
Alarm tones	80 / 4 tones are externally selectable, tone table on page 62/63			
Operating temperature	–40 ... +55 °C			
Protection system (EN 60529)	IP 66			
Material	PC / ABS blend similar to RAL 3000  RAL 7035  RAL 9003 			
Dimensions (X x Y x Z)	214 x 170 x 156 mm		214 x 170 x 181 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER
Enclosure fitting	58	28300000003
Surface gasket	58	28300000006
Tamper-proof sealings	58	28300000002
Panel mount installation kit	58	28300000009

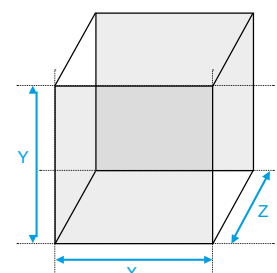
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



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SOUNDER



protection system



operating temperature



external tone selection



132 dB(A) sounder

Provides wide area notification in open spaces or in very loud ambient conditions. Suitable for use in civil defence warning systems.

Selectable audible notification

Choice of 80 unique alarm tones with nine stages of tone control for distinctive signalling of specific events.

Integrated self-monitoring,

Versatile self-test functions including fault detection relay and switchable 4.7 kΩ terminal resistor for cable integrity monitoring.



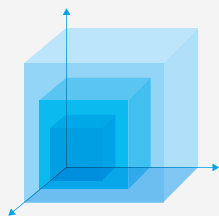
IP 54 enclosure rating

Suitable for use in all weather conditions due to the provided protection against water and dust.

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use. Unless specified otherwise, sound pressure level is measured at a 1 m distance.

PRODUCT		PA 130	
ARTICLE NO.		23026100000	23026910000
DATA			
Rated voltage		230 V	20–60 V
		AC 50 60 Hz	DC
Operating range		–25 % / +15 %	20–60 V
Nominal current consumption		1 A	4 A
Max. sound pressure level		132 dB(A)	
Sound pressure level @ DIN tone		130 dB(A)	
Alarm tones		80, incl. DIN tone	
Remote controlled tones		9 tones, externally controllable	
Operating temperature		–20 ... +50 °C	
Protection system according to EN 60529		IP 54	
Material	housing – horn	MOPLen plastic	
	housing – circuitry	aluminium, painted	
Dimensions (X x Y x Z)		490 x 285 x 595 mm	
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.			

3D-Coverage performance data, A x B x C



PA 130

80 dB(A)	213.6 x 286.9 x 213.6 m
85 dB(A)	120.1 x 161.3 x 120.1 m
90 dB(A)	67.6 x 90.7 x 67.6 m

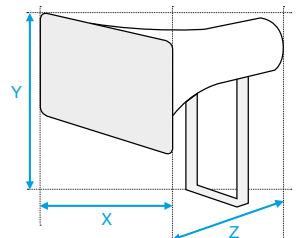
To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.



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PANEL MOUNT BUZZERS



P 22



P 28



P 22



P 28



Piezo buzzer with screw terminal connections
High output device for local machinery status alerts.



22 mm or 28 mm standard mounting
Diameter matches many common components. Ease of installation into control panel systems.

Variety of signal types
Continuous and pulsating tone.

IP 65 device and mount
With appropriate gasket. Wash-down capable.

Volume adjuster
Also available with easily adjustable volume control.



PRODUCT	P 22 DBZ		P 28 DMC301	P 28 DMB530
ARTICLE NO.	23270100000	23270800000	23260110000	23265800000

DATA

Rated voltage	230 V	24 V AC/DC	230 V	30 V
	AC 50 60 Hz	AC/DC	AC 50 60 Hz	DC
Operating range	±15 %		130–230 V	5–30 V
Nominal current consumption	15–30 mA		20 mA @ 130 V 40 mA @ 220 V	2 mA @ 5 V 20 mA @ 30 V
Tone frequency	2400 Hz		2900 Hz	2900 Hz
Operating mode	pulsating tone (1 Hz)		continuous tone	continuous tone / pulsating tone (1 Hz)
Max. sound pressure level	80 dB(A) @ 10 cm		91 dB(A) @ 230 V	91 dB(A) @ 30 V
Sound level reduction			–20 dB	
Operating temperature	–25 ... +50 °C		–25 ... +65 °C	
Protection system according to EN 60529	IP 40		IP 65	
Material	housing	polycarbonate (PC)	plastic NORYL® N-190, UL 49-V0	
Mounting		panel mounting Ø 22.5 mm max. 7 mm thickness	panel mounting Ø 28.6 mm max. 6.3 mm thickness	
Dimensions (X x Y)		Ø 29 x 62 mm	Ø 35.8 x 38.2 mm	

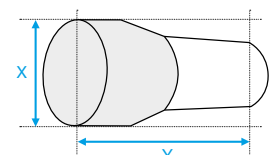
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.



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can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Accessories

ACCESSORIES PATROL SOUNDERS

Detailed technical information:



Enclosure fitting



Surface gasket



Tamper-proof sealing



Panel mount installation kit

PRODUCT		PA 1	PA 5	PA 10 / PA 20
Enclosure fitting	Used for combining several PATROL devices together or installing one device to an electrical enclosure.	28300000003		
Surface gasket	For use when surface mounting to an electrical enclosure to maintain the IP rating of the enclosure.	28300000004	28300000005	28300000006
Tamper-proof sealing (pack of 4)	Inserts into the head of the plastic 3/8-turn fasteners of PATROL devices to disable access to internal components.	28300000002		
Panel mount installation kit	Permits flush mounting of PATROL devices to enclosure panels through a rectangular cutout. Includes mating electrical connector and mounting hardware.	28300000007	28300000008	28300000009

Tone table DS 5 | DS 10

NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE		
		2	3	4
0	no tone		2 88	57
2 ¹	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP		128	112 57
15	Slow whoop, evacuation alarm Netherlands NEN 2575		131	54 112
23	Siren		24	60 112
24	Siren		55	23 131
26	Siren (industrial alarm Germany – Hoechst –)		2	100 93
31	Sweeping, France NF C 48-265		128	54 57
32	selection of available tone combinations in stages 2, 3 and 4			
36	Sweeping		146	67 57
45	Sweeping		2	57 93
54	Continuous tone, Finland (all-clear signal)		2	57 67
55	Continuous tone, PFEER gasalarm		2	88 128
57	Continuous tone, UK BS 5839-1		2	128 88
60	Continuous tone		24	93 125
63	Continuous tone		2	97 93
67	Continuous tone, Germany KTA 3901 (all-clear signal)		24	93 125
88	Interrupted tone		2	57 128

¹ factory setting

NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE		
		2	3	4
90	Interrupted tone		2	127 108
92	Interrupted tone		131	146 57
93	Interrupted tone (fast), horn		2	128 57
97	Interrupted tone		2	63 93
98	Interrupted tone, Sweden SS 031711 (emergency signal)		112	128 57
100	Interrupted tone, industrial alarm Germany		2	57 125
108	Interrupted tone		2	127 60
112	Interrupted tone, ISO 8201 (emergency evacuation signal)		2	57 128
116	Interrupted tone, IMO (leave ship)		117	93 125
117	Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)		93	116 125
125	Alternating tone		57	93 24
127	Alternating tone		2	90 60
128	Alternating tone UK fire alarm		2	112 57
131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)		24	55 23
142	Alternating tone		2	54 88
146	Alternating tone, France NFS 32-001 (fire alarm)		128	67 57

Tone table PA 1 | PA 5 | PA 10 | PA 20

NO.	DESCRIPTION		NO.	DESCRIPTION	
1	no tone		57	Continuous tone, UK BS 5839-1	950 Hz
2	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	1200 Hz 500 Hz 	59	Continuous tone	880 Hz
9	Slow whoop, fire alarm, UK BS 5839-1	970 Hz 800 Hz 	60	Continuous tone	825 Hz
11	Interrupted tone (fast)	970 Hz 800 Hz 	61	Continuous tone	800 Hz
13	Interrupted tone	900 Hz 700 Hz 	63	Continuous tone	725 Hz
15	Slow whoop, evacuation alarm Netherlands NEN 2575	1200 Hz 500 Hz 	65	Continuous tone, Sweden SS 031711 (all-clear signal)	660 Hz
16	Slow whoop, Australian evacuation alarm AS 2220	1200 Hz 500 Hz 	66	Continuous tone	554 Hz
18	Slow whoop, NFPA	775 Hz 422 Hz 	67	Continuous tone, Germany KTA 3901 (all-clear signal)	500 Hz
22	Whoop, Australien alert AS 1670, ISO 8201	1200 Hz 500 Hz 	68	Continuous tone	470 Hz
23	Siren	2400 Hz 500 Hz 	69	Continuous tone	440 Hz
24	Siren	1200 Hz 300 Hz 	71	Continuous tone	340 Hz
25	Siren	800 Hz 300 Hz 	77	Interrupted tone	2200 Hz
26	Siren (industrial alarm Germany – Hoechst –)	1000 Hz 150 Hz 	82	Interrupted tone, PFEER (general alarm), UK BS 5839-1 (back-up alarm)	1000 Hz
27	Sweeping	2900 Hz 2400 Hz 	83	Interrupted tone, PFEER (general alarm)	1000 Hz
29	Sweeping (fast)	2900 Hz 2400 Hz 	88	Interrupted tone	950 Hz
30	Sweeping	2900 Hz 2400 Hz 	90	Interrupted tone	825 Hz
31	Sweeping, France NF C 48-265	1600 Hz 1400 Hz 	91	Interrupted tone	800 Hz
33	Sweeping (medium), UK BS 5839-1	1000 Hz 800 Hz 	92	Interrupted tone	800 Hz
34	Sweeping (fast)	1000 Hz 800 Hz 	93	Interrupted tone (fast), horn	800 Hz
35	Sweeping (fast), UK BS 5839-1	1000 Hz 800 Hz 	97	Interrupted tone	725 Hz
36	Sweeping	1500 Hz 700 Hz 	98	Interrupted tone, Sweden SS 031711 (emergency signal)	700 Hz
43	Sweeping	1200 Hz 500 Hz 	100	Interrupted tone, industrial alarm Germany	680 Hz
44	Sweeping, IMO 3d, Germany KTA 3901 evacuation alarm	1200 Hz 500 Hz 	101	Interrupted tone, Sweden SS 031711 (important message (pre-mess))	660 Hz
45	Sweeping	1200 Hz 500 Hz 	102	Interrupted tone, Sweden SS 031711 (local warning)	660 Hz
46	Sweeping, general alarm Finland	1500 Hz 500 Hz 	103	Interrupted tone, Sweden SS 031711 (air raid warning)	660 Hz
52	Continuous tone	2400 Hz	104	Interrupted tone, Sweden SS 031711 (emergency signal)	660 Hz
53	Continuous tone	2000 Hz	107	Interrupted tone, Germany KTA 3901 (evacuation alarm)	500 Hz
54	Continuous tone, Finland (all-clear signal)	1500 Hz	109	Interrupted tone, Australia AS 2220, AS 1610, AS 1670	420 Hz
55	Continuous tone, PFEER gasalarm	1200 Hz	110	Interrupted tone, (fast variable), bell	1450 Hz
56	Continuous tone	1000 Hz	111	Interrupted tone, ISO 8201 (emergency evacuation signal), USA (evacuation alarm)	470 Hz
			112	Interrupted tone, ISO 8201 (emergency evacuation signal)	950 Hz
			113	Interrupted tone, ISO 8201 (emergency evacuation signal), sweeping	2850 Hz

NO.	DESCRIPTION	
115	Interrupted tone, IMO (telephone call)	
116	Interrupted tone, IMO (leave ship)	
117	Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)	
122	Alternating tone	
123	Alternating tone	
124	Alternating tone, Singapore	
125	Alternating tone	
128	Alternating tone	
130	Alternating tone, UK BS 5839-1 (fire alarm)	

NO.	DESCRIPTION	
131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)	
135	Alternating tone, UK BS 5839-1 (fire alarm, increased urgency – railway crossing)	
142	Alternating tone	
143	Alternating tone, industrial alarm Germany	
144	Alternating tone	
146	Alternating tone, France NFS 32-001 (fire alarm)	
147	Alternating tone, Sweden SS 031711	
148	Alternating tone, Sweden SS 031711	
152	Alternating tone (two tone chime)	

Control of the tones PA 1 | PA 5 | PA 10 | PA 20

DIP-SWITCH (SETTING OF BASIC TONE)							EXTERNAL TONE SELECTION		
1	2	3	4	5	6	BASIC TONE	C1	C2	C1+C2
TONE NO.									
						1	2	88	57
ON						2 *	128	112	57
	ON					2	26	100	93
ON	ON					2	61	131	112
		ON				9	57	11	82
ON		ON				15	131	52	112
	ON	ON				16	109	52	56
ON	ON	ON				18	111	57	68
			ON			22	16	109	68
ON			ON			23	131	52	112
	ON		ON			24	131	52	131
ON	ON		ON			25	131	52	92
		ON	ON			26	2	100	93
ON	ON	ON				27	123	52	92
	ON	ON				29	35	52	61
ON	ON	ON				30	27	52	77
				ON		31	131	52	57
ON				ON		33	30	52	35
	ON			ON		34	35	52	93
ON	ON			ON		35	27	52	110
		ON		ON		36	146	67	57
ON		ON		ON		43	131	52	91
	ON	ON		ON		45	2	57	93
ON	ON	ON		ON		52	15	65	82
			ON	ON		54	46	54	131
ON			ON	ON		55	131	52	128
	ON		ON	ON		56	82	35	33
ON	ON		ON	ON		59	143	59	101
			ON	ON		60	131	52	125
ON		ON	ON	ON		65	131	52	93
	ON	ON	ON	ON		66	110	52	107
ON	ON	ON	ON	ON		69	131	52	110

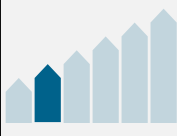

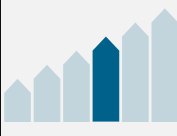

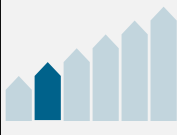
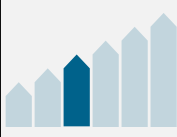
* factory setting

DIP-SWITCH (SETTING OF BASIC TONE)							EXTERNAL TONE SELECTION			
1	2	3	4	5	6	BASIC TONE	C1	C2	C1+C2	
TONE NO.										
						ON	71	131	52	93
ON						ON	77	61	52	122
	ON					ON	82	131	52	83
ON	ON					ON	83	56	2	82
		ON				ON	88	2	57	128
ON		ON				ON	90	131	52	125
	ON	ON				ON	91	30	52	110
ON	ON	ON				ON	92	33	52	57
			ON			ON	93	2	128	57
ON			ON			ON	97	2	63	93
	ON		ON			ON	100	131	52	125
ON	ON		ON			ON	101	98	102	65
		ON	ON			ON	103	131	65	147
ON		ON	ON			ON	104	103	65	101
	ON	ON	ON			ON	109	16	52	22
ON	ON	ON				ON	110	131	61	91
				ON		ON	112	2	57	128
ON				ON		ON	113	52	123	104
	ON			ON		ON	115	117	116	44
ON	ON			ON		ON	116	117	93	125
		ON		ON		ON	117	93	116	125
ON		ON		ON		ON	123	27	52	77
	ON	ON		ON		ON	124	53	83	2
ON	ON	ON		ON		ON	130	2	107	67
			ON	ON		ON	131	2	112	57
ON			ON	ON		ON	135	16	56	109
	ON		ON	ON		ON	142	2	54	88
ON	ON		ON	ON		ON	143	59	93	33
		ON	ON	ON		ON	144	110	61	2
ON		ON	ON	ON		ON	146	31	67	57
	ON	ON	ON	ON		ON	148	131	52	92
ON	ON	ON	ON	ON		ON	152	110	61	13

Signals for both sight
and sound improve
notification effectiveness.



Combined visual-audible signaling devices at a glance

	TYPE	3D-COVERAGE LEVEL	MAX. SOUND PRESSURE LEVEL LIGHT POWER	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS						PAGE		
						GL	MED	EAC	UL	EN 54-3	EN 54-23		VdS	
	PY X-LA-15		103 dB(A) 15 J	IP 66 IK08	144 x 216 x 172			●	●					64
	PY X-MA-05		101 dB(A) 5 J	IP 66 IK08	134.2 x 166 x 114			●	●					66
	PY X-MA-10		101 dB(A) 10 J	IP 66 IK08	134.2 x 166 x 114			●	●					
	DSF 5		108 dB(A) 13 J	IP 66/67 IK08	263.5 x 133.5 x 143			●						68
	DSF 10		114 dB(A) 13 J	IP 66/67 IK08	263.5 x 133.5 x 143			●						
	PA X 1-05		105 dB(A) 5 J	IP 66 IK08	172.4 x 109.5 x 80.6	● ²	● ²	●	●	●	●	●		70
	PA X 5-05		107 dB(A) 5 J	IP 66 IK08	215 x 163.4 x 132	● ²	● ²	●	●					
	PA X 10-10		117 dB(A) 10 J	IP 66 IK08	270 x 214 x 156	● ²	● ²	●	●					70
	PA X 20-15		122 dB(A) 15 J	IP 66 IK08	270 x 214 x 181	● ²	● ²	●	●					

● available
○ pending
² option

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use.

Unless specified otherwise, sound pressure level is measured at a 1 m distance.

PYRA X-LA Flashing Light Sounders



Powerful flashing light with sounder

14 joules flash energy with a 103 dB(A) sounder in an attractive design.

Selectable output signals

On-board selection of 4 different light flash rates and 8 different acoustic alarm tones (tone table on page 77).

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Independent signalling

Visual and acoustic signal outputs can be controlled separately.

Circuit loading stability

24 V DC version incorporate constant current regulators for stable and efficient system operation.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

Synchronised operation

of several lights according to EN 54-23.

Redundant electrical contacts

Provides ease of wiring and daisy-chain connection.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments.



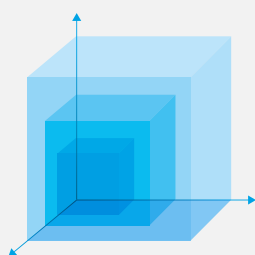
Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

3D-Coverage performance data, A x B x C



PY X-LA-15		
AUDIBLE	75 dB(A)	8.2 x 8.4 x 13.4 m
	80 dB(A)	4.6 x 4.7 x 7.6 m
	85 dB(A)	2.6 x 2.6 x 4.2 m

VISUAL	Indicate	108 x 70.2 x 112.5 m
	Warn	48 x 31.2 x 50 m
	Alarm	24 x 15.6 x 25 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHT SOUNDERS



protection system



impact-proof housing



operating temperature



option 24 V DC



warranty



PRODUCT	PY X-LA-15		
ARTICLE NO.	● ●	21565103000	21565803000
ARTICLE NO.	● ●	21565104000	21565804000
ARTICLE NO.	● ●	21565105000	21565805000
ARTICLE NO.	● ●	21565103055	21565803055
ARTICLE NO.	● ●	21565104055	21565804055
ARTICLE NO.	● ●	21565105055	21565805055

DATA			
Operating range		187–255 V	19.2–28.8 V
		AC 50 60 Hz	DC
Nominal current consumption	flashing light	150 mA @ 1 Hz	540 mA @ 1 Hz
	sounder	15 mA @ 1 Hz	20 mA @ 1 Hz
Max. sound pressure level		103 dB(A)	
Sound pressure level @ DIN tone		101 dB(A)	
Sound level reduction		max. –25 dB	
Flash energy and flash rate		15 J @ 0.1 0.5 0.75 1 Hz	
Light intensity (DIN 5037) ¹		190 cd	
Max. viewing distance		320 m	
Operating temperature		–40 ... +55 °C	
Protection system (EN 60529)		IP 66	
Impact resistance as per EN 50102		IK08	
Service life of light source		light emission still 70 % after 8,000,000 flashes	
Material	lens	polycarbonate (PC)	
	housing	PC/ABS, RAL 3000 ● PC/ABS, RAL 7035 ●	
Dimensions (X x Y x Z)		216 x 172 x 144 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER
Tamper-proof sealings	76	28300000002
Surface gasket	76	28111500001

For additional models, options and voltages visit www.pfannenber.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

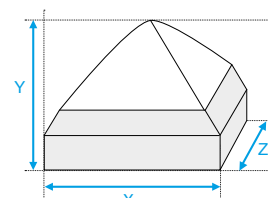
115 V AC 24 V AC.	Choice of lens colours: clear white yellow amber red green blue.	White enclosure.	Soft Start Module (24 V DC).
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenber.com



PYRA X-MA Flashing Light Sounders



XENON

Powerful flashing light with sounder

Choice of 5 or 10 joules flash energy with a 101 dB(A) sounder in an attractive design.

Selectable output signals

On-board selection of 4 different light flash rates and 8 different acoustic alarm tones (tone table on page 77).

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Independent signalling

Visual and acoustic signal outputs can be controlled separately.

Captive fasteners

Installation and assembly is simplified and screws cannot get lost.

Circuit loading stability

24 V AC/DC versions incorporate constant current regulators for stable and efficient system operation.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

Inrush current regulator

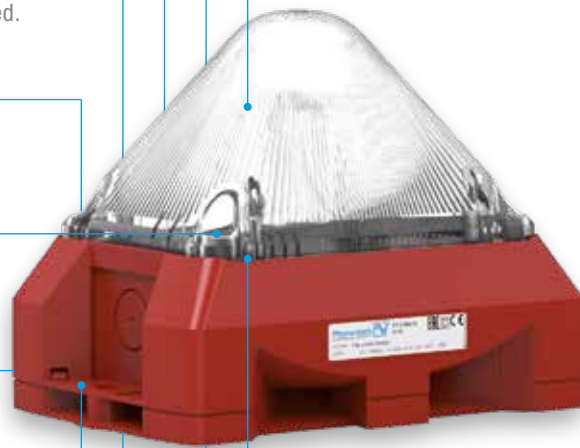
Provides electrical protection for control devices such as switching components and relays.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments.



Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

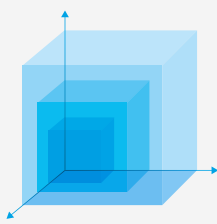
EN 54-23 certified

Satisfies EU requirements for fire alarm safety.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.

3D-Coverage performance data, A x B x C



To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

	PY X-MA-05		PY X-MA-10	
AUDIBLE	75 dB(A)	10.6 x 10.6 x 7.8 m	75 dB(A)	10.6 x 10.6 x 7.8 m
	80 dB(A)	5.8 x 5.9 x 4.4 m	80 dB(A)	5.8 x 5.9 x 4.4 m
	85 dB(A)	3.2 x 3.3 x 2.2 m	85 dB(A)	3.2 x 3.3 x 2.2 m
VISUAL	Indicate	56.7 x 28.8 x 61.2 m	Indicate	81 x 45 x 101.7 m
	Warn	25.2 x 12.8 x 27.2 m	Warn	36 x 20 x 45.2 m
	Alarm	12.6 x 6.4 x 13.6 m	Alarm	18 x 10 x 22.6 m

FLASHING LIGHT SOUNDERS



protection system



impact-proof housing



operating temperature



option 24 V DC



warranty

PRODUCT	PY X-MA-05		PY X-MA-10	
ARTICLE NO.	21554103000	21554813000	21555103000	21555813000
ARTICLE NO.	21554104000	21554814000	21555104000	21555814000
ARTICLE NO.	21554105000	21554815000	21555105000	21555815000
ARTICLE NO.	21554103055	21554813055	21555103055	21555813055
ARTICLE NO.	21554104055	21554814055	21555104055	21555814055
ARTICLE NO.	21554105055	21554815055	21555105055	21555815055

DATA		187–255 V	AC: 18–30 V DC: 10–57 V	187–255 V	10–57 V
Operating range		AC 50 60 Hz	AC 50 60 Hz / DC	AC 50 60 Hz	DC
Nominal current consumption		70–75 mA	AC: 310 mA DC: 280 mA @ 24 V	160–165 mA	540 mA @ 24 V
Max. sound pressure level		101 dB(A)			
Sound pressure level @ DIN tone		99 dB(A)			
Sound level reduction		max. –50 dB via potentiometer			
Flash energy and flash rate		5 J @ 0.1 0.5 0.75 1 Hz			
Light intensity (DIN 5037) ¹		56 cd		149 cd	
Max. viewing distance		173 m		283 m	
Operating temperature		–40 ... +55 °C			
Protection system (EN 60529)		IP 66			
Impact resistance as per EN 50102		IK08			
Service life of light source		light emission still 70 % after 8,000,000 flashes			
Material	lens	polycarbonate (PC)			
	housing	PC/ABS, RAL 3000 PC/ABS, RAL 7035			
Dimensions (X x Y x Z)		166 x 134.2 x 114 mm			
ACCESSORIES	PAGE	ARTICLE NUMBER			
Tamper-proof sealings	76	28300000002			
Surface gasket	76	28111500000			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

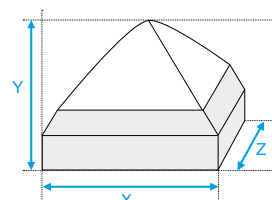
115 V AC.	Choice of lens colours: clear white yellow amber red green blue.	White enclosure.	Soft Start Module (24 V DC).
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



DSF Flashing Sounders



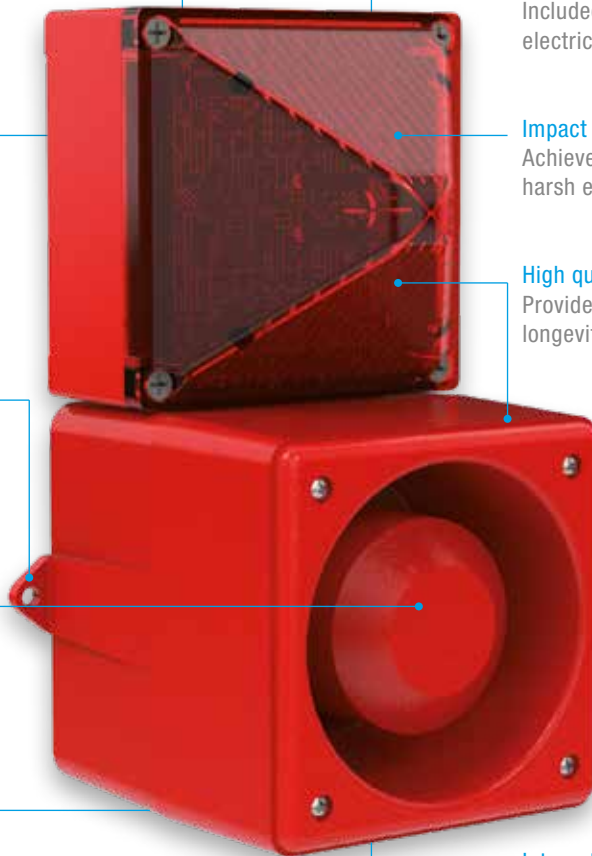
Powerful flashing light with sounder
Choice of 108 or 114 dB(A) sounder with 13 joules flashing strobe light.

32 tone selection
A vast selection of unique tones, many in conformance with international requirements. Three stages of tone control for distinctive signalling of specific events.

Strong, metal mounting lugs
Ensures a safe and secure installation onto many types of surfaces.

Electromagnetic sound capsule technology
Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

IP 66/67 enclosure rating
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.



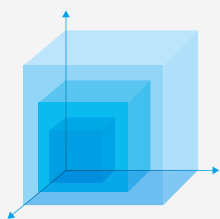
Stainless steel cable gland
Included to ensure a high degree of electrical connection integrity.

Impact resistant housing and lens
Achieves IK08 impact rating to endure harsh environments.

High quality, long life components
Provides the utmost in reliability and longevity.

Integrated function monitoring (optional)
Optional version with integrated fault-monitoring relay for enhanced human safety applications such as with gas leak evacuation alarms.

3D-Coverage performance data, A x B x C



To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

DSF 5		
AUDIBLE	80 dB(A)	23.1 x 27.5 x 23.1 m
	85 dB(A)	13 x 15.5 x 13 m
	90 dB(A)	7.3 x 8.8 x 7.3 m
VISUAL	Indicate	60 x 45 x 11 m
	Warn	40 x 25 x 9 m
	Alarm	15 x 10 x 7 m

DSF 10		
AUDIBLE	80 dB(A)	33.4 x 43.7 x 33.4 m
	85 dB(A)	18.8 x 24.5 x 18.8 m
	90 dB(A)	10.6 x 13.8 x 10.6 m
VISUAL	Indicate	60 x 45 x 11 m
	Warn	40 x 25 x 9 m
	Alarm	15 x 10 x 7 m

FLASHING SOUNDERS



protection system



impact-proof housing



operating temperature



acoustic penetration



external tone selection



warranty



PRODUCT	DSF 5		DSF 10	
ARTICLE NO.	23107105000	23107805000	23112105000	23112805000
DATA				
Operating range	195–253 V	19–29 V	195–253 V	19–29 V
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	0,19 A	0,98 A	0,76 A	1,12 A
Max. sound pressure level	108 dB(A)		114 dB(A)	
Sound pressure level @ DIN tone	107 dB(A)		112 dB(A)	
Alarm tones	32 / 4 tones are externally selectable, tone table on page 77			
Flash energy and flash rate	13 J @ 1 Hz = 60 flashes/min			
Light intensity (DIN 5037) ¹	260 cd			
Max. viewing distance	374 m			
Operating temperature	–40 ... +55 °C			
Protection system according to EN 60529	IP 66/67			
Impact resistance as per EN 50102	IK08			
Material	lens	polycarbonate (PC)		
	housing	die-cast aluminium GD-Al Si12 Cu		
Surface coating	epoxy resin paint			
Cable bushing	2 x M20 x 1.5			
Dimensions (X x Y x Z)	133.5 x 263.5 x 143 mm			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

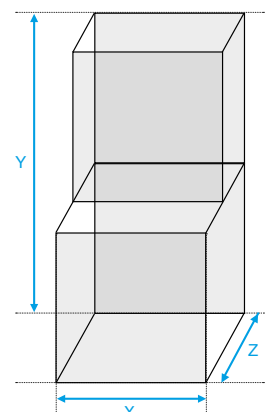
115 V AC.	Choice of lens colours: clear yellow amber red green blue.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PA X Flashing Sounders



Captive fasteners

Installation and assembly is simplified and screws cannot get lost.

Plug and socket connections

Upper and lower sections combine positively to simplify installation. When separated, electrical hazards are eliminated for handling.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Selectable audible notification

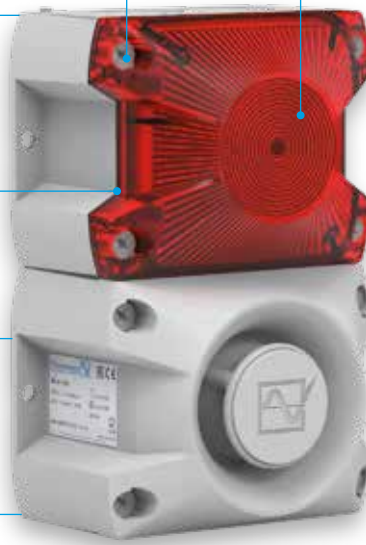
Choice of 80 unique alarm tones with four stages of tone control for distinctive signalling of specific events.

Independent signalling

Visual and acoustic signal outputs can be controlled separately. Simple electrical connection in the sounder. Light part does not have to be opened.

Flash tube

Xenon strobe generates highly visible light without sensitive filaments and is inherently resistant to shock and vibration.



PA X 1-05



PA X 5-05

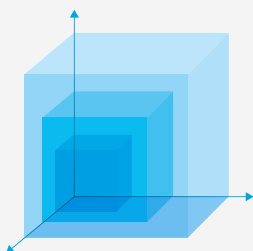


PA X 10-10



PA X 20-15

3D-Coverage performance data, A x B x C



To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

PA X 1-05

AUDIBLE	80 dB(A)	16 x 13.8 x 16 m
	85 dB(A)	9 x 7.8 x 9 m
	90 dB(A)	5.1 x 4.4 x 5.1 m
VISUAL	Indicate	18.5 x 31.5 x 49.5 m
	Warn	8.2 x 14 x 22 m
	Alarm	4.1 x 7 x 11 m

Intelligent installation

Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

High quality components

Longevity is assured with 70 % light emission even after 8 million flashes.

Flexible mounting options

Integrated hole template adapts to many common electrical workboxes worldwide. Installs upright on enclosures, downward from ceiling, or vertically on walls.

Electromagnetic sound capsule technology

Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

Further significant advantages

can be seen on a video on our website, please enter the webcode #3553 into the search field.



PA X 5-05

AUDIBLE	80 dB(A)	14.1 x 18.1 x 14.1 m
	85 dB(A)	7.9 x 10.2 x 7.9 m
	90 dB(A)	4.4 x 5.7 x 4.4 m
VISUAL	Indicate	44.1 x 37.4 x 67.5 m
	Warn	19.6 x 16.6 x 30 m
	Alarm	9.8 x 8.3 x 15 m

PA X 10-10

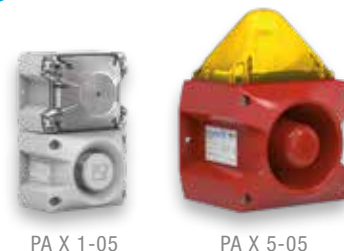
AUDIBLE	80 dB(A)	52.8 x 73.3 x 52.8 m
	85 dB(A)	29.7 x 41.2 x 29.7 m
	90 dB(A)	16.7 x 23.2 x 16.7 m
VISUAL	Indicate	68 x 61.7 x 119.7 m
	Warn	30.2 x 27.4 x 53.2 m
	Alarm	15.1 x 13.7 x 26.6 m

PA X 20-15

AUDIBLE	80 dB(A)	85.6 x 97.7 x 85.6 m
	85 dB(A)	48.1 x 55 x 48.1 m
	90 dB(A)	27.1 x 30.9 x 27.1 m
VISUAL	Indicate	84.6 x 74.7 x 144.5 m
	Warn	37.6 x 33.2 x 64.2 m
	Alarm	18.8 x 16.6 x 32.1 m

FLASHING SOUNDERS

IP 66 protection system	IK08 impact-proof housing	+55 °C -40 °C operating temperature	acoustic penetration	external tone selection	SSM, 24 V DC	M12 option	UL
EN 54-3 PA X 1-05 24 V DC	EN 54-23 PA X 1-05 24 V DC	VdS PA X 1-05 24 V DC	GL option	MED option	EAC	10 Years warranty	



PRODUCT		PA X 1-05 – housing red		PA X 1-05 – housing grey	
ARTICLE NO.		23311103000	23311803000	23311103055	23311803055
ARTICLE NO.		23311104000	23311804000	23311104055	23311804055
ARTICLE NO.		23311105000	23311805000	23311105055	23311805055

DATA		187–255 V	18–30 V	187–255 V	18–30 V
Operating range		187–255 V	18–30 V	187–255 V	18–30 V
Rated frequency		AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption		65–70 mA @ 230 V	315–365 mA @ 24 V	65–70 mA @ 230 V	315–365 mA @ 24 V

PRODUCT		PA X 5-05 – housing red		PA X 5-05 – housing grey	
ARTICLE NO.		23351103000	23351803000	23351103055	23351803055
ARTICLE NO.		23351104000	23351804000	23351104055	23351804055
ARTICLE NO.		23351105000	23351805000	23351105055	23351805055

DATA		187–255 V	18–30 V	187–255 V	18–30 V
Operating range		187–255 V	18–30 V	187–255 V	18–30 V
Rated frequency		AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption		65–70 mA @ 230 V	315–365 mA @ 24 V	65–70 mA @ 230 V	315–365 mA @ 24 V

		PA X 1-05	PA X 5-05
Max. sound pressure level		105 dB(A)	107 dB(A)
Sound pressure level @ DIN tone		104 dB(A)	105 dB(A)
Sound level reduction		max. –12 dB via potentiometer	
Alarm tones		80 / 4 tones are externally selectable, tone table on page 78/79	
Flash energy and flash rate		5 J @ 1 Hz = 60 flashes/min	
Light intensity (DIN 5037) ¹		44 cd	47 cd
Max. viewing distance		164 m	173 m
Operating temperature		–40 ... +55 °C	
Protection system (EN 60529)		IP 66	
Impact resistance as per EN 50102		IK08	
Material	lens	polycarbonate (PC)	
	housing	polycarbonate (PC), RAL 3000 polycarbonate (PC), RAL 7035	
Dimensions (X x Y x Z)		109.5 x 172.4 x 80.6 mm	163.4 x 215 x 132 mm

For additional models, options and voltages visit www.pfannenbergl.com or contact us directly.

¹ with a clear lens

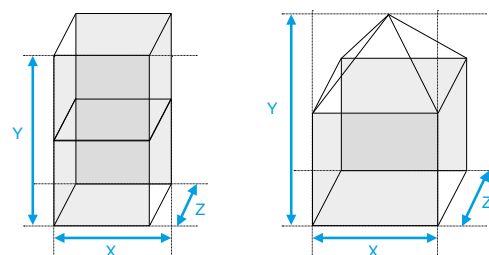
ACCESSORIES on page 76.














Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenbergl.com






FLASHING SOUNDERS

 IP 66 protection system	 IK08 impact-proof housing	 +55 °C -40 °C operating temperature	 acoustic penetration	 external tone selection	 SSM, 24 V DC
 UL option	 GL option	 MED option	 EAC	 10 Years warranty	






PA X 10-10




PA X 20-15

PRODUCT	PA X 10-10 – housing red		PA X 10-10 – housing grey	
ARTICLE NO. 	23361103000	23361803000	23361103055	23361803055
ARTICLE NO. 	23361104000	23361804000	23361104055	23361804055
ARTICLE NO. 	23361105000	23361805000	23361105055	23361805055

DATA				
Operating range	187–255 V	18–30 V	187–255 V	18–30 V
Rated frequency	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	160–215 mA @ 230 V	665–935 mA @ 24 V	160–215 mA @ 230 V	665–935 mA @ 24 V

PRODUCT	PA X 20-15 – housing red		PA X 20-15 – housing grey	
ARTICLE NO. 	23372103000	23372803000	23372103055	23372803055
ARTICLE NO. 	23372104000	23372804000	23372104055	23372804055
ARTICLE NO. 	23372105000	23372805000	23372105055	23372805055

DATA				
Operating range	187–255 V	18–30 V	187–255 V	18–30 V
Rated frequency	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	165–385 mA @ 230 V	945–1540 mA @ 24 V	165–385 mA @ 230 V	945–1540 mA @ 24 V

	PA X 10-10	PA X 20-15
Max. sound pressure level	117 dB(A)	122 dB(A)
Sound pressure level @ DIN tone	115 dB(A)	120 dB(A)
Sound level reduction	max. -12 dB via potentiometer	
Alarm tones	80 / 4 tones are externally selectable, tone table on page 78/79	
Flash energy and flash rate	10 J @ 1 Hz = 60 flashes/min	15 J @ 1 Hz = 60 flashes/min
Light intensity (DIN 5037) ¹	149 cd	265 cd
Max. viewing distance	283 m	377 m
Operating temperature	-40 ... +55 °C	
Protection system (EN 60529)	IP 66	
Impact resistance as per EN 50102	IK08	
Material	lens	 polycarbonate (PC)
	housing	polycarbonate (PC), RAL 3000  polycarbonate (PC), RAL 7035 
Dimensions (X x Y x Z)	214 x 270 x 156 mm	214 x 270 x 181 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

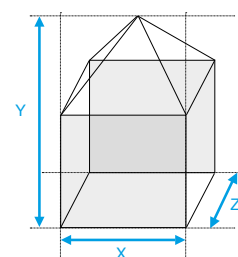
ACCESSORIES on page 76.



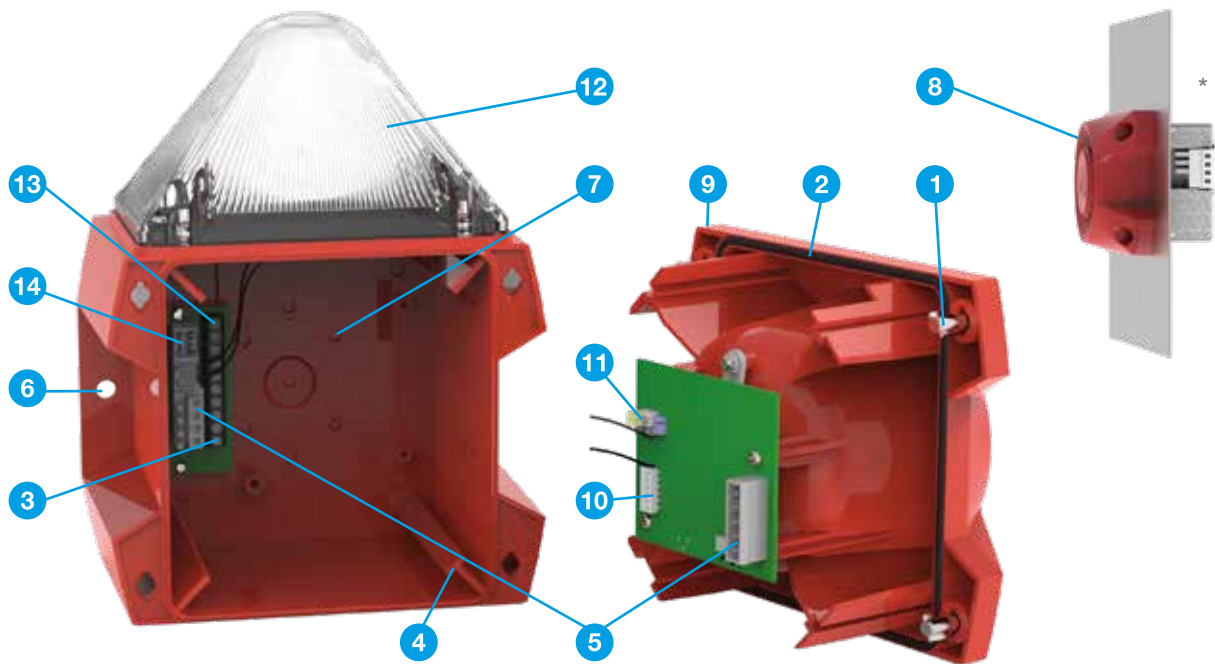
Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PATROL & PYRA[®] advantages.



* Installation kit necessary.

Intelligent installation.

- Electrical wiring is conducted in the base box to avoid impractical 3-hand assembly. Wires are safely routed where the potential for pinching and errors are eliminated.

Unique enclosure fasteners.

- 3/8-turn fasteners **1** permit quick and easy assembly.
- Fasteners are captivated so they cannot be dropped or lost.
- Optional tamper-proof fastener plugs protect the unit from unauthorised alteration.
- Fastener appearance reveals whether “closed” (x) or “open” (+).

Enclosure sealing integrity.

- Gasket **2** is permanently adhered to the enclosure cover so the gasket will never get dropped or lost.
- Enclosure fasteners **1** are outside of the sealing area to ensure that the IP rating is not compromised by fastener holes.

Error-free electrical connections.

- Screw terminal strip **3** is located in the base-box portion of the enclosure allowing for easy, one person installation – a clumsy, third hand is not needed.
- Due to the shape coding of the housing parts **4** according to the poka yoke principle a faulty assembly is excluded.
- Upper part and lower part are contacted automatically **5**.

- A redundant set of electrical screw terminal connections **3** supports daisy-chaining of multiple devices.
- Knockouts are provided on multiple sides to support a variety of wiring and interconnection scenarios.

Numerous mounting options.

- Integrated external flange **6** is stronger than mounting lugs.
- An assortment of internal pilot marks **7** offer worldwide compatibility with a variety of standard electrical workboxes.
- Entire device can be wall mounted or panel mounted optional with finger guard **8**.
- Acoustic module **9** by itself can be flush mounted to an enclosure panel or door with optional panel mounting kit.

Vast selection of integrated tones.

- Choose from 80 different tones by DIP switch **10** setting.
- Multiple tone stages permit the same device to emit up to four different alarms based on circumstance.
- Internal volume control **11**.

Improved acoustic driver.

- Sound capsule technology delivers more low frequency punch than piezoelectric elements for superior sound penetration through walls, doors, and other obstructions.

Extreme environment compatibility.

- NEMA type 4/4X and IP 66 rating survives exposure to dust, liquids, water spray, and corrosives.
- -40 to +55 °C temperature range.
- High strength housing is a blend of ABS and polycarbonate plastic that is flame retardant and UV stabilised.

Integral xenon flashing light.

- Xenon flashing light ⑫ is part of the original design inception, rather than a bolted on afterthought. As such, the light is more visible. Additionally, the light's intensity is properly sized to match the coverage area of the associated sounder. 5, 10, and 15 joules flash energies are available.

Xenon flashing light connections made from single terminal strip.

- Pre-wired light connections are made at the terminal strip ⑬ that is also the electrical connection point for

the sounder. Since all connections are made from one common connection point, installation is quicker and easier.

Choice of alarm action – combined or separate.

- The light can either be activated in conjunction with the sounder or separately from it ⑭. Separate operation is often desired to silence the sounder after a certain elapsed time while the light continues to flash.

Life span exceeds 8,000,000 flashes.

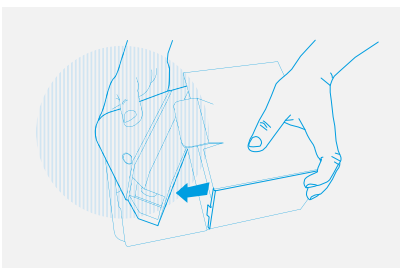
- The superior technology behind Pfannenbergs flashing lights permit an unrivalled life span of 8,000,000 flashes while retaining greater than 70 % light emission.

Worldwide certifications for universal acceptance.

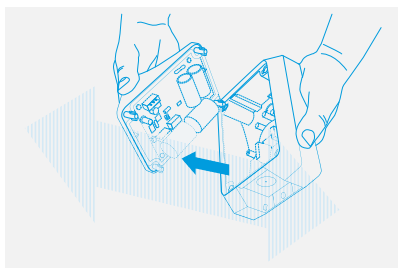
- UL, cUL, CE, VdS, GL, EN 54-3.

Mounting system „Plug and Play“.

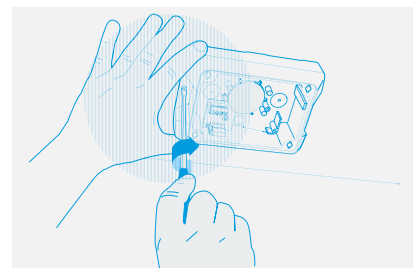
STEP 1 – Remove from package supplied ready for mounting.



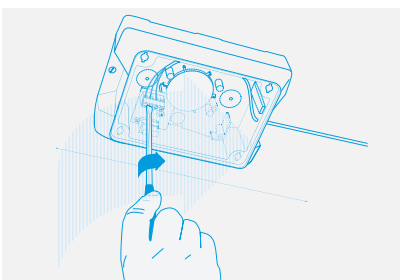
STEP 2 – Separate the components.



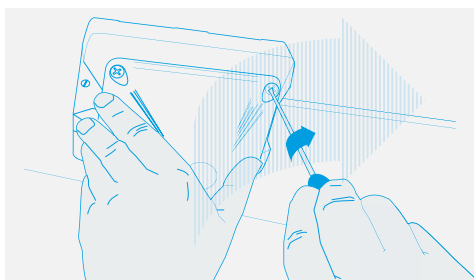
STEP 3 – Mount the base box.



STEP 4 – Connect the wiring.



STEP 5 – Secure the cover to the base box.



Quick, easy, and safe installation.

Saves time and reduces costs. Potential errors are eliminated since an incorrect assembly is not possible.

Accessories

ACCESSORIES PYRA® FLASHING LIGHT SOUNDERS

Detailed technical information:



Surface gasket



Tamper-proof sealing

PRODUCT		PY X-MA	PY X-LA
Surface gasket	For use when surface mounting to an electrical enclosure to maintain the IP rating of the enclosure.	28000500000	28111500001
Tamper-proof sealing (pack of 4)	Inserts into the head of the plastic 3/8-turn fasteners of PYRA® devices to disable access to internal components.	28300000002	

ACCESSORIES PATROL FLASHING SOUNDERS

Detailed technical information:



Surface gasket



Tamper-proof sealing

PRODUCT		PA X 1	PA X 5	PA X 10 / PA X 20
Surface gasket	For use when surface mounting to an electrical enclosure to maintain the IP rating of the enclosure.	28300000004	28300000005	28300000006
Tamper-proof sealing (pack of 4)	Inserts into the head of the plastic 3/8-turn fasteners of PATROL devices to disable access to internal components.	28300000002		

Tone table DSF 5 | DSF 10

NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE		
		2	3	4
0	no tone	2	88	57
2 ¹	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	1200 Hz 500 Hz		128 112 57
15	Slow whoop, evacuation alarm Netherlands NEN 2575	1200 Hz 500 Hz		131 54 112
23	Siren	2400 Hz 500 Hz		24 60 112
24	Siren	1200 Hz 300 Hz		55 23 131
26	Siren (industrial alarm Germany – Hoechst –)	1000 Hz 150 Hz		2 100 93
31	Sweeping, France NF C 48-265	1600 Hz 1400 Hz		128 54 57
32	selection of available tone combinations in stages 2, 3 and 4			
36	Sweeping	1500 Hz 700 Hz		146 67 57
45	Sweeping	1200 Hz 500 Hz		2 57 93
54	Continuous tone, Finland (all-clear signal)	1500 Hz		2 57 67
55	Continuous tone, PFEER gasalarm	1200 Hz		2 88 128
57	Continuous tone, UK BS 5839-1	950 Hz		2 128 88
60	Continuous tone	825 Hz		24 93 125
63	Continuous tone	725 Hz		2 97 93
67	Continuous tone, Germany KTA 3901 (all-clear signal)	500 Hz		24 93 125
88	Interrupted tone	950 Hz		2 57 128

¹ factory setting

NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE		
		2	3	4
90	Interrupted tone	825 Hz		2 127 108
92	Interrupted tone	800 Hz		131 146 57
93	Interrupted tone (fast), horn	800 Hz		2 128 57
97	Interrupted tone	725 Hz		2 63 93
98	Interrupted tone, Sweden SS 031711 (emergency signal)	700 Hz		112 128 57
100	Interrupted tone, industrial alarm Germany	680 Hz		2 57 125
108	Interrupted tone	500 Hz		2 127 60
112	Interrupted tone, ISO 8201 (emergency evacuation signal)	950 Hz		2 57 128
116	Interrupted tone, IMO (leave ship)	950 Hz		117 93 125
117	Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)	825 Hz		93 116 125
125	Alternating tone	1400 Hz 1200 Hz		57 93 24
127	Alternating tone	1075 Hz 825 Hz		2 90 60
128	Alternating tone UK fire alarm	1025 Hz 825 Hz		2 112 57
131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)	1000 Hz 800 Hz		24 55 23
142	Alternating tone	900 Hz 500 Hz		2 54 88
146	Alternating tone, France NFS 32-001 (fire alarm)	554 Hz 440 Hz		128 67 57

COMBINED

Tone table PY X-MA-05 | PY X-MA-10 | PY X-LA-15

NO.	DESCRIPTION	
2	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	1200 Hz 500 Hz
9	Slow whoop, fire alarm, UK BS 5839-1	970 Hz 800 Hz
131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)	1000 Hz 800 Hz

¹ factory setting

NO.	DESCRIPTION	
160	Continuous tone (horn)	110 Hz
161	Continuous tone	3000 Hz
162 ¹	Interrupted tone	3000 Hz
163	Interrupted tone	3000 Hz
164	Slow whoop	2850 Hz 2400 Hz

Tone table PA X 1 | PA X 5 | PA X 10 | PA X 20

NO.	DESCRIPTION		NO.	DESCRIPTION	
1	no tone		57	Continuous tone, UK BS 5839-1	950 Hz
2	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	1200 Hz 500 Hz 1 s EN 54-3	59	Continuous tone	880 Hz
9	Slow whoop, fire alarm, UK BS 5839-1	970 Hz 800 Hz 1 s 	60	Continuous tone	825 Hz
11	Interrupted tone (fast)	970 Hz 800 Hz 20 ms 	61	Continuous tone	800 Hz
13	Interrupted tone	900 Hz 700 Hz 0.3 s 0.6 s 	63	Continuous tone	725 Hz
15	Slow whoop, evacuation alarm Netherlands NEN 2575	1200 Hz 500 Hz 3.5 s 0.3 s EN 54-3	65	Continuous tone, Sweden SS 031711 (all-clear signal)	660 Hz
16	Slow whoop, Australian evacuation alarm AS 2220	1200 Hz 500 Hz 3.75 s 0.25 s 	66	Continuous tone	554 Hz
18	Slow whoop, NFPA	775 Hz 422 Hz 0.85 s 1 s 	67	Continuous tone, Germany KTA 3901 (all-clear signal)	500 Hz
22	Whoop, Australien alert AS 1670, ISO 8201	1200 Hz 500 Hz 0.5 s 0.5 s 1.5 s 	68	Continuous tone	470 Hz
23	Siren	2400 Hz 500 Hz 3 s const. 	69	Continuous tone	440 Hz
24	Siren	1200 Hz 300 Hz 3 s const. 	71	Continuous tone	340 Hz
25	Siren	800 Hz 300 Hz 3 s const. 	77	Interrupted tone	2200 Hz 0.5 s 0.5 s
26	Siren (industrial alarm Germany – Hoechst –)	1000 Hz 150 Hz 10 s 40 s 10 s 	82	Interrupted tone, PFEER (general alarm), UK BS 5839-1 (back-up alarm)	1000 Hz 0.5 s 0.5 s
27	Sweeping	2900 Hz 2400 Hz 0.5 s 	83	Interrupted tone, PFEER (general alarm)	1000 Hz 1 s 1 s
29	Sweeping (fast)	2900 Hz 2400 Hz 10 ms 10 ms 	88	Interrupted tone	950 Hz 1 s 1 s
30	Sweeping	2900 Hz 2400 Hz 70 ms 70 ms 	90	Interrupted tone	825 Hz 0.5 s 0.5 s
31	Sweeping, France NF C 48-265	1600 Hz 1400 Hz 1 s 0.5 s 	91	Interrupted tone	800 Hz 0.25 s 0.25 s
33	Sweeping (medium), UK BS 5839-1	1000 Hz 800 Hz 0.5 s 0.5 s 	92	Interrupted tone	800 Hz 0.25 s 1 s
34	Sweeping (fast)	1000 Hz 800 Hz 10 ms 10 ms 	93	Interrupted tone (fast), horn	800 Hz 4 ms 4 ms
35	Sweeping (fast), UK BS 5839-1	1000 Hz 800 Hz 70 ms 70 ms 	97	Interrupted tone	725 Hz 0.7 s 0.3 s
36	Sweeping	1500 Hz 700 Hz 1.5 s 1.5 s 	98	Interrupted tone, Sweden SS 031711 (emergency signal)	700 Hz 0.125 s 0.125 s
43	Sweeping	1200 Hz 500 Hz 1.5 s 1.5 s 	100	Interrupted tone, industrial alarm Germany	680 Hz 0.875 s 0.875 s
44	Sweeping, IMO 3d, Germany KTA 3901 evacuation alarm	1200 Hz 500 Hz 1 s 1 s 	101	Interrupted tone, Sweden SS 031711 (important message (pre-mess))	660 Hz 6.5 s 13 s
45	Sweeping	1200 Hz 500 Hz 3 s 3 s 	102	Interrupted tone, Sweden SS 031711 (local warning)	660 Hz 0.5 s 0.5 s
46	Sweeping, general alarm Finland	1500 Hz 500 Hz 7 s 7 s 	103	Interrupted tone, Sweden SS 031711 (air raid warning)	660 Hz 1.8 s 1.8 s
52	Continuous tone	2400 Hz	104	Interrupted tone, Sweden SS 031711 (emergency signal)	660 Hz 150 ms 150 ms EN 54-3
53	Continuous tone	2000 Hz	107	Interrupted tone, Germany KTA 3901 (evacuation alarm)	500 Hz 0.25 s 0.75 s
54	Continuous tone, Finland (all-clear signal)	1500 Hz	109	Interrupted tone, Australia AS 2220, AS 1610, AS 1670	420 Hz 0.625 s 0.625 s
55	Continuous tone, PFEER gasalarm	1200 Hz	110	Interrupted tone, (fast variable), bell	1450 Hz 0.69 ms
56	Continuous tone	1000 Hz	111	Interrupted tone, ISO 8201 (emergency evacuation signal), USA (evacuation alarm)	470 Hz 0.5 s 0.5 s 1.5 s
			112	Interrupted tone, ISO 8201 (emergency evacuation signal)	950 Hz 0.5 s 0.5 s 1.5 s
			113	Interrupted tone, ISO 8201 (emergency evacuation signal), sweeping	2850 Hz 0.5 s 0.5 s 1.5 s

NO.	DESCRIPTION	
115	Interrupted tone, IMO (telephone call)	950 Hz
116	Interrupted tone, IMO (leave ship)	950 Hz
117	Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)	825 Hz
122	Alternating tone	2900 Hz
123	Alternating tone	2900 Hz
124	Alternating tone, Singapore	2900 Hz
125	Alternating tone	1400 Hz
128	Alternating tone	1025 Hz
130	Alternating tone, UK BS 5839-1 (fire alarm)	1000 Hz

NO.	DESCRIPTION	
131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)	1000 Hz
135	Alternating tone, UK BS 5839-1 (fire alarm, increased urgency – railway crossing)	1000 Hz
142	Alternating tone	900 Hz
143	Alternating tone, industrial alarm Germany	660 Hz
144	Alternating tone	650 Hz
146	Alternating tone, France NFS 32-001 (fire alarm)	554 Hz
147	Alternating tone, Sweden SS 031711	554 Hz
148	Alternating tone, Sweden SS 031711	554 Hz
152	Alternating tone (two tone chime)	800 Hz

Control of the tones PA X 1 | PA X 5 | PA X 10 | PA X 20

DIP-SWITCH (SETTING OF BASIC TONE)							EXTERNAL TONE SELECTION		
1	2	3	4	5	6	BASIC TONE	C1	C2	C1+C2
TONE NO.									
						1	2	88	57
ON						2 *	128	112	57
	ON					2	26	100	93
ON	ON					2	61	131	112
		ON				9	57	11	82
ON		ON				15	131	52	112
	ON	ON				16	109	52	56
ON	ON	ON				18	111	57	68
			ON			22	16	109	68
ON			ON			23	131	52	112
	ON		ON			24	131	52	131
ON	ON		ON			25	131	52	92
		ON	ON			26	2	100	93
ON	ON	ON				27	123	52	92
	ON	ON				29	35	52	61
ON	ON	ON				30	27	52	77
				ON		31	131	52	57
ON				ON		33	30	52	35
	ON			ON		34	35	52	93
ON	ON			ON		35	27	52	110
		ON		ON		36	146	67	57
ON		ON		ON		43	131	52	91
	ON	ON		ON		45	2	57	93
ON	ON	ON		ON		52	15	65	82
			ON	ON		54	46	54	131
ON			ON	ON		55	131	52	128
	ON		ON	ON		56	82	35	33
ON	ON		ON	ON		59	143	59	101
			ON	ON		60	131	52	125
ON		ON	ON	ON		65	131	52	93
	ON	ON	ON	ON		66	110	52	107
ON	ON	ON	ON	ON		69	131	52	110

* factory setting

DIP-SWITCH (SETTING OF BASIC TONE)							EXTERNAL TONE SELECTION			
1	2	3	4	5	6	BASIC TONE	C1	C2	C1+C2	
TONE NO.										
						ON	71	131	52	93
ON						ON	77	61	52	122
	ON					ON	82	131	52	83
ON	ON					ON	83	56	2	82
		ON				ON	88	2	57	128
ON		ON				ON	90	131	52	125
	ON	ON				ON	91	30	52	110
ON	ON	ON				ON	92	33	52	57
			ON			ON	93	2	128	57
ON			ON			ON	97	2	63	93
	ON		ON			ON	100	131	52	125
ON	ON		ON			ON	101	98	102	65
		ON	ON			ON	103	131	65	147
ON		ON	ON			ON	104	103	65	101
	ON	ON	ON			ON	109	16	52	22
ON	ON	ON				ON	110	131	61	91
				ON		ON	112	2	57	128
ON				ON		ON	113	52	123	104
	ON			ON		ON	115	117	116	44
ON	ON			ON		ON	116	117	93	125
		ON		ON		ON	117	93	116	125
ON		ON		ON		ON	123	27	52	77
	ON	ON		ON		ON	124	53	83	2
ON	ON	ON		ON		ON	130	2	107	67
			ON	ON		ON	131	2	112	57
ON			ON	ON		ON	135	16	56	109
	ON		ON	ON		ON	142	2	54	88
ON	ON		ON	ON		ON	143	59	93	33
		ON	ON	ON		ON	144	110	61	2
ON		ON	ON	ON		ON	146	31	67	57
	ON	ON	ON	ON		ON	148	131	52	92
ON	ON	ON	ON	ON		ON	152	110	61	13

Functional safety signalling devices – additional monitoring circuitry for fault detection.

For risk mitigation surrounding hazardous machinery and processes in accordance with machinery safety directives 2006/42/EG, EN ISO 13849-1, DIN EN 62061 (PL); and plant safety directives Seveso III, IEC 610308, and IEC 61511 (SIL).

Pfannenbergs safety related signalling devices are intended for use in Safety Instrumented Systems (SIS) which have a Safety Integrity Level (SIL) up to **SIL 2 / PLd**. These devices are equipped with integrated self-monitoring functions, which automatically satisfy the requirement for regular inspection of warning devices.



Since signalling equipment performs a safety protection function on machines and systems, the consequences of an error in the signalling devices represents a potential risk that must be taken into consideration.



Function monitored xenon flashing lights and LED continuous lights.


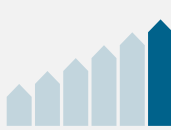

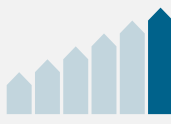

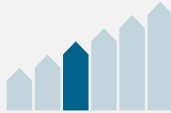

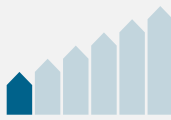
These devices are equipped with integrated self-monitoring functions to satisfy the requirements of EN 60825-1, DIN 54113-2, EN 50129, EN 12352:2000 and others.

Should the signalling device ever fail, a relay contact is activated for remotely recognising the fault. This feature is particularly useful around life threatening equipment such as laser cutters, x-ray scanners, radioactive processes, and railway crossings.

Function-monitored signaling devices at a glance

TYPE	3D-COVERAGE LEVEL ¹	LIGHT INTENSITY/ MAX. SOUND PRESSURE LEVEL	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS					PAGE
					GL	EAC	UL	EN 54-23	VdS	


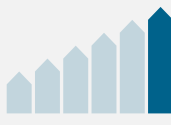

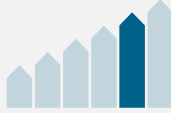

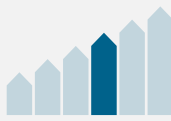
FUNCTION-MONITORED LIGHTS

		13 J	IP 66/67 IK08	130 x 130 x 130		●					82
		7 J	IP 55	bracket mounting 170.5 x Ø 130 direct mounting 185 x Ø 177		●					84
		5 J	IP 64	242 x Ø 80		● ²	●				86
		5 cd	IP 55	128 x 166.2 x 111.2		●					88

FUNCTION-MONITORED SIGNAL TOWERS

											96
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SAFETY-RELATED LIGHTS

		315 cd	IP 55	bracket mounting 170.5 x Ø 130 direct mounting 185 x Ø 177		●					90
		10 J	IP 55	bracket mounting 170.5 x Ø 130 direct mounting 185 x Ø 177		●					
		10 J	IP 66/67 IK08	130 x 130 x 130		●					82

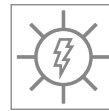
SAFETY-RELATED SOUNDERS

		114 dB(A)	IP 66/67	133.5 x 133.5 x 143		●					92
		108 dB(A)	IP 66/67	133.5 x 133.5 x 143		●					

¹ with a clear lens

● available ○ pending ² option

Quadro Flashing Lights



LED versions
on page 36



monitored

Positive enclosure sealing

Leak path risk is eliminated since the lens fastening screws are located outside the sealing gasket area.

IP 66/67 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Function monitored

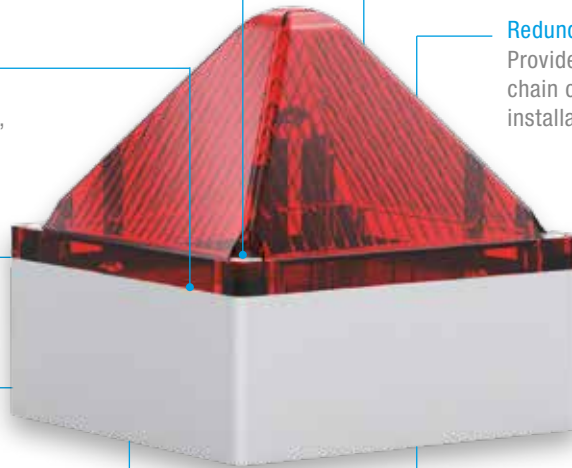
with fault relay contact and solid-state xenon flash tube.

Inrush current regulator

Provides electrical protection for control devices such as switching components and relays.

Quadro S-M-Flex

Multi-unit flash synchronisation for daisy-chained installations. On-board, adjustable flash frequency and light output intensity.



High quality, long life components

Provides the utmost in reliability and longevity.

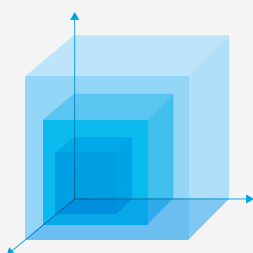
Redundant electrical contacts

Provides ease of wiring and daisy-chain connection for multi-unit installations.

Quadro F12-SIL

Versions for Safety Instrumented Systems up to SIL 2 / PLd. Integrated self-monitoring function satisfies the requirement for routine system checks and eliminates the need for redundant devices.

3D-Coverage performance data, A x B x C



Quadro S-M-Flex

Indicate	113.9 x 77.9 x 124.7 m
Warn	50.6 x 34.6 x 55.4 m
Alarm	25.3 x 17.3 x 27.7 m

Quadro F12-SIL

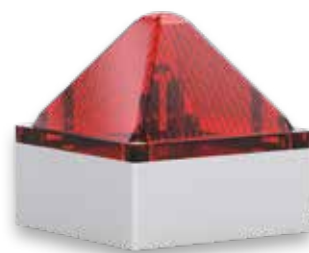
Indicate	106.2 x 80.6 x 106.7 m
Warn	47.2 x 35.8 x 47.4 m
Alarm	23.6 x 17.9 x 23.7 m




To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.


FLASHING LIGHTS

 IP 66 protection systems	 IP 67	 IK08 impact-proof housing	 +55 °C -25 °C operating temperature
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 Sync Quadro S-M-Flex	 lim Quadro S-M-Flex	 SIL 2 PL d Quadro F12-SIL	 EAC	 10 Years warranty
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PRODUCT		Quadro S-M-Flex	Quadro F12-SIL
ARTICLE NO.		21041101179	on request
ARTICLE NO.		on request	21041803601
ARTICLE NO.		21042104179	21041804601
ARTICLE NO.		21042105179	21041805601

DATA			
Light source		xenon flash tube	
Operating range		195–253 V AC 50 60 Hz	18–30 V DC
Current consumption	flashing light	250 mA @ 1 Hz / 13 J / 230 V	
	diagnostic channel	700 mA @ 24 V	
Alarm contact	version	positively driven contact (1x NC, 1x NO)	
Alarm output		230 V / 80 mA	
Flash energy and flash rate		max. 13 J flash rate adjustable	10 J @ 1 Hz = 60 flashes/min
Light intensity (DIN 5037) ¹		260 cd	225 cd
Max. viewing distance		374 m	348 m
Operating temperature		-25 ... +55 °C	
Protection system according to EN 60529		IP 66/67, mounting arbitrary	IP 66/67, mounting arbitrary
Impact resistance as per EN 50102		IK08	
Service life of light source		light emission still 70 % after 12,000,000 flashes	light emission still 70 % after 8,000,000 flashes
Material	lens	 polycarbonate (PC)	
	housing	polycarbonate (PC)	
Dimensions (X x Y x Z)		130 x 130 x 130 mm	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

All relevant safety data can be found in the manual in the download area on the product website.

Models with alternative features available upon request

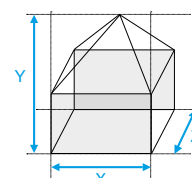
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PMF Flashing Lights



LED versions
on page 32
and 90

monitored

Robust, solid-state design

Xenon flash tubes are secured by a mechanical clamp and unlike rotating lights with motorised elements there is no risk of failure due to moving parts.

Highly effective light beam

Fresnel lens optics provide a brilliant horizontal light stream for long distance signal transmission.

Powerful 360° omnidirectional signalling

for large distances (indoor and outdoor).

PMF 2015-M

Self-monitoring function. Additional contact closure included to alert operators of potential failure in the ability to generate a flashing light output. The light carries type approval from the Swiss Ministry of Transport.

PMF 2015-SIL

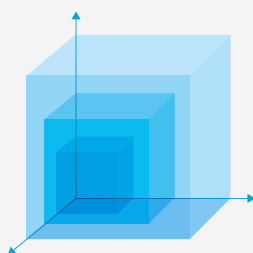
Versions for Safety Instrumented Systems up to SIL 2 / PLd. Integrated self-monitoring function satisfies the requirement for routine system checks and eliminates the need for redundant devices.

Versatile mounting

choose direct mount for flat surface installation or bracket mount for attachment to walls or pipes.



3D-Coverage performance data, A x B x C



PMF 2015-SIL

Indicate	52.2 x 173.7 x 173.7 m
Warn	23.2 x 77.2 x 77.2 m
Alarm	11.6 x 38.6 x 38.6 m

PMF 2015-M

Indicate	54 x 171.9 x 171.9 m
Warn	24 x 76.4 x 76.4 m
Alarm	12 x 38.2 x 38.2 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHTS



protection system



operating temperature



PMF 2015-M



PMF 2015-SIL



PRODUCT		PMF 2015-M	PMF 2015-SIL	
		bracket mounting	direct mounting	bracket mounting
ARTICLE NO.	230 V ●		21007104601	21007104611
ARTICLE NO.	24 V ●	21007804012	21007804601	21007804611
ARTICLE NO.	230 V ●		21007105601	21007105611
ARTICLE NO.	24 V ●	21007805012	21007805601	21007805611

DATA

Light source		xenon flash tube: double flash	xenon flash tube	
Operating range			195–253 V	18–30 V
			AC 50 60 Hz	DC
Nominal current consumption	flashing light	0,65 A	250 mA	700 mA
	diagnostic channel		0.08 A	0.65 A
	monitoring unit	0.05 A		
Alarm contact	version	positively driven contact (1x NC, 1x NO)		
	max. switching power	1,500 VA AC		
Flash energy and flash rate		7 J @ 1 Hz = 60 Blitze/Min.	10 J @ 1 Hz = 60 Blitze/Min.	
Light intensity (DIN 5037) ¹		250 cd	225 cd	
Max. viewing distance		366 m	348 m	
Operating temperature		–30 ... +55 °C		
Protection system according to EN 60529		IP 55 (vertical mounting)		
Service life of light source		light emission still 70 % after 8,000,000 flashes		
Material	lens	/ ● ● ● ● polycarbonate (PC), fresnel characteristic		
	housing	polycarbonate (PC)	acrylonitrile butadiene styrene (ABS)	polycarbonate (PC)
Dimensions (X x Y + Y2)		130 x 170.5 + 90 mm	177 x 185 + 0 mm	130 x 170.5 + 90 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

All relevant safety data can be found in the manual in the download area on the product website.

Models with alternative features available upon request

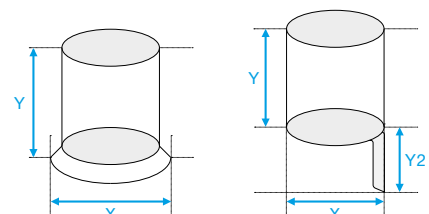
Choice of lens colours: clear | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



WBL-M

Function-monitored Light



monitored

Flashing light
in a metal housing.

GL
Germanischer Lloyd approved version available for maritime applications and areas prone to high shock and vibration conditions.

Flash tube
Xenon strobe generates highly visible light without sensitive filaments. A steel fixing clamp provides additional resistance to shock and vibration.

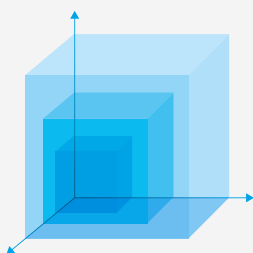
IP 54 enclosure rating
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Integrated flash monitoring
and fault message contact for enhanced human safety applications such as with x-ray and laser equipment.

Robust and reliable
With corrosion resistant anodised aluminium housing and mounting bracket, as well as a high strength polycarbonate lens, the signal light is ideal for tough industrial requirements.



3D-Coverage performance data, A x B x C



WBL-M	
Indicate	63 x 62.1 x 62.1 m
Warn	28 x 27.6 x 27.6 m
Alarm	14 x 13.8 x 13.8 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

FLASHING LIGHT



protection system






operating temperature










option



PRODUCT	WBL-M	
ARTICLE NO.		21003103156
ARTICLE NO.		on request
ARTICLE NO.		21003105156

DATA

Light source	xenon flash tube	
Operating range	185–242 V	
	AC 50 60 Hz	
Nominal current consumption	0.07 A	
Max. switching voltage	250 V AC	
Flash energy and flash rate	5 J @ 1 Hz = 60 flashes/min	
Light intensity (DIN 5037) ¹	61 cd	
Max. viewing distance	181 m	
Operating temperature	–20 ... +55 °C	
Protection system according to EN 60529	IP 54	
Service life of light source	light emission still 70 % after 8,000,000 flashes	
Material	lens	       polycarbonate (PC)
	housing	aluminium (Al Mg Si 1), anodised
	base	polycarbonate (PC) with fibre glass
Dimensions (X x Y)	80 x 242 mm	

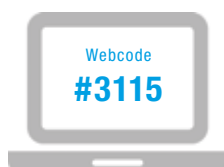
ACCESSORIES	PAGE	ARTICLE NUMBER
Protective cage	44	28710500042

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

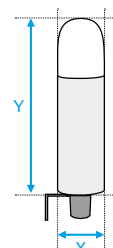
Choice of lens colours: clear white yellow amber red green blue.	WBL-M with 42 V AC supply.	WBS-M with 12 24 48 V DC supply.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PD 2100

Function-monitored LED Continuous Light



monitored

Machinery status light

The complementary pyramid design provides modern aesthetics for the OEM machine builder.

Opaque illumination effect

The coloured lens offers an attractive signal glow and eliminates LED light "hot spots".

AS-i-Bus

Supplying of the light directly by bus system. Control and function monitoring directly via AS interface.



For safety-relevant applications,

such as x-ray and laser equipment and any other machine.

Rugged LED technology

Shock and vibration tolerant, long service life, reliable operation, zero maintenance, and low power consumption.

LED CONTINUOUS LIGHT



protection system



operating temperature



PRODUCT	PD 2100-M-AS-i	
ARTICLE NO.	●	21120502004
ARTICLE NO.	●	21120505004

DATA

Light source	LED	
Operating range	26.5–32.6 V	
Nominal current consumption	approx. 250 mA	
Alarm output	via AS-i Bus	
Light intensity (DIN 5037) ¹	5 cd	
Max. viewing distance	52 m	
Operating temperature	–25 ... +45 °C	
Protection system according to EN 60529	IP 55 (if mounted vertically/horizontally)	
Service life of light source	>50,000 hrs	
Material	lens	polycarbonate (PC)
	housing	acrylonitrile butadiene styrene (ABS)
Type of connection	M12 plug connector, 4-pole	
	Pin 1	AS-i +
	Pin 2	NC
	Pin 3	AS-i –
	Pin 4	NC
Addressing socket	DC jack, Ø 1.3 mm, AS-i + AS-i –	
AS-i specification	AS-i 2.1, A/B capable EN 50295	
Dimensions (X x Y x Z)	166.2 x 111.2 x 128 mm	

ACCESSORIES	PAGE	ARTICLE NUMBER
Protective cage	44	28710500040

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

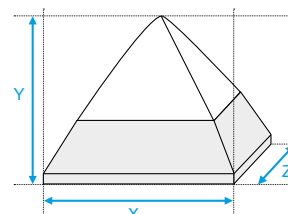
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



PMF LED Multi- Function Light



xenon versions on page 20 and 84

LED technology – multi-function capability
Durable, low power, high output LEDs with an array of signal action.

Low power consumption
Energy efficient, solid-state design is also shock and vibration tolerant.

Extreme bright
With 315 cd flash brightness for large areas and outdoors.

Inrush current limitation
As standard with inrush current limitation and flexible wide range power supplies.

Highly insensitive to vibration
with service life exceeding 50,000 hrs.

Day/night switching
Automatic brightness adjustment to ambient light (day / night switching) can be activated to prevent glare.

3 different signalling modi selectable

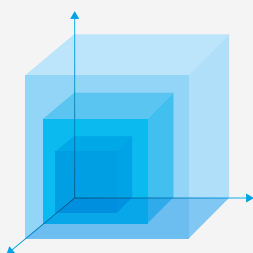
- blinking light, highly efficient for permanent warning
- flashing light, brighter than comparable xenon flashing light
- rotating beacon effect, without susceptible mechanics.

SIL
The warning devices can be implemented in Safety Instrumented Systems (SIS) up to SIL 2 / PLd. Integrated self-monitoring function satisfies the requirement for routine system checks and eliminates the need for redundant devices.

Versatile mounting
choose direct mount for flat surface installation or bracket mount for attachment to walls or pipes.



3D-Coverage performance data, A x B x C



PMF LED-HI-SIL

Indicate	64.8 x 166.1 x 166.1 m
Warn	28.8 x 73.8 x 73.8 m
Alarm	14.4 x 36.9 x 36.9 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

LED LIGHT



protection system



operating temperature



ultra bright



day/night



inrush current limitation



PRODUCT	PMF LED-HI-SIL	
	direct mounting	bracket mounting
ARTICLE NO. ●	21154634006	21154634007
ARTICLE NO. ●	21154635006	21154635007

DATA			
Light source	8 x 2 high performance LEDs		
Operating range	10–30 V		
	DC		
Nominal current consumption	flash 1 Hz	300 mA	
	diagnostics channel	35 mA	
Alarm contact	version	positively driven contact (1x NC, 1x NO)	
	max. switching power	750 VA AC	
Operating mode	blinking light	flashing light	rotating all-round light
Flash rate of the main flash	1.5 Hz	1 Hz	2.5 Hz
Light intensity (DIN 5037) ¹	315 cd, automatically reducible (day/night operation)		
Max. viewing distance	411 m		
Operating temperature	–40 ... +55 °C		
Protection system according to EN 60529	IP 55 (vertical mounting)		
Service life of light source	>50,000 hrs		
Material	lens	polycarbonate (PC), fresnel characteristic	
	housing	acrylonitrile butadiene styrene (ABS)	polycarbonate (PC)
Dimensions (X x Y + Y2)	Ø 177 x 185 + 0 mm		Ø 130 x 170.5 + 90 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

All relevant safety data can be found in the manual in the download area on the product website.

Models with alternative features available upon request

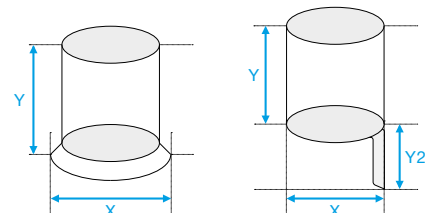
Choice of lens colours: clear | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



DS Sounders



Die-cast aluminium housing

Resistant to UV light, seawater, and many chemicals. Sturdy construction resists vandalism to ensure a high degree of functional safety.

Selectable audible notification

Choice of 32 unique alarm tones with three stages of tone control for distinctive signalling of specific events.

Choice of output levels

Versions for 108 dB(A) and 114 dB(A) sound pressure levels to suit a variety of signal coverage needs.

Strong, metal mounting lugs

Ensures a safe and secure installation onto many types of surfaces.

Electromagnetic sound capsule technology

Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

SIL

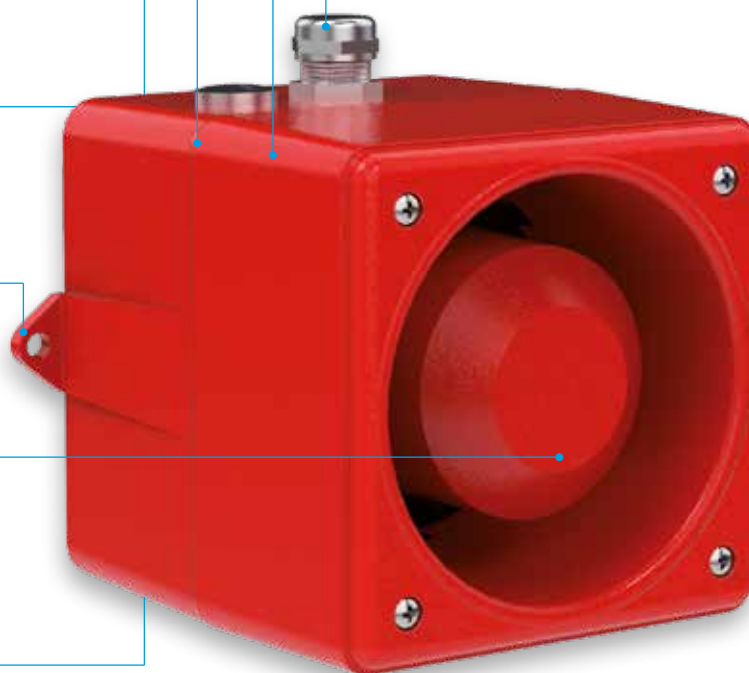
The warning devices can be implemented in Safety Instrumented Systems (SIS) up to SIL 2 / PLd. Integrated self-monitoring function satisfies the requirement for routine system checks and eliminates the need for redundant devices.

IP 66/67 enclosure rating

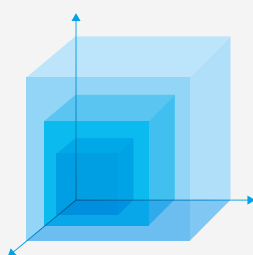
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Stainless steel cable gland

Included to ensure a high degree of electrical connection integrity.



3D-Coverage performance data, A x B x C



DS 5-SIL

80 dB(A)	23.1 x 27.5 x 23.1 m
85 dB(A)	13 x 15.5 x 13 m
90 dB(A)	7.3 x 8.8 x 7.3 m

DS 10-SIL

80 dB(A)	33.4 x 43.7 x 33.4 m
85 dB(A)	18.8 x 24.5 x 18.8 m
90 dB(A)	10.6 x 13.8 x 10.6 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

SOUNDERS



protection system



operating temperature



acoustic penetration



option: external tone selection



warranty

PRODUCT	DS 5-SIL		DS 10-SIL	
ARTICLE NO.	23106100601	23106800601	23111100601	23111800601

DATA

Operating range		95–253 V	19–29 V	95–253 V	19–29 V
		AC 50 60 Hz	DC	AC 50 60 Hz	DC
Nominal current consumption	sounder	0.06 A @ 230 V	0.28 A	0.06 A @ 230 V	0.42 A
	diagnostic channel	30 mA	20 mA	30 mA	20 mA
Max. sound pressure level		108 dB(A)		114 dB(A)	
Sound pressure level @ DIN tone		107 dB(A)		112 dB(A)	
Alarm tones		32 / 4 tones are externally selectable, tone table on page 77			
Operating temperature		–25 ... +55 °C			
Protection system according to EN 60529		IP 66/67			
Material		die-cast aluminium GD-Al Si12 Cu			
Surface coating		epoxy resin paint			
Cable bushing		2x M20 (1x chrome-plated brass cable fitting, 1x chrome-plated brass blanking plug)			
Dimensions (X x Y x Z)		133.5 x 133.5 x 143 mm			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

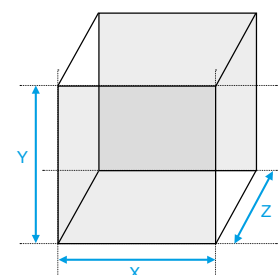
All relevant safety data can be found in the manual in the download area on the product website.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Reliable status indication
for industrial processes
and machinery functions.



Signal towers at a glance



BR 50
54 mm
Page 96



BR 35
35 mm
Page 102



BR 50-LED 3G/3D
54 mm
Zone 2 | 22
Page 128

BR 50 Signal Towers



Slim yet perceptible design

54 mm diameter complements industrial machinery while offering excellent visibility.

Modular design

Simplifies configuration and assembly of a wide variety of colour and illumination options.

Simple custom configurations

Up to 5 modules with 4 different functions can be stacked with 6 different lens colours. Configuration can be changed to suit new requirements.

Ex-ATEX version (option)

Suitable for zones 2 and 22. See page 128.



Self-monitoring module

Integrated functional fault monitoring with redundant LED array and dry contact relay supports automatic switchover to secondary LEDs and remote fault notification.

AS-I BUS module

Simple integration to the AS-i Interface BUS system for up to 4 stages or 62 master/slave connections.

IP 54 / IP 65 enclosure rating

Standard indoor version is easily upgraded for use in outdoor applications and wash-down requirements with optional o-rings.

Versatile mounting options

Tubular stand or bracket with various tube lengths, or direct to enclosure.

Tone table BR 50-SM

NO.	DESCRIPTION	NO.	DESCRIPTION
1	Alternating tone	5 ¹	Continuous tone
2	Slow whoop	6	Simulated bell
3	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	7	Sweeping
4	Alternating tone, France NFS 32-001 (fire alarm)		

¹ factory setting



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenbergl.com

SIGNAL TOWERS



protection system



option



operating temperature



UL



option



PRODUCT BR 50 (standard modules)

DATA		BR 50 (standard modules)					
Modules		continuous light		blinking light 1.5 Hz		flashing light	sounder
Segment stages (total)		max. 5 (order and colour can be selected individually)					
Light source ¹		bulb BA15d	LED	bulb BA15d	LED		
Rated power	per stage	7 W	depending on voltage	7 W	depending on voltage	15–40 mA	175 mA
	per stage if 5 stages	5 W		5 W			
Flash energy	230 V AC					0.6 J	
	24 V AC/DC					24 V: 1 J	
Max. sound pressure level (reducible)							87 dB(A) (–10 dB)
Sound pressure level @ DIN tone							85 dB(A)
Alarm tones							7
Nominal current consumption	230 V AC	35 mA	15 mA	35 mA	–	10.5 mA	15 mA
	operating range	–15 % ... +10 %				–10 % ... +15 %	–15 % ... +10 %
	24 V DC	300 mA	30 mA	250 mA	30 mA	AC/DC: 100 mA	12 mA
Operating temperature	operating range	–15 % ... +20 %		10–30 V		AC: 10–27 V DC: 10–35 V	–15 % ... +20 %
	bulb	–25 °C ... +50 °C					–10 °C ... +45 °C
LED	–30 °C ... +60 °C						
Protection system (EN 60529)		IP 54					IP 43
Service life of light source		approx. 1,500 hrs	approx. 50,000 hrs	approx. 1,500 hrs	approx. 50,000 hrs	light emission still 70 % after 8,000,000 flashes	
Material	lens	polycarbonate (PC), UV resistant					
	base	acrylonitrile butadiene styrene (ABS)					

PRODUCT BR 50 (special modules)


DATA		BR 50 AS-i Bus slave	
Modules	monitored continuous light	AS-i	AS-i-AB
Module types	2 x 8 LED, monitored continuous light 	LED, sounder, continuous light, blinking light	
Segment stages (total)	max. 3	max. 4	max. 3
AS-i profile		S-8.F.E	S-8.A.E
AS-i specification		AS-i 3.0 / EN 50295	
Max. slave/master		31	62
Alarm output	max. 230 V / 80 mA, R _{ONmax} = 35 Ω (closed at error-free operation)		
Rated power	24 V DC		
Nominal current consumption	approx. 35 mA	<0.25 A	
Operating range	–15 % ... +20 %	26.5–31.6 V	
Service life of light source	50,000 hrs @ 24 °C, 40 % R.H.		

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Configuration alternatives

 <p>Sounder module</p>				STAGE 5
 <p>Flashing light module</p>		 		STAGE 4
 <p>Continuous light module with LED</p>		 		STAGE 3
 <p>Blinking light module</p>		   <p>Monitored module</p>		STAGE 2
 <p>Continuous light module</p>		 <p>AS-i-module</p>  		STAGE 1

MOUNTING VARIANTS










Modular design permits quick and easy configuration and assembly.

ARTICLE NO.		BR 50 MODULES	
VERSION		230 V AC	24 V DC
Base and end module	BR50-BC	28250010000	
Continuous light module	 BR50-CL-CL	28250040010	
	 BR50-CL-YE	28250040030	
	 BR50-CL-AM	28250040040	
	 BR50-CL-RE	28250040050	
	 BR50-CL-GR	28250040060	
	 BR50-CL-BL	28250040070	
Blinking light module	 BR50-BL-CL	28250051010	28250058010
	 BR50-BL-YE	28250051030	28250058030
	 BR50-BL-AM	28250051040	28250058040
	 BR50-BL-RE	28250051050	28250058050
	 BR50-BL-GR	28250051060	28250058060
	 BR50-BL-BL	28250051070	28250058070
Flashing light module	 BR50-FL-CL	28250071010	28250078010
	 BR50-FL-YE	28250071030	28250078030
	 BR50-FL-AM	28250071040	28250078040
	 BR50-FL-RE	28250071050	28250078050
	 BR50-FL-GR	28250071060	28250078060
	 BR50-FL-BL	28250071070	28250078070
LED module, monitored (top module)	 BR50-LED-M-YE	–	28250068030
	 BR50-LED-M-RE	–	28250068050
LED module, monitored (bottom module)	 BR50-LED-M-YE	–	28250368030
	 BR50-LED-M-RE	–	28250368050
Sounder module	BR50-SM	28250081000	28250088000
AS-i module	BR50-AS-i	–	28250148300
AS-i-AB module	BR50-AS-i-AB	–	28250178300
Mounting stand (stainless steel) with plinth	100 mm BR50-S100	28250150010	
	250 mm BR50-S250	28250150020	
	400 mm BR50-S400	28250150040	
Tube with thread and bracket (stainless steel), excl. seal and cable	100 mm BR50-T100	28250160010	
	250 mm BR50-T250	28250160020	
	400 mm BR50-T400	28250160040	
Wall bracket for mounting stand	BR50-W	28250200000	
Mounting kit	BR50-BG	28250210000	
Module gasket IP 65	BR50-MG	28250220000	
Tube gasket IP 65	BR50-TG	28250230000	
Lamp remover	BR50-LS	28250250000	

Filament bulbs or LED lamps for continuous and blinking modules must be ordered separately.



Ordering example

SIGNAL TOWER 5-stage, IP 65		Version	ARTICLE NO.	
			230 V AC	24 V DC
 Sounder module	BR50-SM	28250081000	28250088000	
			+	
 Flashing light module	BR50-MG + BR50-FL	28250220000		
		28250071050	28250078050	
+				
 Continuous light module with bulb or LED	BR50-MG + BR50-CL + bulb or LED BA15d	28250220000		
		28250040060		
		28213000004	28213000000	
		28213000018	28213000011	
+				
 Blinking light module with bulb or LED	BR50-MG + BR50-BL + bulb or LED BA15d	28250220000		
		28250051030	28250058030	
		28213000004	28213000000	
		28213000030	28213000007	
+				
 Continuous light module with bulb or LED	BR50-MG + BR50-CL + bulb or LED BA15d	28250220000		
		28250040010		
	28213000004	28213000000		
	28213000014	28213000006		
	BR50-MG + BR50-BC		28250220000	
			28250010000	
+				
 Mounting stand (100 mm) and seal	BR50-TG	28250230000		
	BR50-S100	28250150010		

Accessories for BR 50

MULTI-LED BA15D AND FILAMENT LAMPS

LED lamps – the long-lasting alternative to filament bulbs.

- durable, shock and vibration tolerant with service life exceeding 50,000 hrs.
- low power consumption (e.g. 30 mA at 24 V).
- “plus” versions for extra brightness include additional surface mount LEDs on board.

VERSION		ARTICLE NO. 230 V AC ¹	ARTICLE NO. 24 V AC/DC
●	LED standard plus	28213000013	
●	LED standard	28213000014	28213000006
●	LED standard plus		28213000007
●	LED standard	28213000015	
●	LED standard plus		28213000009
●	LED standard	28213000016	
●	LED standard plus	28213000017	
●	LED standard	28213000018	28213000011
●	LED standard plus	28213000019	
●	LED standard	28213000020	28213000012
Filament lamp	BR50-L 7 W	28213000004	28213000000
Filament lamp	BR50-L 5 W	28213000005	28213000001

¹ not for blinking light module BR 50-BL, article numbers upon request.



LAMP REMOVER

Lamp tool for simple bulb installation or removal.

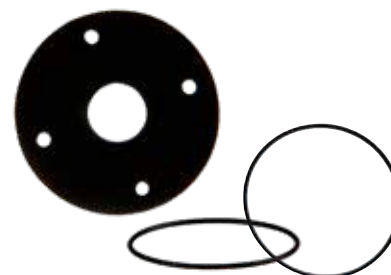
		ARTICLE NO.
Lamp remover	BR50-LS	28250250000



GASKETS

Module o-rings and mounting gaskets to achieve IP 65 ingress protection for outdoor and wash-down applications.

		ARTICLE NO.
Direct mounting set	BR50-BG	28250210000
Module gasket IP 65 (1 x per light module plus 1 x base module)	BR50-MG	28250220000
Tube gasket IP 65 (for tubular stand or tube mounting only)	BR50-TG	28250230000



WALL BRACKET WITH HOOD

Accommodates wall mounting of the BR 50 on a tubular stand.

		ARTICLE NO.
Wall bracket	BR50-W	28250200000



BR 35 Signal Towers



Compact machinery status indicator

35 mm diameter complements industrial machinery while offering excellent visibility.

Modular design

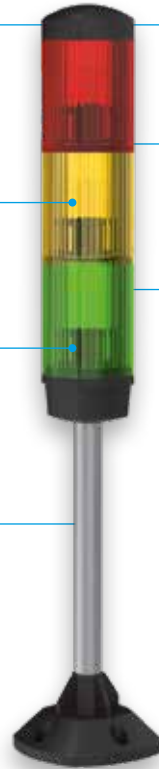
Simplifies configuration and assembly of a wide variety of lens colour options.

Prismatic lenses

Provide dispersion of light for high visibility from all sides. High impact resistant polycarbonate material.

Satisfies many requirements

Provides machinery and process status indication for production lines, laboratories, medical equipment, and conveyor systems.



Sounder module available.

Patented design

no. 9706583.8, utility patent no. 29716867.3.

Choice of lamp type

Supports filament bulbs or LED lamps.



www.pss-pfannenber.com

Pfannenber's PSS software tool provides easy signal tower configuration to suit individual requirements.

SIGNAL TOWERS



protection system



LED




filament lamp



option



PRODUCT		BR 35	
DATA			
Rated voltage		230 V	24 V
		AC 50 60 Hz	DC
Operating range		-15 % ... +10 %	-15 % ... +20 %
Capacity of light source		3 W	4 W
Light source	AC	BA9s, 3 W (previously installed)	
	DC	BA9s, max. 4 W (previously installed)	
Number of modules		max. 4	
Operating temperature	LED	-35 °C ... +55 °C	
	filament lamp	-35 °C ... +45 °C	
Protection system according to EN 60529		IP 54	
Service life of light source		approx. 1,000 hrs	
Material	lens	 polycarbonate (PC)	
	housing	acrylonitrile butadiene styrene (ABS)	
	tube	stainless steel	
Type of connection		cable length 0.5 m tube mounting; 0.65 m panel mounting	
Mounting methods		mounting stand, plinth mounting, tube mounting, panel mounting (see drawings on page 105)	
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.			

Further models on request

12 V DC | 115 V AC.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

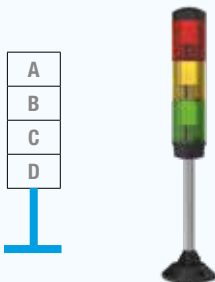
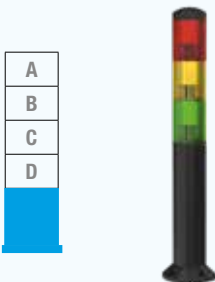
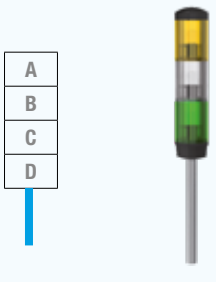
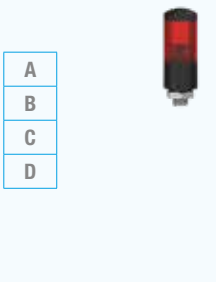
can be retrieved by entering this webcode in the search window on www.pfannenberg.com

BR 35 MOUNTING STAND		ARTICLE NO.	
Version		230 V AC	24 V DC
1-stage	BR 35-1-S	22080101000	22080801000
2-stage	BR 35-2-S	22080102000	22080802000
3-stage	BR 35-3-S	22080103000	22080803000
4-stage	BR 35-4-S	22080104000	22080804000
3-stage with fixed colour order: top: ●, middle: ●, bottom: ●		22080100000	22080800000
BR 35 PLINTH MOUNTING		ARTICLE NO.	
Version		230 V AC	24 V DC
1-stage	BR 35-1-P	22081101000	22081801000
2-stage	BR 35-2-P	22081102000	22081802000
3-stage	BR 35-3-P	22081103000	22081803000
4-stage	BR 35-4-P	22081104000	22081804000
BR 35 TUBE MOUNTING		ARTICLE NO.	
Version		230 V AC	24 V DC
1-stage	BR 35-1-T	22082101000	22082801000
2-stage	BR 35-2-T	22082102000	22082802000
3-stage	BR 35-3-T	22082103000	22082803000
4-stage	BR 35-4-T	22082104000	22082804000
BR 35 PANEL MOUNTING		ARTICLE NO.	
Version		230 V AC	24 V DC
1-stage	BR 35-1-PM	22083101000	22083801000
2-stage	BR 35-2-PM	22083102000	22083802000
3-stage	BR 35-3-PM	22083103000	22083803000
4-stage	BR 35-4-PM	22083104000	22083804000

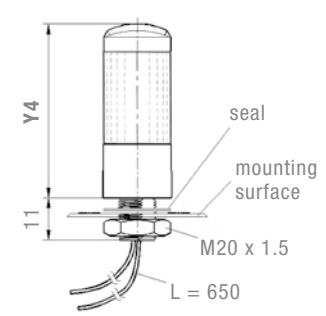
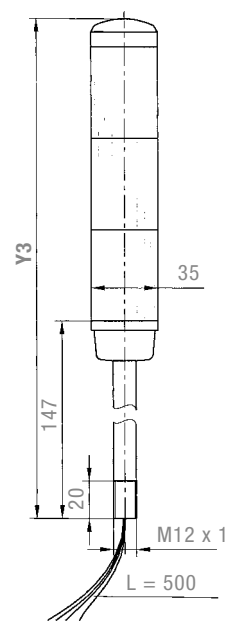
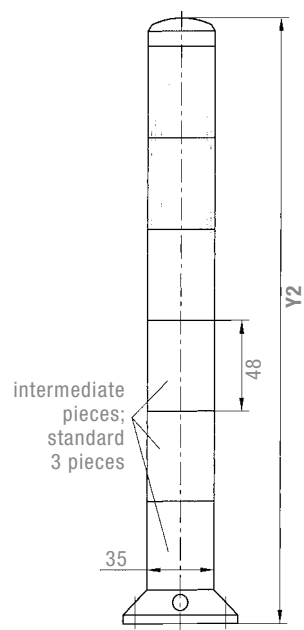
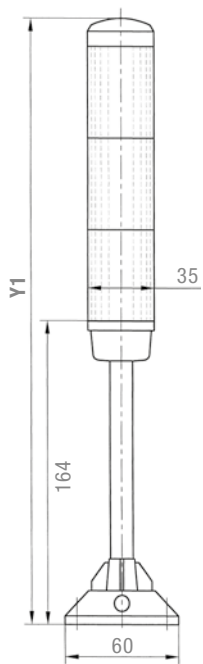
Article numbers for other voltages on request.

OPTIONS ACCESSORIES		ARTICLE NO.
Product		
Plastic mounting bracket for stand- or plinth mounting	BR35-W	28235200020
Metal mounting bracket for tube mounting	BR35-A	28235200010
Assembly kit for sounder module		28235808000

Ordering examples

Mounting stand	Plinth mounting	Tube mounting	Panel mounting
 <p>3-stage BR 35 mounting stand 24 V DC, colour order:</p> <p>A = ● B = ● C = ●</p> <p>Article no.: 22080803000</p>	 <p>3-stage BR 35 plinth mounting 230 V AC, colour order:</p> <p>A = ● B = ● C = ●</p> <p>Article no.: 22081103000</p>	 <p>3-stage BR 35 tube mounting 24 V DC, colour order:</p> <p>A = ● B = / C = ●</p> <p>Article no.: 22082803000</p>	 <p>1-stage BR 35 panel mounting 230 V AC, colour order:</p> <p>A = ●</p> <p>Article no.: 22083101000</p>
Please indicate color sequence (A/B/C/D) in your order as depicted above.			

MOUNTING STAND	PLINTH MOUNTING	TUBE MOUNTING	PANEL MOUNTING
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	Y1	Y2	Y3	Y4
1-stage	228	228	210	91
2-stage	276	276	258	142
3-stage	324	324	306	190
4-stage	372	372	354	238

Accessories for BR 35

LIGHT SOURCE

Filament lamps and LEDs for signal towers from the BR 35 series.

			ARTICLE NO.
●	LED	24 V AC/DC	28613000000
●	LED	24 V AC/DC	28613000001
●	LED	24 V AC/DC	28613000002
●	LED	24 V AC/DC	28613000003
●	LED	24 V AC/DC	28613000004
Filament lamp	pack of 5	230 V AC 3 W	28813000000
Filament lamp	pack of 5	115 V AC 3 W	28813000001
Filament lamp	pack of 5	24 V DC 4 W	28813000002
Filament lamp	pack of 5	12 V DC 4 W	28813000003



MOUNTING BRACKET

Bracket for mounting the BR 35.

		ARTICLE NO.
Metal bracket for tube mounting	BR 35-A	28235200010
Plastic bracket for mounting on tubular stand or plinth	BR 35-W	28235200020



Alarm safety even
in explosive areas.



Ex signaling devices are used wherever explosive gases, vapours and dusts can become dangerous.













Our Ex-series visual and acoustic signaling devices stand out with their particularly sturdy construction and insensitivity to environmental influences and chemicals.

These are information, warning and emergency signals for safety, hazard and fire alarm systems; for building, industrial and commercial automation; for disaster warnings and for hazardous areas.

Protecting man, machine and the environment.



Ex signaling devices at a glance




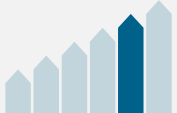











TYPE	3D-COVERAGE LEVEL ¹	LIGHT INTENSITY/ MAX. SOUND PRESSURE LEVEL	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS					PAGE	
					GL	EAC	VdS	EN 54-3	Category Zone		
EX-ATEX FLASHING LIGHTS											
	BExBG 15		15 J	IP 66/67	239.5 x 165 x 165		●			2G 2D	110
										1, 2 21, 22	
	BExBG 05		5 J	IP 66/67	239.5 x 165 x 165		●			2G 2D	112
										1, 2 21, 22	
	Quadro F12-3G/3D		7.5 J	IP 66/67 IK08	130 x 130 x 130		●			3G 3D	114
										2 22	
	CWB-ATEX		5 J	IP 66	260 x Ø 70	●	●			2G 2D	116
										1, 2 21, 22	
EX-ATEX LED LIGHTS											
	Quadro LED-HI 3G/3D		75 cd	IP 66/67 IK08	130 x 130 x 130		●			3G 3D	118
										2 22	
	IS-mB1		5 cd	IP 65	85 x Ø 88.7		●			1G	120
										0, 1, 2	
EX-ATEX SOUNDERS											
	DS 10 3G/3D		114 dB(A)	IP 66/67	133.5 x 133.5 x 143	● ²	●	●	●	3G 3D	122
										2 22	
	DS 5 3G/3D		108 dB(A)	IP 66/67	133.5 x 133.5 x 143	● ²	●	●	●	3G 3D	122
										2 22	
	IS-A105N		103 dB(A)	IP 66	130 x 130 x 132		●			1G	122
										0, 1, 2	

¹ with a clear lens

● available ○ pending ² option

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use. Unless specified otherwise, sound pressure level is measured at a 1 m distance.

Ex signaling devices at a glance

TYPE	3D-COVERAGE LEVEL	LIGHT INTENSITY/ MAX. SOUND PRESSURE LEVEL	PROTECTION SYSTEM	DIMENSIONS (H x W x D) mm	APPROVALS/STANDARDS					PAGE
					GL	EAC	VdS	EN 54-3	Category Zone	
EX-ATEX SOUNDERS										
 IS-mA1		102 dB(A)	IP 65	Ø 88.7 x 99		●	●	●	1G 0, 1, 2	118
 BExS 120D		120 dB(A)	IP 66	Ø 220 x 326		●		●	2G	124
BExS 120E			IP 67					1, 2		
 BExDS 120D		120 dB(A)	IP 66	Ø 220 x 326		●		●	2G 2D	
BExDS 120E			IP 67					1, 2 21, 22		
 BExS 110D		113 dB(A)	IP 66	Ø 181 x 275			●	●	2G	
BExS 110E			IP 67					1, 2		
 BExDS 110D		113 dB(A)	IP 66	Ø 181 x 275			●	●	2G 2D	
BExDS 110E			IP 67					1, 2 21, 22		
EX-ATEX COMBINED DEVICES										
 BExCS 110-05D		5 J 113 dB(A)	IP 66/67	Ø 181 x 368		●			2G 1, 2	126
 IS-mC1		5 cd 102 dB(A)	IP 65	116 x Ø 88.7		●			1G 0, 1, 2	118
EX-ATEX SIGNAL TOWERS										
 BR 50-LED 3G/3D			IP 65	1-stage: 189 x 82 x 85 2-stage: 252 x 82 x 85 3-stage: 315 x 82 x 85		●			3G 3D 2, 22	128

● available ○ pending ² option

Sound pressure levels approaching 120 dB(A) and higher can lead to hearing damage. Caution must be exercised to ensure that personnel are not within the vicinity of such elevated sound pressure levels. High output sounders are intended for use in outdoor applications or in large manufacturing spaces where hearing protection may be in use. Unless specified otherwise, sound pressure level is measured at a 1 m distance.



Ex-ATEX Flashing Lights



XENON

EX

Powerful visual safety for hazardous areas

Up to 15 joules flashing light energy to alert personnel of danger in both combustible gas and dust environments.

ATEX certified for Zones 1, 2, 21, 22

Satisfies requirements for device category 2D and 2G.

Robust construction

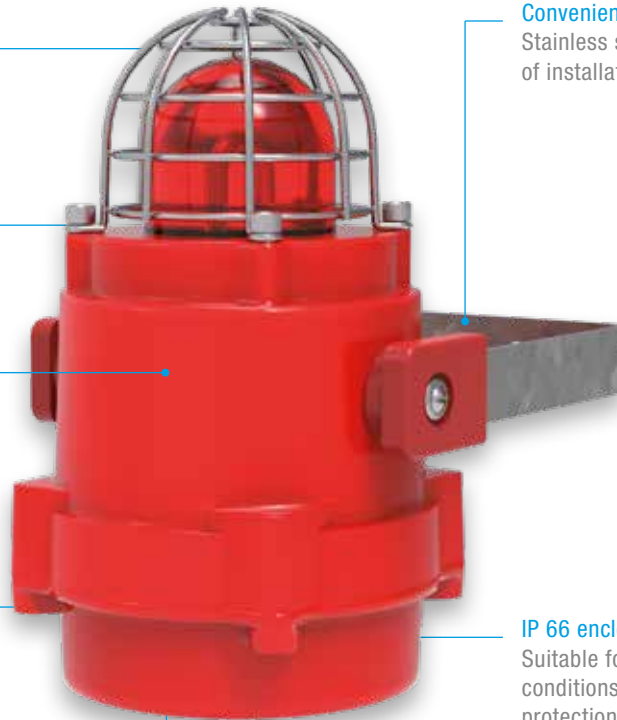
Durable, cast-aluminium housing and stainless steel protection cage endures saltwater and other corrosives for demanding marine and industrial environments.

Wide range

of operating temperatures from $-50\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$.

Choice of housing protection scheme

Category "d" flame proof enclosure or category "e" enhanced safety for ease of safe electrical connection.



Convenient mounting

Stainless steel bracket permits ease of installation for any orientation.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

EX-ATEX FLASHING LIGHTS



protection system



operating temperature



PRODUCT	BExBG15-E		BExBG05-E	
ARTICLE NO. ●	31110103000	31110803000	31130103000	31130803000
ARTICLE NO. ●	31110104000	31110804000	31130104000	31130804000
ARTICLE NO. ●	31110105000	31110805000	31130105000	31130805000

DATA

Operating range	230 V ±10 %	24 V ±25 %	230 V ±10 %	24 V ±25 %
	AC 50 60 Hz	DC	AC 50 60 Hz	DC
Current consumption	170 mA @ 230 V AC	860 mA @ 24 V DC	55 mA @ 230 V AC	300 mA @ 24 V DC
Type of protection	Ex de IP 66			
Explosion protection	II 2G Ex de IIC T4 or T5 II 2D Ex tD A21 IP66 T125		II 2G Ex de IIC T4, T5 or T6 II 2D Ex tD A21 IP66 T115	
Category (area of use)	2G (Zone 1, 2) 2D (Zone 21, 22)			
Certificate of conformity	KEMA 01 ATEX 2030			
Flash energy and flash rate	15 J @ 1 Hz = 60 flashes/min		5 J @ 1 Hz = 60 flashes/min	
Light intensity (DIN 5037) ¹	226 cd		55 cd	
Max. viewing distance	348 m		172 m	
Temperature class T	T4 / T125°C @ Ta -50 °C ... +70 °C T110°C @ Ta -50 °C ... +55 °C T5 / T85°C @ Ta -50 °C ... +40 °C		T4 / T115°C @ Ta -50 °C ... +70 °C T5 / T100°C @ Ta -50 °C ... +55 °C T6 / T85°C @ Ta -50 °C ... +40 °C	
Protection system according to EN 60529	IP 66			
Service life of light source	light emission still 70 % after 8,000,000 flashes			
Material	lens	glass		
	housing	die-cast aluminium, resistant to salt water, marine grade LM6		
Dimensions (X x Y)	Ø 165 x 239.5 mm			

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Models with alternative features available upon request

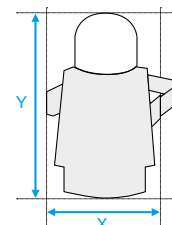
BExBG05 in 115 V AC, 12 V DC, 48 V DC, BExBG15 in 48 V DC.	Choice of lens colours: clear yellow amber red green blue.	Less expensive versions with higher IP rating but without "e" enhanced safety electrical connection.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Flashing Lights



Positive enclosure sealing

Leak path risk is eliminated since the lens fastening screws are located outside the sealing gasket area.

Impact resistant housing and lens

Achieves IK08 impact rating to endure harsh environments.

ATEX certified for Zones 2, and 22

For use in potentially explosive areas in Zone 2 as per EN 60079-10 and Zone 22 as per EN 61241-10.

IP 66/67 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Inrush current regulator

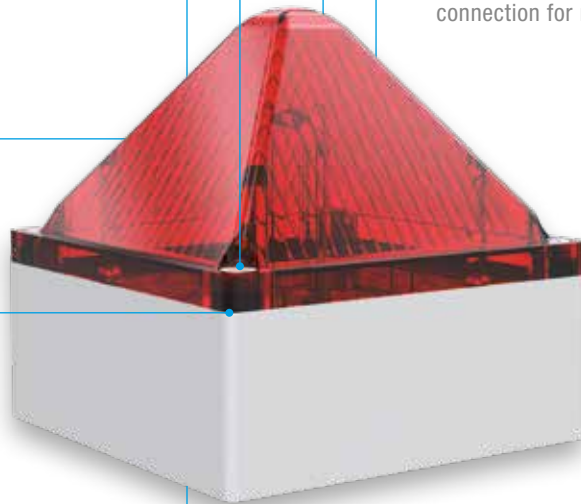
Provides electrical protection for control devices such as switching components and relays.

High quality, long life components

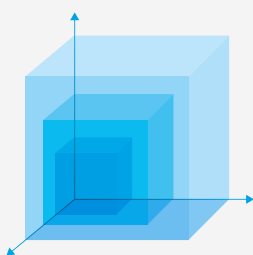
Provides the utmost in reliability and longevity.

Redundant electrical contacts

Provides ease of wiring and daisy-chain connection for multi-unit installations.



3D-Coverage performance data, A x B x C



Quadro F12-3G/3D

Indicate	80.1 x 57.2 x 77.4 m
Warn	35.6 x 25.4 x 34.4 m
Alarm	17.8 x 12.7 x 17.2 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

EX-ATEX FLASHING LIGHTS



protection system



impact-proof housing



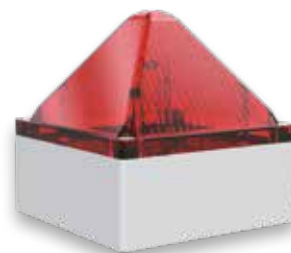
operating temperature







Einschaltstrombegrenzung










warranty



PRODUCT	Quadro F12-3G/3D	
ARTICLE NO. 	21041101008	21041801008
ARTICLE NO. 	21041103008	21041803008
ARTICLE NO. 	21041104008	21041804008
ARTICLE NO. 	21041105008	21041805008

DATA

Operating range	195–253 V	18–30 V
	AC 50 60 Hz	DC
Current consumption	90 mA @ 230 V	360 mA @ 24 V
Initial current limited to	<7 A / 150 µs	<5 A / 2 ms
Explosion protection	II 3G Ex nR IIC T4 -20 °C ≤ Ta ≤ +45 °C II 3D Ex tD A22 IP66 T105 °C -20 °C ≤ Ta ≤ +45 °C	
Category (area of use)	3G (Zone 2) / 3D (Zone 22)	
Special conditions	X: according to the requirements of prDIN EN 60 079-0, DIN EN 61241-0 (2007) and DIN EN 61241-1 (2005), the equipment is suitable for applications with a low degree of mechanical danger. It must therefore be ensured that the light is mounted with sufficient protection against impacts. A protective cage is not mandatory.	
Flash energy and flash rate	7.5 J @ 1 Hz = 60 flashes/min	
Light intensity (DIN 5037) ¹	84 cd	
Max. viewing distance	229 m	
Operating temperature	-40 ... +55 °C	
Protection system according to EN 60529	IP 66/67, mounting arbitrary	
Impact resistance as per EN 50102	IK08	
Service life of light source	light emission still 70 % after 8,000,000 flashes	
Material	lens	       polycarbonate (PC)
	housing	polycarbonate (PC)
Dimensions (X x Y x Z)	130 x 130 x 130 mm	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

¹ with a clear lens

Further models upon request

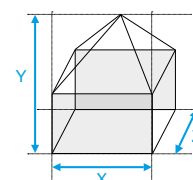
115 V AC.	Choice of lens colours: clear white yellow amber red green blue.
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Comprehensive technical documentation such as

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- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Flashing Lights



Visual safety for hazardous areas

Up to 5 joules flashing light energy to alert personnel of danger in both combustible gas and dust environments.

Flash tube

Xenon strobe generates highly visible light without sensitive filaments. A steel fixing clamp provides additional resistance to shock and vibration.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Choice of housing protection scheme

Category “d” flame proof enclosure or category “e” enhanced safety for ease of safe electrical connection.



Protective cage

Stainless steel protective cage available as accessory.

ATEX certified for Zones 1, 2, 21, 22

Satisfies requirements for device category 2G/3G and 2D/3D.

GL

Germanischer Lloyd approved versions available for maritime applications and areas prone to high shock and vibration conditions.

Robust and reliable

With corrosion resistant anodised aluminium housing and mounting bracket, as well as a high strength polycarbonate lens, the signal light is ideal for tough industrial requirements.

Optional

available with different mounting accessories; for pipe clamp, mounting bracket and mounting plate.

Models with alternative features available upon request

110–127 V AC 60–80 V DC.	Choice of lens colours: clear yellow amber red green blue.
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EX-ATEX FLASHING LIGHT



protection system



operating temperature



PRODUCT	CWB-ATEX	
ARTICLE NO.	31006103000	31006903000
ARTICLE NO.	31006104000	31006904000
ARTICLE NO.	31006105000	31006905000

DATA

Operating range	230 V ±10 %	24–42 V ±10 %	12–48 V ±10 %
	AC 50 60 Hz	AC 50 60 Hz	DC
Current consumption	0.08 A @ 230 V AC	0.5–0.3 A	0.5–0.3 A
Type of protection	"d" flame proof enclosure for light housing "e" enhanced safety for terminal box		
Explosion protection	II 2 G Ex d e IIC T6 Gb II 2 G Ex d e IIC T5 Gb II 2 D Ex tb IIIC T85°C dB IP66 (T6) II 2 D Ex tb IIIC T100°C dB IP66 (T5)		
Category (area of use)	2G (Zone 1, 2) 2D (Zone 21, 22)		
Certificate of conformity	LCIE 02 ATEX 6113		
Flash energy and flash rate	5 J @ 1 Hz		
Light intensity (DIN 5037) ¹	55 cd		
Max. viewing distance	172 m		
Temperature class	T6	T _{amb} : -40 °C ... +40 °C	
	T5	T _{amb} : -40 °C ... +50 °C	
Protection system according to EN 60529	IP 66		
Service life of light source	light emission still 70 % after 8,000,000 flashes		
Material	lens	polycarbonate (PC)	
	housing	aluminium alloy	
Dimensions (X x Y x Z)	91 x 260 x 82 mm		

ACCESSORIES	PAGE	ARTICLE NUMBER
Mounting plate	130	38108100000
Mounting bracket	130	38108100100
Standard bracket set	130	38108100150
Protective cage	130	38108100200
Pipe clamp R1 1/4"	130	38108101000
Pipe clamp R1 1/2"	130	38108101200
Pipe clamp R2"	130	38108102000

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

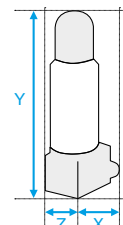
¹ with a clear lens



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX LED Lights



Advanced LED technology

User-adjustable brightness up to 75 cd and selection of several signalling modes: continuous light | blinking light | flashing light.

IP 66/67 and IK08 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Shape-moulded gasket

For easy and secure installation – does not slip out of position and stays in place.

Inrush current regulator

Provides electrical protection for control devices such as switching components and relays.

Redundant electrical contacts

Provides ease of wiring and daisy-chain connection for multi-unit installations.

Safe operation

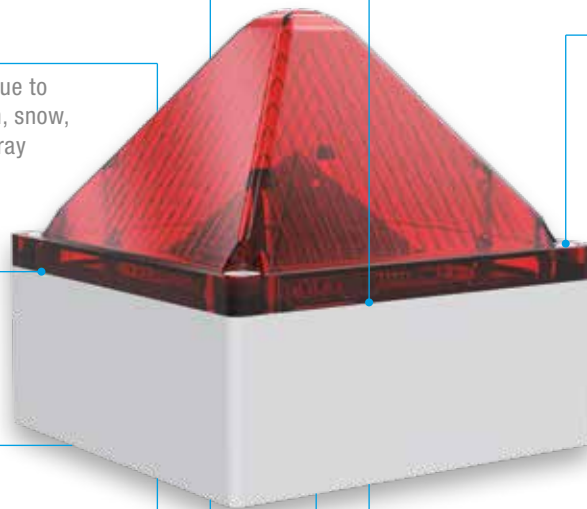
in all possible thermal (weather) and environmental conditions around the world.

Hazardous area approved

Certified for use in Ex zone 2 (per EN 60079-10) and zone 22 (per EN 61241-10).

Positive enclosure sealing

Leak path risk is eliminated since the lens fastening screws are located outside the sealing gasket area.



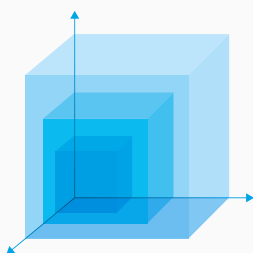
Wide range power supplies

11–60 V DC and 90–253 V AC and DC!).

Flexible wiring schemes

Multiple cable and conduit entries ensure easy installation in any orientation.

3D-Coverage performance data, A x B x C



Quadro LED-HI 3G/3D

Indicate	47.7 x 35.6 x 46.8 m
Warn	21.2 x 15.8 x 20.8 m
Alarm	10.6 x 7.9 x 10.4 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

EX-ATEX LED LIGHT



protection system



impact-proof housing



operating temperature



brightness adjustable



warranty



PRODUCT		Quadro LED-HI 3G/3D	
ARTICLE NO.		21108643009	21108633009
ARTICLE NO.		21108644009	21108634009
ARTICLE NO.		21108645009	21108635009
DATA			
Light source	LED		
Operating range	90–253 V	11–60 V	
	AC/DC	DC	
Current consumption (@ continuous light)	65 mA @ 230 V AC	195 mA @ 24 V DC	
Explosion protection	II3G Ex nR II T6 X –20 °C ≤ Ta ≤ +55 °C II3D Ex tc IIB T80 °C IP 66/67 –20 °C ≤ Ta ≤ +55 °C		
Category (area of use)	3G (Zone 2), 3D (Zone 22)		
Special conditions	X: according to the requirements of prDIN EN 60 079-0, DIN EN 61241-0 (2007) and DIN EN 61241-1 (2005), the equipment is suitable for applications with a low degree of mechanical danger. It must therefore be ensured that the light is mounted with sufficient protection against impacts. A protective cage is not mandatory.		
Operating modes	continuous light blinking light 1 / 2 Hz flashing light 0.1 / 0.5 / 0.75 / 1 / 2 Hz		
Control of operating mode	internally	internally / externally	
Light intensity (DIN 5037) ¹	9 cd		
Max. viewing distance	70 m		
Operating temperature	–20 ... +55 °C		
Protection system according to EN 60529	IP 66/67		
Impact resistance as per EN 50102	IK08		
Service life of light source	>50,000 hrs		
Material	lens	polycarbonate (PC)	
	housing	polycarbonate (PC)	
Dimensions (X x Y x Z)	130 x 130 x 130 mm		
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.			

¹ with a clear lens

Further models upon request

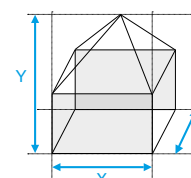
Choice of lens colours: clear | white | yellow | amber | red | green | blue.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX

Alarm Devices IS-Mini



LED

EX

Intrinsically safe signalling

Choose from audible, visual, or combined audible-visual alarms for hazardous areas.

Zones 0, 1 and 2

Certified for use in Ex zones 0, 1 and 2 when used with a certified zener barrier or galvanic isolator.

Effective alarming

Choice of 102 dB(A) sounder, blinking LED array, or both.

Compact design

Permits versatile installation in practically any space.

Audible notification

Choice of 49 unique alarm tones with three stages of tone control for distinctive signalling of specific events. Audible signals are synchronised across multiple units connected in series. Volume control adjusts output level to fit the signalling space required.



Low power consumption

Ideal for use as a notification appliance in fire alarm systems.

Signal control

Sounder and blinking light can be independently controlled.

Visual notification

Choice of yellow/amber, red, green or blue LEDs with selectable blinking frequency of 1 or 2 Hz.

Wide range

of operating temperatures from $-40\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.

Zener barriers

To achieve intrinsically safe operation, units must be connected with a zener barrier or galvanic isolator. See accessory pages 130/131 for available models.

EX-ATEX ALARM DEVICES



protection system



operating temperature



IS-mA1

IS-mB1

IS-mC1

PRODUCT	IS-mA1	IS-mB1	IS-mC1
ARTICLE NO.	32034800000		
ARTICLE NO.		31008804000	32035804000
ARTICLE NO.		31008805000	32035805000

DATA

Operating mode	sounder	blinking light	blinking sounder
Operating range	16–28 V	16–28 V	16–28 V
	DC	DC	DC
Current consumption	25 mA @ 24 V DC	25 mA @ 24 V DC	48 mA @ 24 V DC
	typical for connection to 24 V DC via 28 V / 300 Ω zener barrier		
Type of protection	"ia" inherently safe		
Explosion protection	II 1G EEx ia IIC T4	II 1G EEx ia IIC T4	II 1G Ex ia IIC T4
Category (area of use)	1G (Zone 0, 1, 2)		
Certificate of conformity	SIRA 05 ATEX2084 X		
Temperature class T	T4 @ Ta –40 °C ... +60 °C		
Max. sound pressure level	102 dB(A)		102 dB(A)
Sound pressure level @ DIN tone	98 dB(A)		98 dB(A)
Sound level reduction	–20 dB		–20 dB
Alarm tones	49		49
Light source		LED	
Blinking rate		can be set to 2 Hz or 1 Hz	
Max. viewing distance		52 m	
Protection system according to EN 60529	IP 65		
Service life of light source	light emission still 70 % after 8,000,000 flashes		
Material	housing	acrylonitrile butadiene styrene (ABS), self-extinguishing UL94V0 & 5VA	
	lens	polycarbonate (PC)	
Dimensions (X x Y x Z)	88.7 x 99 x 95 mm	88.7 x 85 x 95 mm	88.7 x 116 x 95 mm

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Power must be connected via a zener barrier (max. 28 V DC, 93 mA DC, 0.66 W) or a galvanic isolator, specified by the system certificate (see page 130).

Models with alternative features available upon request

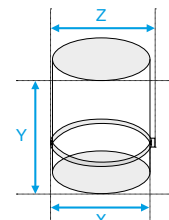
IS-mB1 with other lens colours like amber green blue.	IS-mC1 with other lens colours like amber green blue.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



DS Sounders



Die-cast aluminium housing

Resistant to UV light, seawater, and many chemicals. Sturdy construction resists vandalism to ensure a high degree of functional safety.

Selectable audible notification

Choice of 32 unique alarm tones with three stages of tone control for distinctive signalling of specific events.

Choice of output levels

Versions for 108 dB(A) and 114 dB(A) sound pressure levels to suit a variety of signal coverage needs.

Strong, metal mounting lugs

Ensures a safe and secure installation onto many types of surfaces.

Electromagnetic sound capsule technology

Acoustic signal includes a share of low frequency side bands for excellent sound penetration of walls and doors for highly effective alarming.

ATEX certified for Zones 2 and 22

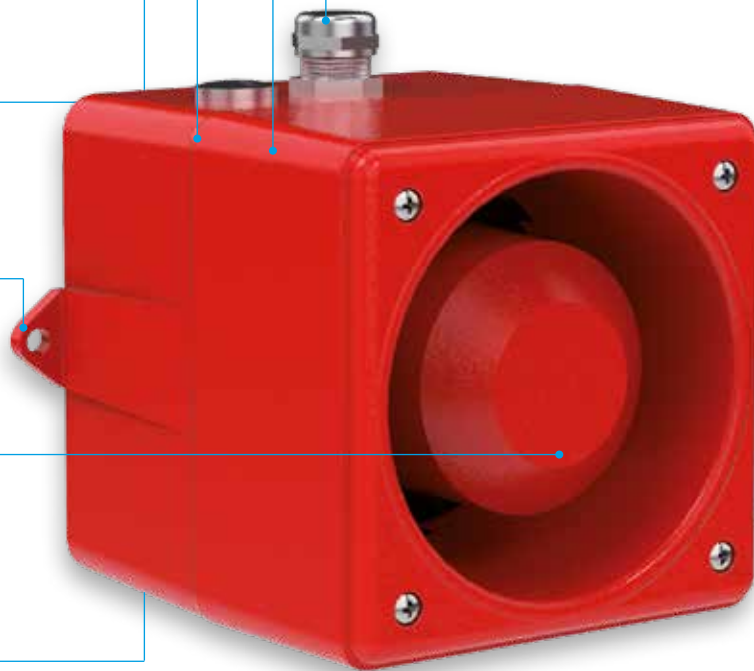
Satisfies requirements for device category 3G and 3D in hazardous areas (category for gas and dust protection).

IP 66/67 enclosure rating

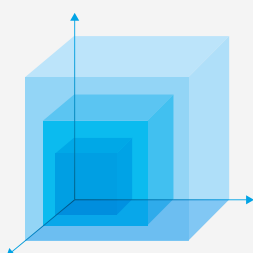
Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust.

Stainless steel cable gland

Included to ensure a high degree of electrical connection integrity.



3D-Coverage performance data, A x B x C



DS 5 3G/3D ATEX

80 dB(A)	23.1 x 27.5 x 23.1 m
85 dB(A)	13 x 15.5 x 13 m
90 dB(A)	7.3 x 8.8 x 7.3 m

DS 10 3G/3D ATEX

80 dB(A)	33.4 x 43.7 x 33.4 m
85 dB(A)	18.8 x 24.5 x 18.8 m
90 dB(A)	10.6 x 13.8 x 10.6 m

To determine the exact signalling area for your needs, please use the online available Pffannenberg Sizing Software PSS.

SOUNDERS



protection system



operating temperature



acoustic penetration



option: external tone selection



EN 54-3



VdS G28609



option



EAC



warranty

PRODUCT	DS 5 3G/3D		DS 10 3G/3D	
ARTICLE NO.	23106100007	23106800007	23111100007	23111800007
DATA				
Operating range	195–253 V AC 50 60 Hz	19–29 V DC	195–253 V AC 50 60 Hz	19–29 V DC
Nominal current consumption	0.06 A @ 230 V	0.28 A	0.06 A @ 230 V	0.42 A
Max. sound pressure level	108 dB(A)		114 dB(A)	
Sound pressure level @ DIN tone	107 dB(A)		112 dB(A)	
Alarm tones	32 / 4 tones are externally selectable, tone table on page 132			
Operating temperature	–25 ... +55 °C			
Protection system according to EN 60529	IP 66/67			
Explosion protection	II 3G Ex nA II T4 II 3D Ex tD A22 IP 67 T135°C			
Category (area of use)	3G (Zone 2), 3D (Zone 22)			
Material	die-cast aluminium GD-Al Si12 Cu			
Surface coating	epoxy resin paint			
Dimensions (X x Y x Z)	133.5 x 133.5 x 143 mm			
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.				

Further models upon request

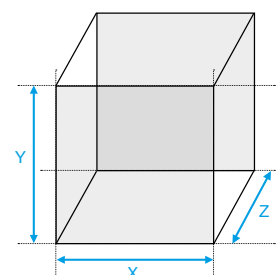
115 V AC.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Sounders

Intrinsically safe audible signalling

103 dB(A) sounder for hazardous areas, with volume control and selectable tone stages.

Zones 0, 1 and 2

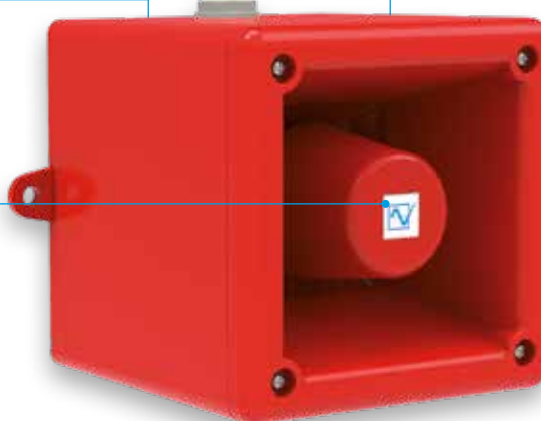
Certified for use in Ex zones 0, 1 and 2 when used with a certified zener barrier or galvanic isolator.

Audible notification

Choice of 49 unique alarm tones with three stages of tone control for distinctive signalling of specific events. Audible signals are synchronised across multiple units connected in series. Volume control adjusts output level to fit the signalling space required.

IP 66 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.



EX-ATEX SOUNDERS



protection system



operating temperature



PRODUCT	IS-A105N
ARTICLE NO.	3203380000

DATA

Operating range	10–28 V DC
Current consumption	25 mA @ 24 V DC (typical for connection to 24 V DC via 28 V / 300 Ω zener barrier)
Type of protection	“ia” inherently safe
Explosion protection	II 1G Ex ia IIC T4 –40 °C ... +60 °C Ta
Category (area of use)	1G (Zone 0) 2G (Zone 1) 3G (Zone 2)
Certificate of conformity	SIRA 04 ATEX 2301 X
Max. sound pressure level	103 dB(A)
Sound pressure level @ DIN tone	100 dB(A)
Sound level reduction	up to 15 dB(A) via an internal potentiometer
Alarm tones	49, can be set via DIP switch / 2 tones are externally selectable
Protection system according to EN 60529	IP 66
Material	acrylonitrile butadiene styrene (ABS), self-extinguishing, similar UL 94 V0
Dimensions (X x Y x Z)	130 x 130 x 132 mm

ACCESSORIES	PAGE	ARTICLE NUMBER
Zener Barrier Z 728	130	38109800000
Zener Barrier Z 928	130	38109300000
Zener Barrier Z 786	130	38109800001

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

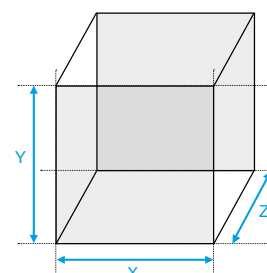
Power must be connected via a zener barrier (max. 28 V DC, 93 mA DC, 0.66 W) or a galvanic isolator, specified by the system certificate (see page 130).



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Sounders



Powerful electronic sounders

Certified for hazardous area use. When human safety matters most. Robust metal housing and flame retardant ABS projection horn for wide area notification.

Wide range

of operating temperatures from -50 °C to +70 °C.

Robust construction

Durable, cast-aluminium housing and stainless steel protection cage endures saltwater and other corrosives for demanding marine and industrial environments.



IP 66/67 enclosure rating

Suitable for use in all weather conditions due to the provided protection against driving rain, snow, ice, and dust. Withstands hose-directed spray during wash-down requirements.

Convenient mounting

Stainless steel bracket ensure easy installation in any orientation.

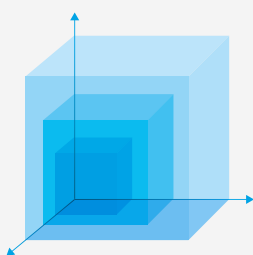
ATEX certified for Zones 1 and 2

Satisfies requirements for device category 2G and 3G in hazardous areas with additional versions for Zones 21 and 22 (device categories 2D and 3D).

Choice of output level and tone

Versions for 113 and 120 dB(A) output levels, each with 32 selectable tones and 3 stages of alarm to signal multiple unique circumstances or events with one device.

3D-Coverage performance data, A x B x C



BExS 110 | BExDS 110

80 dB(A)	27.4 x 23.2 x 27.4 m
85 dB(A)	15.4 x 13 x 15.4 m
90 dB(A)	8.7 x 7.3 x 8.7 m

BExS 120 | BExDS 120

80 dB(A)	74.3 x 89.7 x 74.3 m
85 dB(A)	41.8 x 50.5 x 41.8 m
90 dB(A)	23.5 x 28.4 x 23.5 m

To determine the exact signalling area for your needs, please use the online available Pfannenberg Sizing Software PSS.

EX-ATEX SOUNDERS



protection system



operating temperature



24 V DC



BExS 110D
24 V DC



PRODUCT		BExS 110D	BExS 110E	BExDS 110D	BExDS 110E
ARTICLE NO.	230 V AC	32080100000	32082100000	32075100000	32085100000
ARTICLE NO.	24 V DC	32080800000	32082800000	on request	on request
PRODUCT		BExS 120D	BExS 120E	BExDS 120D	BExDS 120E
ARTICLE NO.	230 V AC	32076100000	32078100000	32089100000	32081100000
ARTICLE NO.	24 V DC	32076800000	32078800000	on request	on request

DATA

		BExS 110 BExDS 110		BExS 120 BExDS 120	
Operating range		230 V ±10 %	24 V ±25 %	230 V ±10 %	24 V ±25 %
		AC 50 60 Hz	DC	AC 50 60 Hz	DC
Current consumption		56 mA @ 230 V AC	250 mA @ 24 V DC	90 mA @ 230 V AC	800 mA @ 24 V DC
Max. sound pressure level		113 dB(A) ±3 dB(A)		120 dB(A) ±3 dB(A)	
Sound pressure level @ DIN tone		112 dB(A) ±3 dB(A)		118 dB(A) ±3 dB(A)	
Sound level reduction		-9 dB			
Alarm tones		32, tone table on page 133			
Material	housing	die-cast aluminium LM6			
	horn	ABS, self-extinguishing, similar UL 94 VO & 5VA FR ABS, Ex II 2D anti-static ABS			
Dimensions (X x Y)		Ø 181 x 275 mm		Ø 220 x 326 mm	
		BExS 110	BExS 120	BExDS 110	BExDS 120
Protection system		"d" = IP 67 or "e" = IP 66			
Explosion protection		II 2G Ex d IIC T4 II 2G Ex de IIC T4 II 2G Ex d IIB T4 II 2G Ex de IIB T4		II 2G/D Ex d IIC T4 100°C II 2G/D Ex de IIC T4 100°C II 2G/D Ex d IIB T4 115°C II 2G/D Ex de IIB T4 115°C	
Category (area of use)		2G (Zone 1) 3G (Zone 2)		2G (Zone 1) / 2D (Zone 21) 3G (Zone 2) / 3D (Zone 22)	
Certificate of conformity		KEMA 99 ATEX 7906		KEMA 99 ATEX 6312	
Temperature class T		IIC: T4 @ -50 °C ... +55 °C Ta IIB: T4 @ -50 °C ... +70 °C Ta		T4 @ -50 °C ... +55 °C Ta	

For additional models, options and voltages visit www.pfannenberg.com or contact us directly.

Models with alternative features available upon request

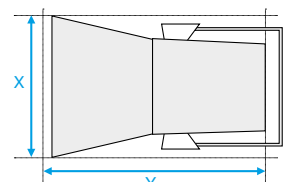
115 V AC | 12 V DC | 48 V DC.



Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Flashing Sounders



Visual and audible signalling

Combined flashing strobe light and powerful sounder for enhanced alarming and safety.

ATEX certified for Zones 1 and 2

Satisfies requirements for device category 2G and 3G in hazardous areas with additional versions for Zones 21 and 22 (device categories 2D and 3D).

Flashing strobe light

5 joules flash energy provides visual perception over wide areas. The Xenon flash tube is shock and vibration tolerant while the stainless steel cage protects against impacts from foreign objects.

Synchronised flash

Supports simultaneous or alternating 1 Hz flash for multiple devices connected in series.

32 tone selection

A vast selection of unique tones, many in conformance with international requirements. Three stages of tone control for distinctive signalling of specific events.

Robust construction

Durable, cast-aluminium housing and stainless steel protection cage endures saltwater and other corrosives for demanding marine and industrial environments.

Independent signalling

Visual and acoustic signal outputs can be controlled separately.

Powerful electronic sounder

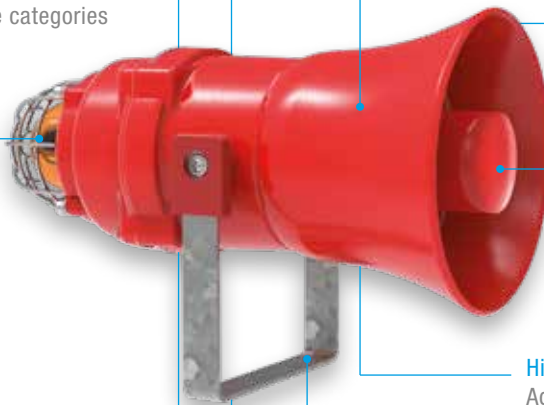
113 dB(A) output sound pressure intensity provides alarm coverage for large areas, both indoors and outdoors.

High IP rating

Aggressive environmental conditions or driving rain cannot damage the device, because of resistant surfaces and high IP rated enclosure.

Convenient mounting

Stainless steel bracket permits ease of installation for any orientation.



EX-ATEX FLASHING SOUNDERS



protection system



operating temperature



PRODUCT		BExCS 110-05D	
ARTICLE NO.	●	32074103000	32074803000
ARTICLE NO.	●	32074105000	32074805000
DATA SOUNDER			
Operating range		230 V ±10 %	24 V ±25 %
		AC 50 60 Hz	DC
Current consumption		56 mA @ 230 V AC	265 mA @ 24 V DC
DATA FLASHING LIGHT			
Operating range		230 V ±10 %	20–30 V
		AC 50 60 Hz	DC
Current consumption		55 mA @ 230 V AC	300 mA @ 24 V DC
DATA			
Explosion protection	II 2G Ex d IIB T4 –50 °C ... +70 °C Ta		
Category (area of use)	2G (Zone 1) 3G (Zone 2)		
Certificate of conformity	KEMA 03 ATEX 2545 X		
Max. sound pressure level	113 dB(A)		
Sound pressure level @ DIN tone	112 dB(A)		
Sound level reduction	–9 dB		
Alarm tones	32, tone table on page 133		
Flash energy and flash rate	5 J @ 1 Hz		
Light intensity (DIN 5037) ¹	55 cd		
Max. viewing distance	172 m		
Protection system according to EN 60529	IP 66/67		
Service life of light source	light emission still 70 % after 8,000,000 flashes		
Material	lens	● ● glass	
	housing	die-cast aluminium LM6	
	horn	ABS self-extinguishing, similar UL 94 VO & 5VA FR ABS, Ex II 2D anti-static ABS	
Dimensions (X x Y)	Ø 181 x 368 mm		
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.			

¹ with a clear lens

Models with alternative features available upon request

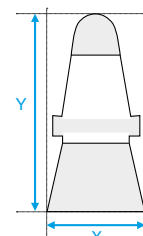
BExCS in 115 V AC 12 V DC 48 V DC.	Choice of lens colours: clear yellow amber red green blue.	BExDCS for dust applications in zone 21 and 22.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Ex-ATEX Signal Towers



ATEX certified for Zones 2 and 22
Satisfies requirements for device category 3G and 3D in hazardous areas.

Low power, high output LEDs
Reliable operation with service life exceeding 50,000 hrs.

Prismatic lenses
Provide dispersion of light for high visibility from all sides. High impact resistant polycarbonate material.

Standard versions
see page 96.



Applications
For hazardous areas where there is a risk of explosion due to the presence of combustible gas or dust.

Central terminal box
for all modules.

EX-ATEX SIGNAL TOWERS



protection system



operating temperature



PRODUCT		BR 50-LED 3G/3D			
ARTICLE NO.		22093401000	22093401106	22093402300	22093403000
DATA					
Version		1-stage	1-stage	2-stage	3-stage
Colour order		●	●	● ●	● ● ●
Operating range		18–28 V AC 50 60 Hz DC			
Current consumption	AC	60 mA @ 24 V	60 mA @ 24 V	90 mA @ 24 V	130 mA @ 24 V
	DC	50 mA @ 24 V	50 mA @ 24 V	80 mA @ 24 V	120 mA @ 24 V
Explosion protection		II 3G Ex nA II T5 X –20 °C ≤ Ta ≤ +50 °C II 3D tDA22 IP 65 T85°C X –20 °C ≤ Ta ≤ +50 °C			
Category (area of use)		3G (Zone 2) 3D (Zone 22)			
Temperature class T		T5			
Special conditions		X: according to the requirements of prDIN EN 60 079-0, DIN EN 61241-0 (2007) and DIN EN 61241-1 (2005), the equipment is suitable for applications with a low degree of mechanical danger. It must therefore be ensured that the light is mounted with sufficient protection against impacts. A protective cage is not mandatory.			
Operating mode		continuous light			
Light source		LED			
Operating temperature		–20 °C ... +50 °C			
Protection system according to EN 60529		IP 65			
Service life of light source		>50,000 hrs			
Material	lens	/ ● ● ● ● ● polycarbonate (PC)			
	housing	acrylonitrile butadiene styrene (ABS)			
	connector housing	polycarbonate (PC)			
Dimensions (X x Y1 x Y2 x Z)		82 x 80 x 109 x 85 mm		82 x 80 x 172 x 85 mm	
82 x 80 x 235 x 85 mm					
For additional models, options and voltages visit www.pfannenberg.com or contact us directly.					

Further models on request

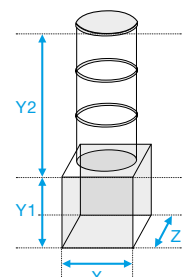
230 V AC.	Other colours like clear, amber and other colour combinations.
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Comprehensive technical documentation such as

- operating instructions, technical data, approvals
- support for planning, 3D models, CAD data

can be retrieved by entering this webcode in the search window on www.pfannenberg.com



Accessories

ACCESSORIES CWB-ATEX

Detailed technical information:



Mounting bracket



Standard bracket set



Mounting plate



Pipe clamp



Protective cage

PRODUCT		ARTICLE NO.
Mounting bracket	stainless steel	38108100100
Standard bracket set	stainless steel	38108100150
Mounting plate	stainless steel	38108100000
Pipe clamps	R1 1/4" stainless steel	38108101000
	R1 1/2" stainless steel	38108101200
	R2" stainless steel	38108102000
Protective cage	stainless steel	38108100200

ZENER BARRIERS

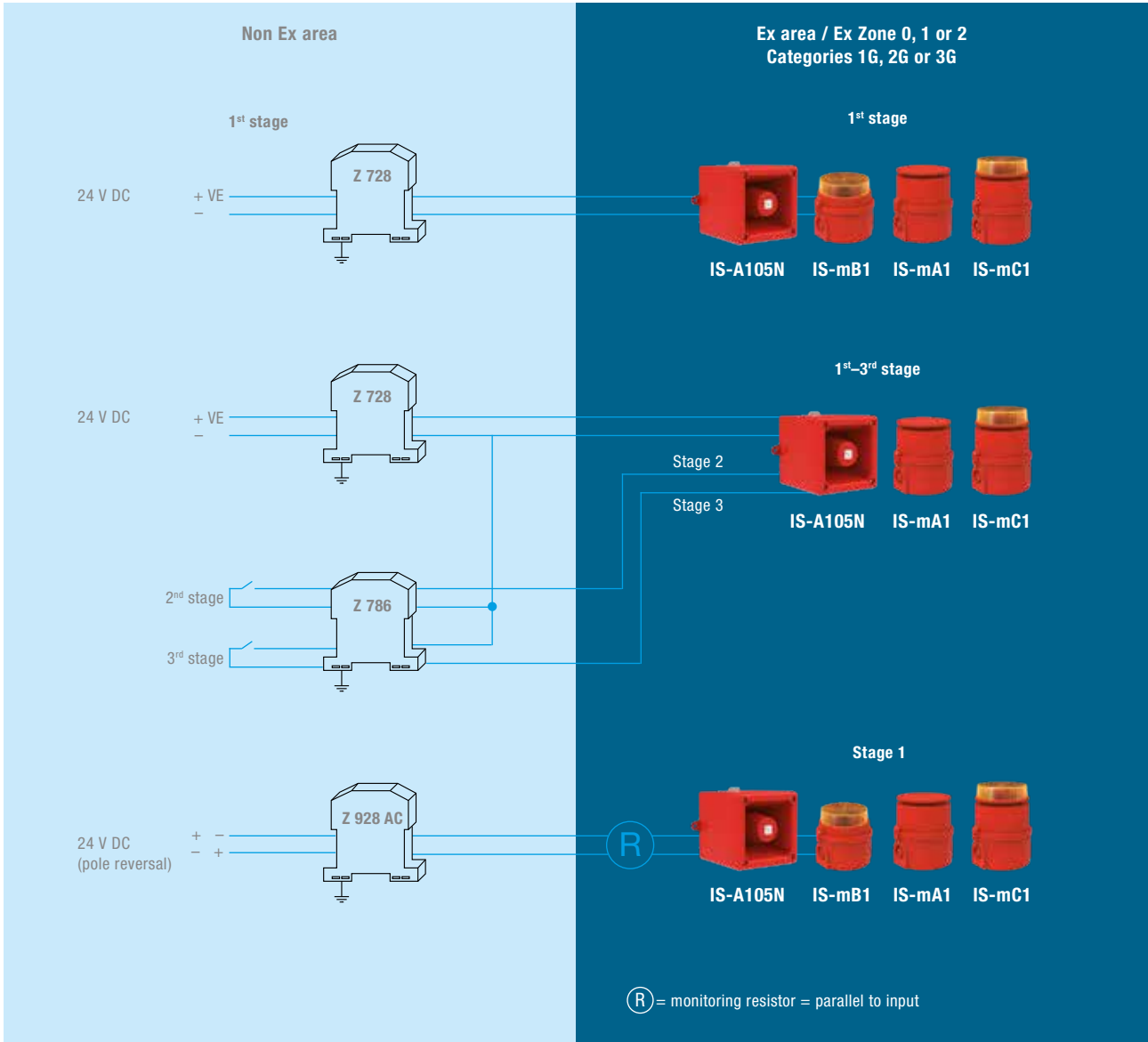
Detailed technical information:



PRODUCT	Z 728	Z 928	Z 786
ARTICLE NO.	38109800000	38109300000	38109800001
DATA			
Design	terminal housing made of makrolon, flammability class UL 94 V-0		
Dimensions (H x W x D)	110 x 12.5 x 115 mm		
Mounting	snap fitting to 35 mm DIN rail conforming to DIN EN 50022		
Connection	self-opening apparatus terminals; max. wire cross-section 2x 2.5 mm ²		
Ambient temperature	-20 °C ... +60 °C		

Combination possibilities:

Zener barrier, IS-A105N sounder and IS-Mini series alarm.



Tone table DS 5 3G/3D | DS 10 3G/3D

NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE			NO.	DESCRIPTION – BASIC TONE (PRESET: TONE 2)	STAGE						
		2	3	4			2	3	4				
0	no tone		2	88	57	90	Interrupted tone	825 Hz		2	127	108	
2 ¹	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP	1200 Hz 500 Hz		128	112	57	92	Interrupted tone	800 Hz		131	146	57
15	Slow whoop, evacuation alarm Netherlands NEN 2575	1200 Hz 500 Hz		131	54	112	93	Interrupted tone (fast), horn	800 Hz		2	128	57
23	Siren	2400 Hz 500 Hz		24	60	112	97	Interrupted tone	725 Hz		2	63	93
24	Siren	1200 Hz 300 Hz		55	23	131	98	Interrupted tone, Sweden SS 031711 (emergency signal)	700 Hz		112	128	57
26	Siren (industrial alarm Germany – Hoechst –)	1000 Hz 150 Hz		2	100	93	100	Interrupted tone, industrial alarm Germany	680 Hz		2	57	125
31	Sweeping, France NF C 48-265	1600 Hz 1400 Hz		128	54	57	108	Interrupted tone	500 Hz		2	127	60
32	selection of available tone combinations in stages 2, 3 and 4				112	Interrupted tone, ISO 8201 (emergency evacuation signal)	950 Hz		2	57	128		
36	Sweeping	1500 Hz 700 Hz		146	67	57	116	Interrupted tone, IMO (leave ship)	950 Hz		117	93	125
45	Sweeping	1200 Hz 500 Hz		2	57	93	117	Interrupted tone, IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)	825 Hz		93	116	125
54	Continuous tone, Finland (all-clear signal)	1500 Hz	— —	2	57	67	125	Alternating tone	1400 Hz 1200 Hz		57	93	24
55	Continuous tone, PFEER gasalarm	1200 Hz	— —	2	88	128	127	Alternating tone	1075 Hz 825 Hz		2	90	60
57	Continuous tone, UK BS 5839-1	950 Hz	— — EN 54-3	2	128	88	128	Alternating tone UK fire alarm	1025 Hz 825 Hz		2	112	57
60	Continuous tone	825 Hz	— —	24	93	125	131	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing)	1000 Hz 800 Hz		24	55	23
63	Continuous tone	725 Hz	— —	2	97	93	142	Alternating tone	900 Hz 500 Hz		2	54	88
67	Continuous tone, Germany KTA 3901 (all-clear signal)	500 Hz	— —	24	93	125	146	Alternating tone, France NFS 32-001 (fire alarm)	554 Hz 440 Hz		128	67	57
88	Interrupted tone	950 Hz		2	57	128							

¹ factory setting

Tone table

BEXS 110 | BEXDS 110 | BEXS 120 | BEXDS 120 | BEXCS 110-05D

NO.	DESCRIPTION – BASIC TONE	STAGE	
		2	3
1	Continuous tone 1000 Hz	31	11
2 ¹	Alternating tone, UK BS 5839-1 (fire alarm, railway crossing) 1000 Hz 800 Hz	17	5
3	Slow whoop 1200 Hz 500 Hz	2	5
4	Sweeping (fast) 1000 Hz 800 Hz	6	5
5	Continuous tone 2400 Hz	3	27
6	Sweeping 2900 Hz 2400 Hz	7	5
7	Sweeping (fast) 2900 Hz 2400 Hz	10	5
8	Sweeping 1200 Hz 500 Hz	2	5
9	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP 1200 Hz 500 Hz	15	2
10	Alternating tone 2900 Hz 2400 Hz	7	5
11	Interrupted tone 1000 Hz	31	1
12	Alternating tone 1000 Hz 800 Hz	4	5
13	Interrupted tone 2400 Hz	15	5
14	Interrupted tone 800 Hz	4	5
15	Continuous tone 800 Hz	2	5
16	Interrupted tone 660 Hz 	18	5
17	Alternating tone, France NFS 32-001 (fire alarm) 554 Hz 440 Hz 	2	27

NO.	DESCRIPTION – BASIC TONE	STAGE	
		2	3
18	Interrupted tone, Sweden SS 031711 (air raid warning) 660 Hz	2	5
19	Sweeping, France NF C 48-265 1600 Hz 1400 Hz	2	5
20	Continuous tone, Sweden SS 031711 (all-clear signal) 660 Hz	2	5
21	Alternating tone, Sweden SS 031711 554 Hz 440 Hz	2	5
22	Interrupted tone 554 Hz	2	5
23	Interrupted tone 800 Hz	6	5
24	Sweeping (medium), UK BS 5839-1 2900 Hz 2400 Hz	29	5
25	Sweeping 2900 Hz 2400 Hz	29	5
26	Interrupted tone, (fast variable), bell 1450 Hz	2	1
27	Continuous tone 554 Hz	26	5
28	Continuous tone 440 Hz	2	5
29	Sweeping (fast), UK BS 5839-1 1000 Hz 800 Hz	7	5
30	Interrupted tone, Australia AS 2220, AS 1610, AS 1670 420 Hz	32	5
31	Sawtooth, DIN tone 33404-3 Germany (emergency signal) 1200 Hz 500 Hz	11	1
32	Slow whoop, Australian evacuation alarm AS 2220 1200 Hz 500 Hz	26	1

¹ factory setting

The sounder can be set externally to the respective tones of stage 2 & 3.
Tone 2 is preset.



Efficient cooling and heating.



Cooling units, filterfans, heat exchangers, heaters, thermostats, hygrostats and chillers.

Pfannenberg also offers a comprehensive product portfolio for the thermal management of electrical enclosures and process cooling. Pfannenberg is one of the few manufacturers worldwide which offers complete competence developed in-house – from filterfans, cooling units and chillers to heaters and thermostats. You can also benefit from comprehensive know-how and several years of application experience in various industries.

The entire portfolio of Pfannenberg thermal management can be found at www.pfannenberg.com.

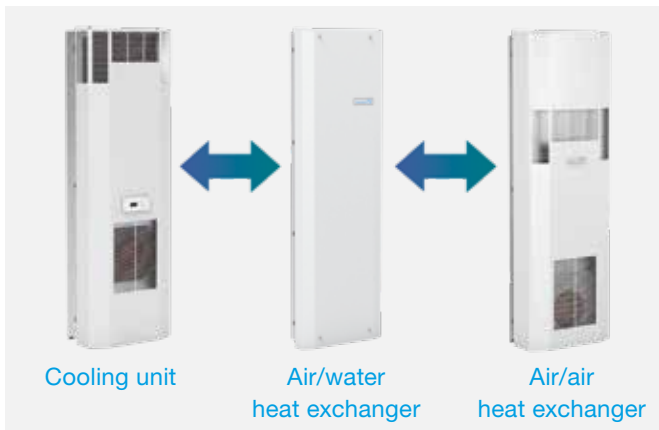
Or just order your complimentary copy of the whole catalogue **“Thermal Management – thermal management for electrical enclosures and process cooling”** on +49 40 73412 156.

The following chapter shows you a selection of Pfannenberg’s thermal management portfolio – cut-out compatible, energy efficient and service-friendly.

Protecting man, machine and the environment.

Cut-out compatibility.

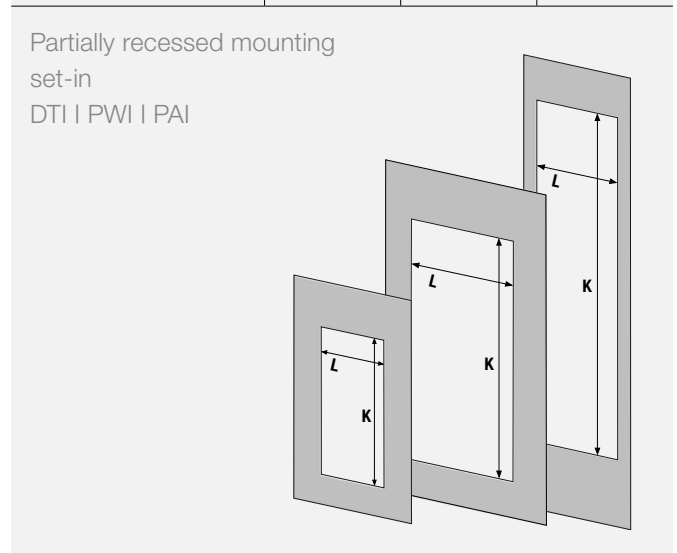
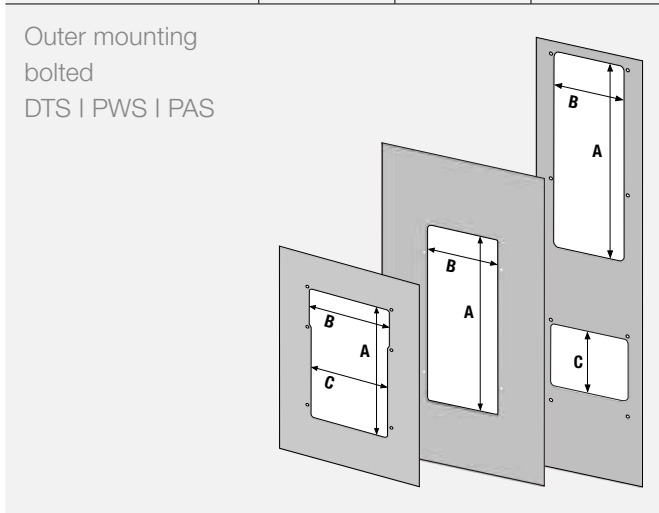
Standardisation creates room for flexibility. Planning for a new project with different components can change requirements of the thermal management. An air/air heat exchanger which was previously the optimal solution is not suitable any more. The exchange with an active **ECOOL** cooling unit or an air/water heat exchanger can be carried out easily and without problems, because the units have the same cut-out dimensions. Thus, the process stability is also ensured after extensive modifications.



CUT-OUT	COOLING UNIT	AIR/WATER HEAT EXCHANGER	AIR/AIR HEAT EXCHANGER
Size 1	DTx 9041	PWx 6102	PAX 6043
Size 2	DTx 6301C DTx 6201C	PWx 6302C PWx 6152	PAX 6133 PAX 6103 PAX 6073
Size 3	DTx 6801 DTx 6501 DTx 6401 DTx 6301 DTx 6201	PWx 6502 PWx 6302	PAX 6203 PAX 6173

CUT-OUT OUTER MOUNTING	SIZE 1	SIZE 2	SIZE 3
A	472 mm	662 mm	700 mm
B	285 mm	320 mm	315 mm
C	272 mm	–	220 mm

CUT-OUT RECESSED MOUNTING	SIZE 1	SIZE 2	SIZE 3
K	577 mm	900 mm	1510 mm
L	350 mm	380 mm	450 mm



The advantages at a glance.

- Flexible adjustment to cooling requirements according to ambient conditions.
- Reduced construction efforts – only 3 cut-out sizes.
- Interchangeable thermal management concepts without mechanical reworking.

Cooling units.

TYPE	COOLING CAPACITY*	RATED VOLTAGE	CUT-OUT DIMENSION (H x W)
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... for partially recessed mounting in the door or side

ECOOL DTI 6801	4,000 W	400 V 3~	1510 x 450 mm
ECOOL DTI 6501	2,500 W	400 V 3~	
ECOOL DTI 6401	2,000 W	230 V 400 V 3~	
ECOOL DTI 6301	1,500 W	115 V 230 V 400 V 2~	
ECOOL DTI 6201	1,000 W	115 V 230 V 400 V 2~	962 x 410 mm
ECOOL DTI 6301C	1,500 W	115 V 230 V 400 V 2~	
ECOOL DTI 6201C	1,000 W	115 V 230 V 400 V 2~	
DTI 9041	870 W	115 V 230 V 400 V 2~	577 x 350 mm
DTI 9031	510 W	115 V 230 V 400 V 2~	495 x 265 mm
DTI 9021	320 W	115 V 230 V	289 x 304 mm
DTFI 9021	320 W	115 V 230 V 400 V 2~	291 x 291 mm



... for outer mounting on the door or side

ECOOL DTS 6801	4,000 W	400 V 3~	700 x 315 220 x 315 mm
ECOOL DTS 6501	2,500 W	400 V 3~	
ECOOL DTS 6401	2,000 W	230 V 400 V 3~	
ECOOL DTS 6301	1,500 W	115 V 230 V 400 V 2~	
ECOOL DTS 6201	1,000 W	115 V 230 V 400 V 2~	968 x 410 mm
ECOOL DTS 6301C	1,500 W	115 V 230 V 400 V 2~	
ECOOL DTS 6201C	1,000 W	115 V 230 V 400 V 2~	
DTS 9041	870 W	115 V 230 V 400 V 2~	472 x 285/272 mm
DTS 9031	510 W	115 V 230 V 400 V 2~	422 x 215 mm
DTS 9011H	300 W	230 V	300 x 495 x 140 mm



TYPE	COOLING CAPACITY*	RATED VOLTAGE	CUT-OUT DIMENSION (D x W)
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... for top mounting

ECOOL DTT 6801	4,000 W	400 V 3~	392 x 692 mm
ECOOL DTT 6601	3,000 W	400 V 3~	
ECOOL DTT 6401	2,000 W	115 V 230 V 400 V 2~	390 x 490 mm
ECOOL DTT 6301	1,500 W	115 V 230 V 400 V 2~	
ECOOL DTT 6201	1,000 W	115 V 230 V 400 V 2~	260 x 492 mm
ECOOL DTT 6101	500 W	115 V 230 V	



* (A35/A35) in accordance with EN 14511: at +35 °C ambient temperature and +35 °C temperature inside enclosure.

Air/water heat exchangers.

TYPE	COOLING CAPACITY*	RATED VOLTAGE	CUT-OUT DIMENSION (H x W)
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... for partially recessed mounting in the door or side

£COOL PWI 6502	5,000 W	115 V 230 V 400 V	1510 x 450 mm
£COOL PWI 6302	3,000 W	115 V 230 V 400 V	
£COOL PWI 6302C	3,000 W	115 V 230 V 400 V	900 x 380 mm
£COOL PWI 6152	1,500 W	115 V 230 V 400 V	
£COOL PWI 6102	1,000 W	115 V 230 V	577 x 350 mm

... for outer mounting on the door or side

£COOL PWS 6502	5,000 W	115 V 230 V 400 V	700 x 315 220 x 315 mm
£COOL PWS 6302	3,000 W	115 V 230 V 400 V	
£COOL PWS 6302C	3,000 W	115 V 230 V 400 V	662 x 320 mm
£COOL PWS 6152	1,500 W	115 V 230 V 400 V	
£COOL PWS 6102	1,000 W	115 V 230 V	472 x 285/272 mm

* (A35/W10) : at +35 °C ambient temperature and +35 °C water temperature.



Air/air heat exchangers.

TYPE	SPECIFIC COOLING CAPACITY	RATED VOLTAGE	CUT-OUT DIMENSION (H x W)
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... for partially recessed mounting in the door or side

£COOL PAI 6203	100 W/K	115 V 230 V	1510 x 450 mm
£COOL PAI 6173	85 W/K	115 V 230 V	
£COOL PAI 6133	65 W/K	115 V 230 V	900 x 380 mm
£COOL PAI 6103	50 W/K	115 V 230 V	
£COOL PAI 6073	35 W/K	115 V 230 V	577 x 350 mm
£COOL PAI 6043	20 W/K	115 V 230 V	

... for outer mounting on the door or side

£COOL PAS 6203	100 W/K	115 V 230 V	700 x 315 220 x 315 mm
£COOL PAS 6173	85 W/K	115 V 230 V	
£COOL PAS 6133	65 W/K	115 V 230 V	662 x 320 mm
£COOL PAS 6103	50 W/K	115 V 230 V	
£COOL PAS 6073	35 W/K	115 V 230 V	472 x 285/272 mm
£COOL PAS 6043	20 W/K	115 V 230 V	



Chillers.

TYPE	COOLING CAPACITY	RATED VOLTAGE	DIMENSIONS (H x W x D)
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ECOOL CCE Chillers

CCE 6601	6,500 W	400 3~ 460 3~	983 x 603 x 676 mm
CCE 6501	5,000 W	400 3~ 460 3~	
CCE 6401	3,500 W	400 3~ 460 3~	
CCE 6301	2,400 W	230 1~	634 x 600 x 495 mm
CCE 6201	1,700 W	230 1~	
CCE 6101	1,100 W	230 1~	



ECOOL CCE 6101



EB 80 WT

EB Chillers

EB 400 WT	40,000 W	400 3~ 460 3~	1410 x 1680 x 790 mm
EB 160 OL	16,000 W	400 3~ 460 3~	1435 x 856 x 761 mm
EB 160 WT	16,000 W	400 3~ 460 3~	1400 x 855 x 800 mm
EB 140 OL	14,000 W	400 3~ 460 3~	1435 x 856 x 761 mm
EB 80 WT	8,000 W	400 3~ 460 3~	1225 x 600 x 760 mm
EB 65 OL	6,500 W	400 3~ 460 3~	1254 x 606 x 764 mm

Filterfans 4.0.

TYPE	AIRFLOW RATE ¹ IP 54 / IP 55	RATED VOLTAGE	CUT-OUT DIMENSION (H x W) ²
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ECOOL PF Filterfans *

PF 11.000	19 / - m ³ /h	115 V 230 V AC 12 V 24 V 48 V DC	92 x 92 mm
PF 22.000	60 / 56 m ³ /h		125 x 125 mm
PF 32.000	98 / 100 m ³ /h		177 x 177 mm
PF 42.500	125 / 145 m ³ /h		223 x 223 mm
PF 43.000	223 / 233 m ³ /h	115 V 230 V AC	291 x 291 mm
PF 65.000	480 / 505 m ³ /h		
PF 66.000	640 / 770 m ³ /h		
PF 67.000	845 / 925 m ³ /h	400/460 V 3 ~ 115 V 230 V AC	



ECOOL Filterfans 4.0

ECOOL PFA Exhaust filters *

PFA 10.000		92 x 92 mm
PFA 20.000		125 x 125 mm
PFA 30.000		177 x 177 mm
PFA 40.000		223 x 223 mm
PFA 60.000		291 x 291 mm

* EMC versions also available

ECOOL PTF Filterfans for top mounting

PTF 60.500	310 / - m ³ /h	115 V 230 V AC	291 x 291 mm
PTF 60.700	646 / - m ³ /h		
PTF 61.000	1,035 / - m ³ /h		



ECOOL Filterfan 4.0
for top mounting

ECOOL PTFA Exhaust filters for top mounting

PTFA 60.000		291 x 291 mm
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¹ free-blowing

² for material thicknesses up to 2 mm

Heaters.

TYPE	HEATING PERFORMANCE	RATED VOLTAGE	DIMENSIONS (H x W x D)
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FLH Radiant heaters

FLH 010	10 W	110–250 V AC	100 x 70 x 50 mm
FLH 015	15 W	110–250 V AC	
FLH 030	30 W	110–250 V AC	
FLH 045	45 W	110–250 V AC	
FLH 060	60 W	110–250 V AC	175 x 70 x 50 mm
FLH 075	75 W	110–250 V AC	
FLH 100	100 W	110–250 V AC	
FLH 150	150 W	110–250 V AC	250 x 70 x 50 mm



FLH Fan Heaters

FLH 250	250 W	115 V 230 V AC	186.5 x 85 x 104 mm
FLH 400	400 W	115 V 230 V AC	226.5 x 85 x 104 mm

FLH-T Fan heaters with integrated thermostat

FLH-T 250	250 W	115 V 230 V AC	100 x 150 x 164 mm
FLH-T 400	400 W	115 V 230 V AC	
FLH-T 600	600 W	115 V 230 V AC	
FLH-T 800	800 W	115 V 230 V AC	
FLH-T 1000	1,000 W	115 V 230 V AC	



PFH Compact fan heaters

PFH 200	200 W	115 V 230 V AC	142 x 88 x 126 mm
PFH 300	300 W	115 V 230 V AC	
PFH 400	400 W	115 V 230 V AC	
PFH 500	500 W	115 V 230 V AC	
PFH 650	650 W	115 V 230 V AC	
PFH 800	800 W	115 V 230 V AC	
PFH 1000	1,000 W	115 V 230 V AC	
PFH 1200	1,200 W	230 V AC	



PFH-T Compact fan heaters with integrated thermostat

PFH-T 200	200 W	115 V 230 V AC	142 x 88 x 139 mm
PFH-T 300	300 W	115 V 230 V AC	
PFH-T 400	400 W	115 V 230 V AC	
PFH-T 500	500 W	230 V AC	
PFH-T 650	650 W	115 V 230 V AC	
PFH-T 800	800 W	115 V 230 V AC	
PFH-T 1000	1,000 W	115 V 230 V AC	
PFH-T 1200	1,200 W	230 V AC	

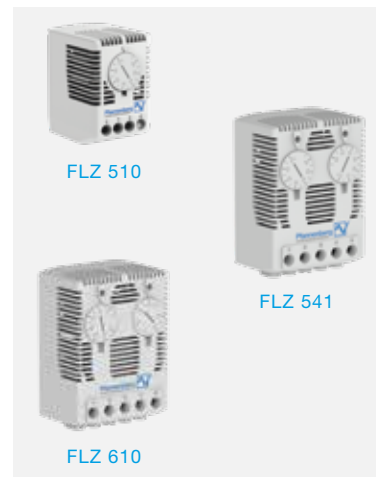


Thermostats and hygrostats.

TYPE	OPERATING TEMPERATURE RANGE	TYPE OF CONTACT	SWITCHING POINT TOLERANCE	DIMENSIONS (H x W x D)
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FLZ Thermostats

FLZ 510	-40 ... +80 °C	changeover	±3 K	59.5 x 37 x 47.5 mm
FLZ 520	-20 ... +80 °C	N.C.	±4 K	72 x 40 x 36 mm
FLZ 530		N.O.	±4 K	
FLZ 541	-20 ... +80 °C	N.C. N.O.	±4 K	80.5 x 59 x 38 mm
FLZ 542		N.C. N.C.	±4 K	
FLZ 543		N.O. N.O.	±4 K	



FLZ Hygrostats

FLZ 600	0 ... +60 °C	changeover	approx. 5 %	60 x 37 x 55 mm
FLZ 610	-20 ... +60 °C	changeover/relay	approx. 2 K ±1 K approx. 4 % R.H. ±1 %	80.5 x 59 x 38 mm

Enclosure lighting systems.

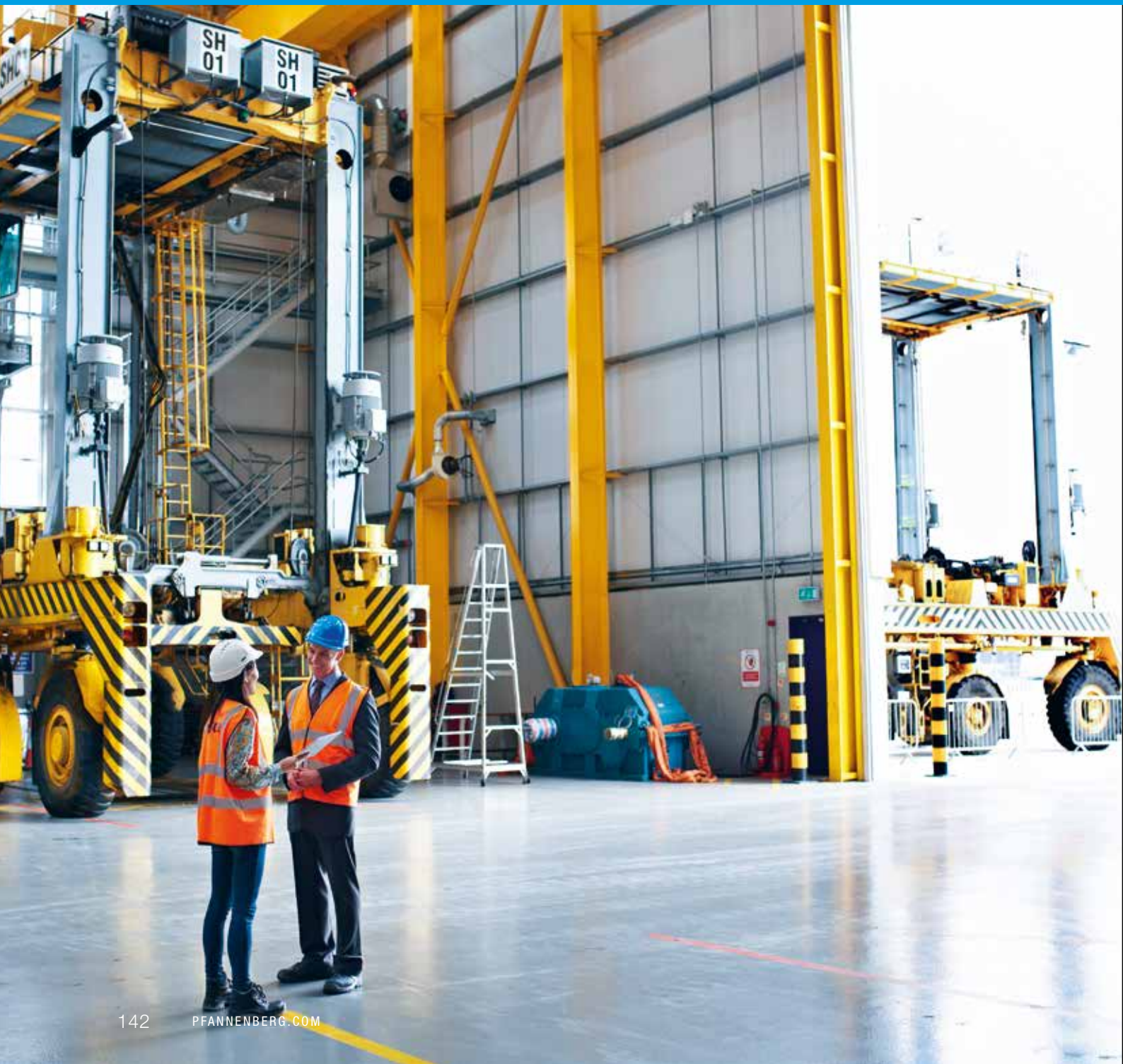
TYPE	LIGHT INTENSITY	RATED VOLTAGE	TYPE OF CONNECTION	DIMENSIONS (L x H x D)
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Standard Lamp Systems – LED

PLS 008 Mini LED	324 Lm	230 V AC	mains cable (1.8 m) with plug included	300 x 28 x 24 mm
PLS 013 Mini LED	612 Lm	230 V AC		530 x 28 x 24 mm



Advice and support.



A consulting partner for planning.



Building Information Modeling (BIM).



Pfannenberg offers extensive assistance for the design of signalling systems. Whether for factory efficiency, building or machinery safety, or evacuation due to fire or gas leak, we are available to assist by phone, online, or in person. Have your project done correctly the first time by relying on our many years of configuring safe signalling solutions.

Information that goes beyond the product specifications.

Codes, norms, directives, and guidelines – whatever you call them, they are constantly evolving. Let us help you ensure that whatever system you are planning is compliant and approvable. Among other things, we offer sound level measurements to map the ambient noise in your facility and we can help you decide if a safety related system (SIL/PL) is necessary. We can provide modified or custom products to meet your requirements. Let our consulting services help you achieve whatever it takes to get to the best result.

Building Information Modeling has evolved to be a time-saving tool for system designers and specifiers. Pfannenberg supports this design approach by providing relevant data files which include the coverage area for signalling devices. This information can be used to create a three dimensional virtual building model. Autodesk Revit and other file formats are available. Visit www.pfannenberg.com for these downloads.



We are very happy to help! Just email or phone:

service@pfannenberg.com / +49 40 73412 167



Download Revit data free at

www.pfannenberg.com

Download tender specifications for bid projects.

Tender specifications and guide specifications are available to help ensure accuracy in system design and assist with procurement and planning. We also support consulting and specifying engineers with their master specifications.

Unrivalled 10-year warranty.

We believe crucial products require the best warranty. The safety of many of our products is supported for 10 years, with replacement items readily available and dispatched from our worldwide locations. Have confidence in knowing your system performance will not be compromised.

Online download portal

Find tender specifications in a variety of formats at www.ausschreiben.de/katalog/pfannenber/export:



Word



Excel



RTF



PDF



Text



GAEB XML
GAEB 90



DATANORM 5



ÖNORM

Visual and audible signalling devices with a 10-year warranty.

All units in the DS, PATROL, PYRA® and Quadro series carry a factory-backed 10-year warranty. Please see page 139 for more details about these products.

Worldwide easy-replacement program.

Should an item fail for any reason, a replacement is available quickly. A simple process ensures your system quickly returns to full capacity:

- **Step 1:** To claim a replacement under guarantee, just contact your nearest Pfannenberg sales organisation (an agent or Pfannenberg branch) with a report of the defect.
- **Step 2:** Pfannenberg or your agent will review the matter over the phone and you will receive without delay a new or reconditioned replacement device and an information package about further procedures which will include your RMA number.
- **Step 3:** Only now do you return the defective device (in the packaging in which the replacement device was delivered) to a Pfannenberg sales organisation for checking.

Additional details and service information are available at

www.pfannenberg.com



Industry-leading 10-year warranty.

When uncertainty surrounding safety and efficiency is unacceptable. Pfannenberg quality is unwavering. With over 50 years of experience in developing visual and audible signalling solutions, we are so confident in our designs that we stand behind them for a long time. Enjoy the confidence and benefit of a 10-year warranty on our most popular standard items. Should anything go wrong, we will make it right – and with locations worldwide, there is a local point of contact to help.

	TYPE	PERFORMANCE	HOUSING MATERIAL	PROTECTION SYSTEM	RATED VOLTAGE	PAGE
	PA 1 PA 5	105–107 dB(A)	PC / ABS blend	IP 66 IK08	230 V AC 10–57 V DC	52
	PA 10 PA 20	117–122 dB(A)			95–265 V AC 10–60 V DC	52
	PA X 1-05 PA X 5-05	105–107 dB(A) 5 J			230 V AC 24 V DC	70
	PA X 10-10 PA X 20-15	117–122 dB(A) 10–15 J			230 V AC 24 V DC	70
	DS 5 DS 10 DS 5-SIL DS 10-SIL DS 5 3G/3D DS 10 3G/3D	108–114 dB(A)	die-cast aluminium	IP 66 IP 67 IK08	230 V AC 24 V DC	50 92 120
	DSF 5 DSF 10	108–114 dB(A) 13 J	PC / die-cast aluminium	IP 66 IP 67 IK08	24 V DC	68
	Quadro F12	7,5–13 J 9–140 cd	polycarbonate	IP 66 IP 67 IK08	230 V AC, 24 V DC	26
	Quadro F12-SIL				24 V DC	82
	Quadro S-M-Flex				230 V AC	82
	Quadro LED-HI				24 V DC	36
	Quadro F12-3G/3D Quadro LED-HI 3G/3D				230 V AC, 24 V DC 24 V AC/DC	112 116
	PY X-L-15 PY X-L-15-CPR	15 J 190 cd	PC / ABS blend	IP 66 IK08	230 V AC 24 V DC	24
	PY X-S-05	5 J 44 cd	PC / ABS blend	IP 66 IK08	230 V AC 24 V DC	30
	PY X-M-05 PY X-M-10	5–10 J 44–118 cd	PC / ABS	IP 66 IK08	230 V AC, 24 V AC/DC 230 V AC, 24 V DC	28
	PY X-LA-15	103 dB(A) 15 J	PC / ABS	IP 66 IK08	230 V AC 24 V AC/DC	64
	PY X-MA-05 PY X-MA-10	101 dB(A) 5–10 J	PC / ABS	IP 66 IK08	230 V AC 24 V AC/DC	66

Fire alarm notification appliances in conformance with EN 54-3 and EN 54-23.

Audible and visual alarms from Pfannenberg. EN 54-3 defines the requirements, tests and performance features of audible signalling devices which are intended for use as notification appliances in fire alarm systems throughout the European Union.

Since 1 January 2014, fire alarm systems must also have visual notification appliances which comply with the requirements set forth by EN 54-23. Pfannenberg is the first manufacturer to offer VdS certified flashing lights which meet these requirements.

EN 54-23	<p>PY X-S-05 24 V 48 V DC with/without SSM* / ●</p>	 <p>5 joules flashing light</p>	page 30
	<p>PY X-M-05 PY X-M-10 24 V DC SSM* / ●</p>	 <p>5/10 joules flashing lights</p>	page 28
	<p>PY X-L-15-CPR 24 V DC / ●</p>	 <p>15 joules flashing light</p>	page 24
EN 54-23 EN 54-3	<p>PA X 1-05 24 V 48 V DC with/without SSM* / ●</p>	 <p>5 joules / 105 dB(A) flashing sounders</p>	page 70
EN 54-3	<p>DS 5 DS 10 12 V 24 V DC 115 V 230 V AC</p>	 <p>108/114 dB(A) sounders</p>	page 50
	<p>PA 10 PA 5 24-48 V DC</p>	 <p>105 dB(A) sounder 107 dB(A) sounder</p>	page 52
	<p>PA 10 PA 20 24-48 V DC 115-230 V AC</p>	 <p>117 dB(A) sounder 122 dB(A) sounder</p>	page 52

* SSM = Soft Start Module; reduced inrush current

Created for extreme conditions:

TYPE	VIBRATION AND SHOCK-RESISTANT	HIGHER RESISTANCE TO IMPACT	IP SYSTEM ≥ 66	IMPERVIOUS TO SEAWATER	UV-STABLE	$T_A > 40\text{ °C}$	$T_A < 25\text{ °C}$
PMF 2020	+	-	○	○	○	+	+
ABL GL	+	○	○	+	+	+	+
WBL GL	+	○	○	+	+	+	+
PYRA®	○	+	+	○	○	+	+
PYRA® GL	+	+	+	+	○	+	+
QUADRO	+	+	+	+	+	+	+
PA X	○	+	+	○	○	+	+
PA X GL I MED	+	+	+	+	○	+	+
PATROL	○	+	+	○	○	+	+
PATROL GL I MED	+	+	+	+	○	+	+
DS	○	+	+	+	+	+	+
DS GL	+	+	+	+	+	+	+

+ recommended
○ applicable

- not recommended

PSS – online planning software for sizing and configuring reliable safety systems.



Avoid errors with ineffective coverage range and ensure code acceptance by utilising the free Pfannenberg Sizing Software (PSS). This online utility helps ensure the resulting system is correctly specified to meet signalling requirements and done so in a cost-effective manner. PSS takes the area needed to be effectively covered by the alarm or warning signal into consideration along with code requirements to ensure proper sizing and number of units needed for safe results.

Step 1: Define requirements.

The user-friendly PSS interface allows easy data entry of application requirements such as type of alert, area dimensions, ambient noise levels, signal tone, lens colour, IP protection, and available power supply voltage. The software calculates the best possible solution and presents a report with one or more device recommendations.

Step 2: Select a device recommendation.

From the presented product choices, a selection is made. Additional options such as housing colour and SIL conformity (or other versions) are presented as options. Once the final selection is made, it is stored as a system component. Results of all selected products are later presented on a planning report.

Step 3: Download the planning report.

Details of the system configuration are presented to assist with planning certainty. Additional data such as ceiling or wall mounting location, coverage area dimensions and a 3D-Coverage pictorial present a complete picture of the devices and their coverage.

Signal tower / stacklight configurator.

PSS also contains a module to enable configuration of the modular signal towers within the BR 50 and BR 35 series of devices. The software guides the user through the selection of the various stackable modules, supply voltages, lens colours, LED or filament bulb choices, mounting accessories, and additional O-rings and seals to achieve the optional higher IP ratings. This tool ensures that nothing is overlooked when creating a bill of materials for the components needed to create the desired signal tower.



Access to the latest PSS version.

Find the Pfannenberg Sizing Software online here:

www.pfannenberg.com/pss

Example of the PSS project planning report.

Product selection result.



Project

- Title: Fire alerting hall 3
- Create date: 26-Sep-2016
- Amend date: 26-Sep-2016

Processor

- Company: Fire-Engineering SE
- Name: Steve Wright
- Address: Bourbon Road 33
- City: London

Customer

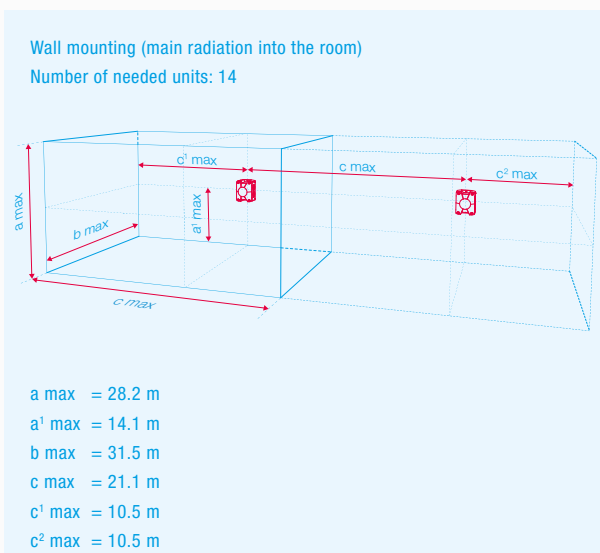
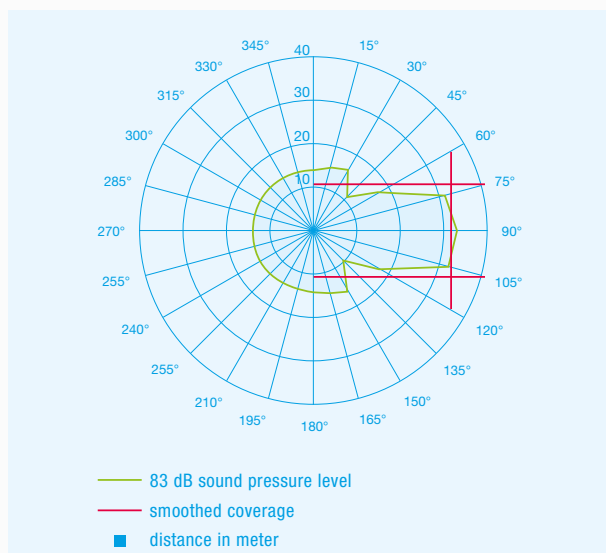
- Company: Superior Production Ltd
- Name:
- Address: Nobel Way 12
- City: Horsens DK

Preselection

- Signal types: Audible signalling devices
- Alarm type: Building/fire alerting
- Design type: Hall (maximum distance of two signalling devices)
- Room size: Length: 210 m
Width: 36 m
Height: 12 m
- Ambient noise sound level: 73 dB(A)
- Offset to ambient noise: 10 dB(A)
- Selected tone: Sweden (emergency signal)
- Voltage: 24 V DC
- Housing colours:

Result

- Signalling device with the following data
- Product: PA 10 10-60 V DC
- Article number: 23360630000
- Rated sound pressure level: 117 dB(A)
- Coverage area: see illustration
- Protection system: IP 54, IP 55, IP 65, IP 66
- Housing colours: flame red RAL 3000



Functional safety

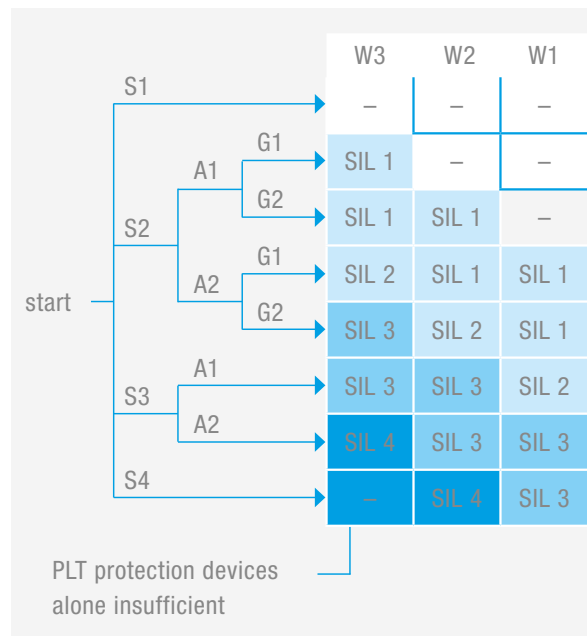
IEC 61508 | IEC 61511 (SIL) – plant safety.

On June 1, 2015, the European Directive, Seveso III, became law. In Germany, this was implemented with the Amendment to the Hazardous Incident Ordinance (12 BImSchV). With this, official government inspections and monitoring are required.

Basic requirements include obligations and precautions to prevent hazardous incidents and their possible consequences. This includes outfitting the operating area with sufficient alarm, warning, and safety equipment. Pfannenberg has supported such requirements for many years with SIL/PL compliant signalling devices for harsh industrial environments. By including the key safety data and operational features, the sounders and flashing lights can easily be integrated in the safety concept of machines and Industrial facilities.

- Signalling devices perform a safety protection function on machines and systems. The consequences of a potential fault in these devices present a potential risk if not detected.
- A hazard graph is an important reference for the classification of the machine, process system, or industrial facility as it clearly illustrates the complex preliminary work needed in order to plan and implement relevant safety related projects.

Hazard graph according to IEC 61508.



- S = Extent of damage
 - S1 minor injury of a person
 - S2 serious, irreversible injury of one or more people or death of one person
 - S3 death of several people
 - S4 disastrous effects with several dead
- A = Likelihood of people being in the area
 - A1 rarely to slightly more often
 - A2 frequently to continuously
- G = Danger prevention
 - G1 possible under certain conditions
 - G2 barely possible
- W = Likelihood of occurrence
 - W1 very small
 - W2 small
 - W3 relatively high



Comprehensive information such as

- flyer, SIL/PL info sheet, poster
- publications, applications

can be retrieved by entering this webcode in the search window on www.pfannenberg.com

Functional safety

EN ISO 13849-1 (PL) – machine safety.

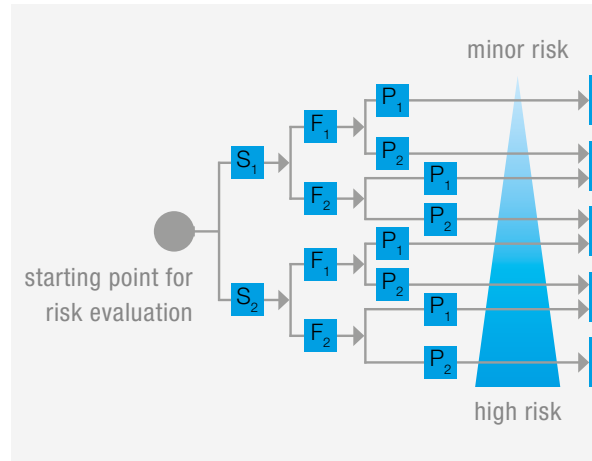
Enacted on January 1, 2010 the machinery directive 2006/42/EG brought forth two machinery safety standards: DIN EN ISO 13849-1 (which replaces Norm DIN EN 954-1 of the old machinery directive 98/37/EG), and DIN EN 62061. This information was published in June 2006 in the Official Journal of the European Union (OJ L 157).

The objective of these safety norms is to minimize risks associated with the operation of machines. The results are stricter requirements imposed upon machinery manufacturers and industrial facility developers for the certification of products. Cause and event probability considerations were also included in the safety regulation of components. To keep the operational system's risk stack minimised, alarm devices which have a high functional safety are required. The use of combine visual and audible signalling devices was also widely recommended.

Safety Instrumented System SIS (Safety Loop).



Risk assessment.



Software assistant SISTEMA.

Control safety of machines – easily calculated.

The manufacturer-independent calculation tool SISTEMA, from the Institut für Arbeitsschutz (IFA) (German Occupational Health and Safety Department) helps users evaluate safety-related control systems according to EN ISO 13849-1 and simplifies risk analysis. The Windows tool builds the structure of the safety-related control components and calculates the reliability values at various detailed levels including the achieved Performance Level (PL).



Robust signalling devices to withstand the rigours of tough use.

Shock and vibration-resistant: GL certified signalling devices.

Conditions including rough mechanical environments like shock, vibration, and impact will require robust signalling devices that can endure the punishment. Mining conveyors, stamping machines, punch presses, gantry cranes, railway transportation, and wind turbines represent some of these areas. Pfannenberg offers ruggedly constructed audible and visual alarm and notification equipment that can handle the world's toughest situations.

GL certified versions of our signalling devices incorporate additional protection to endure shock and vibration. This same certification includes shipboard marine use. Pfannenberg products are proudly found in maritime applications worldwide.

Impact resistance – designed in: signalling devices with impact rating IK08.

High strength plastics; saltwater grade cast aluminium; agency certifications; IK08 impact rating – these are the attributes familiar to Pfannenberg and required for devices to withstand the rigours of many industrial situations as well as harsh natural outdoor environments and events. Whether banged around on conveyors and cranes, smashed against by the seven seas, or pummelled by hail and ice, reliable signalling from Pfannenberg stands the test.

The goal of Pfannenberg has always been to endure. Investment in engineering, testing, materials, and certifications are the tools that help us achieve. With IK08, high levels of mechanical stress are endured, even without protective metal cages, because when safety matters, signalling must operate.



Dust, water, aggressive vapours? Signalling devices that endure!

Dust-proof and waterproof: signalling devices with IP 66 protection system (and above).

Signalling devices must function under very difficult environmental conditions. For example, in the construction and timber industries, in the manufacture of glass, plastic and pharmaceuticals, and in many areas of the food industry. Wherever raw materials are broken up and a process creates dust, vapour, or steam; or in work and production areas which are regularly cleaned with water, signalling devices must be protected from the ingress of foreign material.

Signalling devices with IP 66 protection system (and above) fulfil the most demanding requirements in these application areas. They are totally impervious to dust and also resist flooding and powerful jets of water. Their functionality in demanding indoor applications and in tough outdoor environments is outstanding.

Seawater resilient and corrosion resistant signalling devices for near and offshore applications.

Applications on board ships, in harbours or in near-shore wind farms place particular demands on materials of construction and require quality workmanship.

High-quality plastics and high IP protection ratings provide electronic components with optimum protection from aggressive, salty air and from contact with water. Versions with aluminium housing are reliably protected from corrosion by a seawater-resistant alloy with a low copper content.

Pfannenberg has a proud tradition of safety on the high seas protecting people, machines, and the environment. Even the world's largest cruise ship – The Harmony of the Seas, features Pfannenberg signalling devices.



Impervious to UV light, heat, and cold.

UV-stable devices for long-term use outdoors.

Whether installed outdoors on buildings, at sewage treatment facilities, within fuel depots, or on waterways, signalling devices that are outdoors are exposed to the damaging effects of the sun. UV light affects the durability of plastics and paint. Brittleness and cracking are the result. Pfannenberg prevents such damage through UV stabilisers which are added to the paint and injection moulded plastics used on our signalling devices.

Additional devices available with cast aluminium construction also offer robust solutions to outdoor situations as well as providing outstanding protection from impact.

Survive the temperature extremes anywhere in the world and inside demanding factories.

Pfannenberg's signalling devices are designed for use in temperatures ranging from $-40\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$, whether fluctuating or constant, at one extreme or the other.

Applications in steel or glass production, desert and tropical conditions, ski resorts, arctic climates, and cold storage facilities are dependably fulfilled by Pfannenberg signalling devices.



Explosion safety.

As a European manufacture of signalling devices, Pfannenberg follows the International Electrical Code (IEC) for qualifying and identifying equipment that is suitable for use in potentially explosive environments. This follows and is in accordance with ATEX directives 94/9/EU and 1999/92/EU.

Potentially explosive areas are those in which there is a risk of explosion due to the presence of combustible materials. The Ex-zones identify areas according to the probability of the occurrence of an explosive atmosphere. The determination of the zones is the responsibility of the operator, however, final approval for use of any equipment may lie with a local AHJ.

Zone 0/20

An explosive atmosphere exists frequently or constantly.

Zone 1/21

An explosive atmosphere occurs occasionally.

Zone 2/22

An explosive atmosphere occurs only rarely and only for a short time.

Care must be exercised when selecting equipment that is appropriate for use in potentially hazardous combustible areas.

Items to consider include:

1. The device functionality.
2. The suitability for use in the expected operating and ambient conditions.
3. The requirements regarding explosion protection.



Switching contacts have a tough job: surviving capacitive inrush loads.

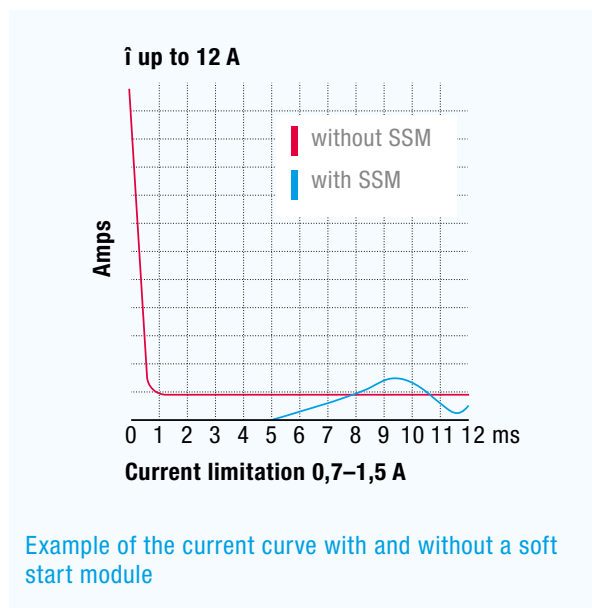
Regardless of technology utilised, optical and acoustic signalling devices can generate a very high inrush current due to their often capacitive switching behaviour. Devices with just a few watts of output can produce inrush current pulses in the micro-second range which, due to their capacitive characteristics, can climb to more than 100 times the rated current capacity of a switching contact.

The challenge: protect relays and fuses from being overloaded.

Capacitive current peaks can cause overloads and potential damage to relay contacts at the switch-on moment. Additionally, premature triggering of electronic overcurrent protection circuits can occur.

The Pfannenberg solution: integrated inrush current limitation plus soft start module.

For such fault-prone systems, Pfannenberg offers optical and acoustic signalling devices with integrated inrush current limitation. In addition many units can be equipped with soft-start modules (SSM) (exclusively for 24 V DC devices).



Device protection and line fault monitoring.

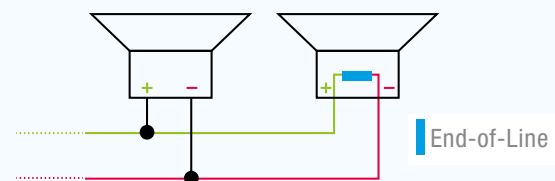
Soft start modules (SSM) offer multiple benefits, including:

- Current draw limitation – protection for switching circuits at the control device.
- Reverse polarity protection – unit is unharmed and inactive if improper wiring is conducted or reverse polarity power is intentionally supplied.
- Under-voltage shutoff – circuitry prohibits the device from turning on at a supply voltage level that is below a predetermined value.

Device, cable, and wiring integrity monitoring with end-of-line resistor.

It is often advantageous to check cable continuity and provide an alert should a fault be detected. This is particularly beneficial in multi-unit installations that are installed in a daisy-chained manner across a parallel wiring circuit. With the benefit of the SSM features, line monitoring can be accomplished in two different manners when an “end of line resistor” is installed at the system’s terminating device:

- by applying a reverse polarity voltage into the system.
- by applying a normal polarity voltage into the system which is below the under-voltage limit of the devices wired to it.



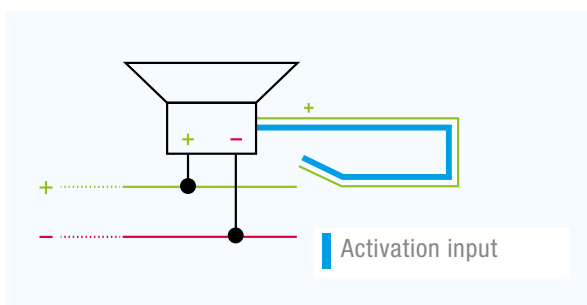
For either technique the resulting quiescent current flowing through the resistor can be monitored and measured. If the current is missing or out of tolerance, a fault is detected.

These methods, which are very often used in fire alarm systems, permit power circuit functionality to be verified in a very simple manner. However, this test does not examine the actual operability of the signalling devices themselves. In order to achieve fault monitoring and detection of the functionality of the signalling devices themselves, units with built-in function monitoring must be used and additional wiring leads must be connected to interrogate the state of their fault relay circuit.

Advantages of transistor controlled operation (PLC).

Most signalling devices are typically activated by switching on the supply voltage, which can lead to high levels of inrush current. Another technique for eliminating the potential damaging effects this may have on the control electronics is to configure a system that is constantly powered with the signalling devices remaining inactive until required.

This is accomplished by using signalling devices that are capable of being activated via an additional control input. This control input is typically activated by a low current, transistorised output circuit, which is common among PLCs.



Additional advantages of PLC controlled operation:

High current loads, due to simultaneous activation of several signalling devices, can be avoided. In addition, operation for multiple signalling devices can be synchronised and signal mode controlled via the control input.

Synchronisation.

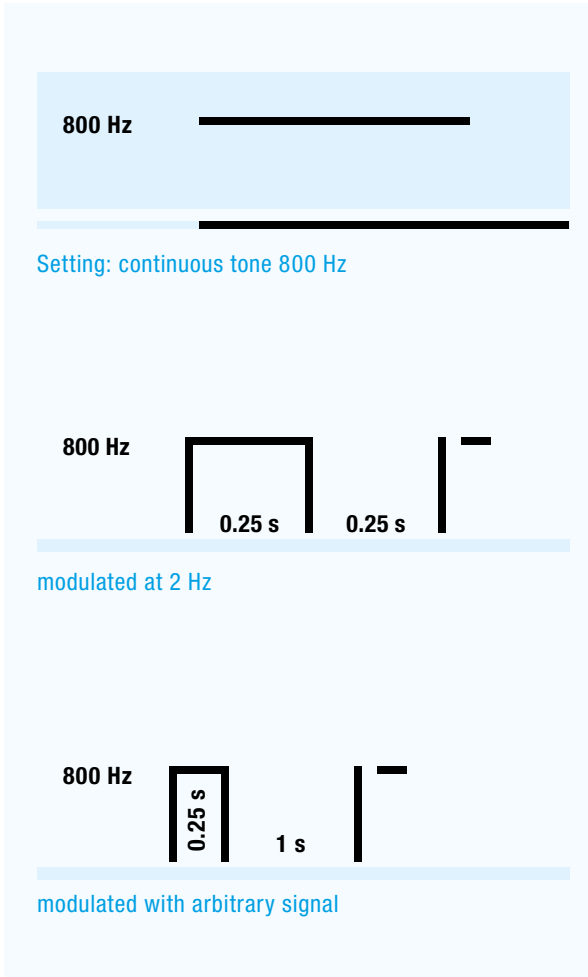
Since the control signal reaches all devices simultaneously, their activation also occurs concurrently. This provides synchronous output signals for all connected devices. This technique can also be repeated after an allotted time interval in order to counteract signal drift.

Signal mode control.

System planners and operators can benefit from using signalling devices that provide multiple modes of operation. For audible devices this can be a choice of different output tones. For visual devices this can be a choice of different flash frequencies. Some signalling devices offer the ability to have their operating modes remotely controlled with the transistorised output of the PLC.

Output signal clocking.

For acoustic signalling devices, the operator can also use the control signal to configure a customised tone output time signature. For example, a device with a continuous frequency output tone can be modulated to produce custom acoustic output sequences (see examples on the previous page).



Adjustable operating modes for flashing and LED lights.

The ability to select a variety of operating modes for visual notification appliances provides users with the advantage of configuring systems which:

- Offer different signals from one area to the next to avoid confusion.
- Are intelligent by alerting the operator of unique events through differing modes of operation.

While some devices permit selection of the operating mode by on-board switches, others offer external control for remote selection.

Extend service life.

Signal mode selection offers the further advantage of extending the service life of the device by reducing the flash frequency. For example, a device operating at a flashing frequency of 0.5 Hz (30 flashes/minute) instead of 1 Hz (60 flashes/minute), will have nearly double the lifetime.

Adapts to specific situations.

Visual signalling devices with adjustable operating modes provide distinct advantages when it comes to operational efficiency.

For example, modes can be remotely controlled to identify different conditions:

LED lights:

- Continuous light:** Everything ok
- Blinking light:** Warning
- Flashing light:** Immediate action required

Xenon strobes:

- 0.1 Hz (one every 10 sec):** Warning: Danger area
- 1.0 Hz (one per sec):** Evacuation



AS-i-Bus signalling devices.



LED signal light and 50 mm indicating stacklights with integrated AS-i slave.

AS-Interface is a networking alternative to the individual wiring of field devices. It can be used as a partner network for higher level fieldbus networks such as Profibus, DeviceNet, Interbus and Industrial Ethernet, for whom it offers a low-cost remote I/O solution. It is used in automation applications, including: conveyor control, packaging machines, process control valves, bottling plants, food production lines, electrical distribution systems, airport baggage carousels, and elevators.

Pfannenbergs is a full member of the international AS-i union, and thereby qualified to develop and manufacture AS-i certified components.



TYPE	OPERATING MODE	PERFORMANCE	PAGE
PD 2100-M-AS-i	LED continuous light	function monitored and AS-i power supplied with integrated AS-i slave module	88
BR 50-AS-i	LED module sounder module continuous light module blinking light module	up to 4 stages modular 50 mm stacklight, with integrated AS-i slave module and power supply via AS-i wire	96
BR 50-AS-i-AB			



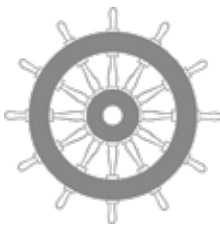
MED-certified signalling devices.



The European Marine Equipment Directive (MED) mandates the use of MED-certified signalling devices in fire alarm systems on board of ships. This applies to all EU flagged ships and ships intended to fly the flag of an EU country.

Shipping companies, service providers and suppliers of fire alarm systems rely on our MED-certified products. They enable standard-compliant and reliable fire alarm signalling on all ships, from the bridge through the gangways and cabins to the machine rooms and holds.

The specific suitability of our signalling devices for use under the demanding conditions of the maritime sector is additionally confirmed by DNV-GL approval.



All signalling devices shown here are MED and DNV-GL certified.



Contact us directly at marine-signals@pfannenberg.com.

For detailed information on MED certification and our products, visit www.pfannenberg.com/med.

MED-certified audible signalling devices

(see page 52)



- PA 10
- Up to 105 dB(A)
 - IP 66
 - 230 V AC, 12–48 V DC



- PA 5
- Up to 108 dB(A)
 - IP 66
 - 230 V AC, 12–48 V DC



- PA 10
- Up to 116 dB(A)
 - IP 66
 - 110–240 V AC, 12–48 V DC



- PA 20
- Up to 124 dB(A)
 - IP 66
 - 110–240 V AC, 12–48 V DC



- PA X 1-05
- Up to 105 dB(A)
 - 5 joules
 - IP 66
 - 230 V AC, 24 V | 48 V DC



- PA X 5-05 / 5-10
- Up to 108 dB(A)
 - 5 joules / 10 joules
 - IP 66
 - 230 V AC, 24 V | 48 V DC



- PA X 10-10 / 10-15
- Up to 116 dB(A)
 - 10 joules / 15 joules
 - IP 66
 - 115 V | 230 V AC, 24 V | 48 V DC



- PA X 20-10 / 20-15
- Up to 124 dB(A)
 - 10 joules / 15 joules
 - IP 66
 - 115 V | 230 V AC, 24 V | 48 V DC

Operating voltages in support of worldwide requirements.



Figure: Compact flashing light used for a safety application in a tunnel. The input voltage range of 70–264 V AC and 73–140 V DC supports both line (mains) and backup battery power

Signalling equipment is used worldwide to promote safety and improve efficiency. As a global supplier of signalling devices, Pfannenberg develops products for use in a wide range of applications. To support these installations, the power requirements of the devices must adapt to situations which may not be typical.

A wide variety installations and available power:

Power plant construction: **110 V or 220 V DC**
Railway vehicles: **36 V DC, 74 V DC, 110 V DC**
Industrial facilities: **24 V AC, 42 V AC**
Switching gear: **100 V AC**
Telecommunications: **48 V DC, 60 V DC**
Crane equipment: **48 V AC**
Fork lift trucks: **80 V DC**
Emergency power applications: **AC and DC**

Pfannenberg's products support many common and not so common power supply voltages.

Featured catalogue items support the most typical power supply voltages of **24 V DC, 115 V AC** and **230 V AC**. In addition, many items support operation from less common supply voltages.

Pfannenberg signalling devices are compatible with a wide range of available power.

Alternating current (AC):

12 V / 24 V / 42 V / 48 V / 127 V / 240 V

Direct current (DC):

12 V / 28 V / 48 V / 60 V / 80 V / 110 V / 220 V

Accommodating global requirements with a wide range of powering options.

Many of Pfannenberg's signalling devices are engineered to operate from a single, wide range of power, making them a universal fit for many requirements (e.g. 10–60 V DC or 90–253 V AC/DC). This offers several advantages:

- One device for a wide range of applications.
- Less equipment variance simplifies installation and maintenance.
- Reduces stocking requirements.

Upgrade incandescent bulbs to LEDs without false alarms.



The illumination of aviation obstacles such as buildings, chimneys, power lines, and radio towers require reliable and long-lasting solutions. Pfannenberg offers operators planning to switch from incandescent bulbs to long life LED technology solutions that enable a trouble-free transition (10 cd and 32 cd).

Error-free changeover with reliable current-monitor operation.

When switching from incandescent bulbs to LED obstacle lights, it is important to provide the system's current monitor with correct information to prevent false alarms. To keep costs at a minimum, it is also important that replacements adapt directly to the existing cabling and power supply.

Overcoming false alarms.

When operating LED obstacle lights, current consumption fluctuations can occur due to temperature changes and aging. Current monitors have an especially tough time distinguishing between current fluctuations present in some commercially available LED solutions and actual faults. This can lead to false alarm triggering of a monitoring system.

Obstacle lighting failures must be reported to aviation authorities and be repaired as quickly as possible, since the obstacle is no longer sufficiently marked. A false alarm and unnecessarily reporting a fault can be particularly annoying and expensive.

Pfannenberg's LED systems with no false alarm risk.

The Pfannenberg POL 10 and POL 32 obstacle lights are engineered to permit easy connection to the existing 2-wire power supply **with continuous current-monitor operation**.

In addition, with integrated fault monitoring, they recognise the failure of a critical number of LEDs and reduce the current consumption of the lighting to a minimum. This permits the current monitor to detect a clear fault signal so that corrective measures can be **carried out reliably**.

Pfannenberg also offers redundant-design obstacle lights for replacement in "low intensity Type A" (10 cd) applications. These units offer several advantages:

- long service life
- clear fault detection for the current monitor
- extended reaction time to enable planned repair procedures
- avoids costly emergency reaction

Additional information about Pfannenberg obstacle lighting can be found on page 42.



**A completely different side of Pfannenberg:
Artistic lighting and spectacle illumination.**

Pfannenberg is proud to have been involved in beautiful adaptations of our durable lighting solutions on some of the world's most renowned landmarks. Presented here are a few examples designed to captivate audiences with flashing light technology by Pfannenberg.



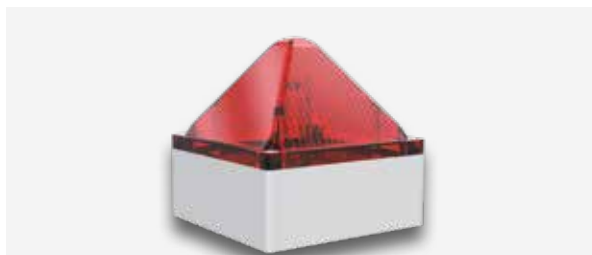
St. Petersburg, Russia
TV Tower and Trinity Bridge
9,500 Pfannenberg flashing lights



Paris, France
Eiffel Tower
20,000 Pfannenberg flashing lights



Le Havre – Honfleur, France
Pont de Normandie
800 Pfannenberg flashing lights



Quadro A-DMX

- Solid-state Xenon flash tube with integrated DMX control for generating illumination arrangements and light shows.
- Multiple units connect in a daisy-chained fashion to a DMX-Bus system.
- Can be directly controlled by the DMX-Master.
- Rugged plug connectors for power supply and DMX-Bus (inlet and outlet).



Contact us for further information and to discuss ideas for your project.
Global Product Management:
+49 40 73412 226

Occupied spaces: global safety, local solutions.

Modern towns and cities with highly-functional leisure and work spaces support the problem-free running of everyday life. The technical solutions within public and commercial buildings must be monitored to keep things running smoothly. Pfannenberg products help ensure that process upsets are quickly addressed and millions of people remain comfortable and safe.



Reliability: in any place at any time.

Pfannenberg products meet the highest standards and are suitable for use in a wide range of requirements. Signalling devices keep people safe by generating alarms in the event of hazards like fire, gas leaks, intruders, accidents, severe weather, and technical defects. Whether in large public areas, confined spaces, in the air, or at sea, safety is assured with products from Pfannenberg.

Keeping machinery and equipment running smoothly.

Public buildings like schools, hospitals, office complexes, or factories all rely on functioning building technology. The functionality of sensitive building technology. The functionality of sensitive control electronics found in HVAC and pumping systems, for example, are protected from breakdown with Pfannenberg's innovative thermal management solutions.

Cooling units help keep controllers and variable frequency drives (VFDs) operating at peak efficiency, while heaters and thermostats keep electrical enclosures moisture-free by eliminating potential corrosion-causing condensation. Whether critical for climate control or keeping systems such as moving gates, rolling doors, parking ticket machines, and building access controls from malfunctioning, solutions from Pfannenberg are a smart investment.

Pfannenberg solutions for safety in commercial and public buildings:

- Audible and visual warning systems.
- Fire and gas alarms.
- Obstacle lights on tall structures.
- Thermal management for electronic control systems in electrical enclosures.



Sounder
PA 10



Hygrostat
FLZ 600



Flashing light
PY X-M-05



Radiant heater
FLH 045

Airport safety and efficiency.

Air traffic and the number of airline passengers are on the rise as is evident with the increase of mega-hubs in the Middle East and Asia. Wherever automation plays a large role in the efficient handling of flights, passengers, cargo, and luggage, Pfannenberg products keep operations running smoothly and passengers safe. Around the world, planners, engineers, and architects of these complex systems benefit from Pfannenberg's competence in these areas.



Signalling solutions for airport terminals.

Safety to people is everyone's concern and wherever large numbers congregate, it becomes even greater. Safety is achieved in all areas of the airport facility with signalling solutions from Pfannenberg. Visual and audible alarms for:

- Baggage carousel startup alarms
- Fire and gas leak alarms
- Intruder alerts
- Tower and building obstruction warning
- Passenger guidance indication
- Jet bridge movement alarms
- Moving vehicle alarms



Thermal management solutions for airport terminals.

Up-time for machinery and systems is critical to keep the flow of people, baggage, and cargo moving. Pfannenberg's thermal management solutions for enclosed electronics ensures optimal operating conditions and machinery longevity for such systems as:

- Conveyor and escalator controls
- X-ray screening equipment
- Ticket and ATM kiosks
- Control centre consoles
- Digital signage

Crane lighting: safe signalling day and night.



Whether on large-scale construction sites or in container terminals: cranes move heavy loads with high precision. To prevent collisions, signal generators are tasked with reliably and unmistakably displaying wind and loads, remote operation as well as movement and overload situations.

The robust, bright traffic light meets the requirements of DIN-EN 13000:2004-09 for mobile cranes as well as DIN-EN 14439:2007 for tower cranes and can be equipped with a sensor that enables **automatic dimming** of the light intensity during night-time operation. Also perfect for equipping container cranes, which are often used around the clock.

The challenge for optical signals: glare hazard at night.

When used on top of as well as on cranes, optical and acoustic signals need to make their way over significant distances. Optical signals present the additional challenge of having to adapt to changing light conditions. Light signals which are clearly visible during bright daytime hours must not blind viewers at night and become a potential hazard.

Pfannenberg has the solution: signal generators which automatically adjust their brightness.

They are resistant to vibrations, dust and water, extremely bright during the day and **glare-free** at night. With its specially developed signal generators, Pfannenberg offers superior solutions for crane manufacturers, e.g. the Quadro LED-TL signal light.



Safety at port and on the high seas.

Container and cargo ships, tankers, work boats, cruise ships, navy vessels, submarines, and other maritime vessels require keen attention to safety due to the perils of operating on dangerous waterways. Likewise at port facilities when cargo is loaded or unloaded, several risks are concurrently present which can compromise the safety of passengers and dockside personnel. Pfannenbergs signalling solutions have contributed worldwide to the safety of maritime operations by protecting man, machine, and the environment.

Safety at the harbour.

Robust Pfannenbergs signalling devices provide faithful safety alerts under harsh, outdoor conditions, including:

- Crane operator feedback and bystander warning.
- Reach stacker movement.
- Spreader bar engagement.
- Traffic safety.
- High wind and capacity overload alarm.
- Accidents with hazardous chemicals.



Safety on board.

Pfannenbergs signalling devices with high IP ratings and GL certified maritime approvals provide safety on-board ships and vessels for many requirements, including:

- Engine room fire or combustible gas leak.
- Bilge pump failure.
- General safety alarms.
- Fire alarms in cabin areas.
- Trouble in the cargo hold.

Water and wastewater treatment.

Potable water, storm water, and sewage treatment systems all rely on a variety of control systems and equipment to ensure safe and reliable operation. Additionally, personnel must be kept safe around the hazardous chemicals used in the treatment processes. Pfannenbergs offers a number of key items to ensure the reliability of these operations and warn of any hazards that may be encountered.

Longevity for pumping and control systems.

Water treatment works utilise pumping systems for moving the liquid to the appropriate equipment or location. With thermal management systems from Pfannenbergs, control equipment and variable frequency drive systems (VFDs) are maintained at optimal operating conditions to ensure that the service life of the equipment is not compromised and the liquid gets to where it needs to be. Additional drive or control systems on conveyors, dewatering presses and centrifuges, and scrubbers are similarly protected.



Safety in the treatment facility.

Pfannenbergs rugged signalling devices are ideal for use in the diverse indoor and outdoor areas of a treatment facility. Evacuation alarms for fires or potential leaks of hazardous chlorine or methane gas can be sized with effective alarm coverage to meet the needs of such plants which may be comprised of a variety of buildings and confined spaces.

Where safety integrity systems are desired, such as with sludge handling areas and digesters, SIL compliant devices and units with hazardous, explosive area certifications are available.

Automotive industry: keeping the entire supply chain productive.



As one of the largest industries, automotive encompasses a vast array of support activities. Raw material preparation, component fabrication such as tires, body metal stampings, and suspension forgings, the assembly process itself with motorised conveyors, automated painting and robotics, and a vast array of control equipment, to name several. With worldwide demand on the rise, the automotive industry supply chain strives to maximise uptime to help keep costs minimised.

Pfannenberg's support for the automotive industry runs deep – for protecting machinery and controls from damaging heat, personnel from motion, fire, and toxic hazards, and helping to keep processes from failing.

Versatile signalling for the plant floor.

Sounders with multiple tones and alarm stages provide feedback to operators about specific issues occurring in their production cell. Such “smart signals” permit quicker attentive reaction for resolving problems.

Extremely bright flashing strobe lights can be perceived from any orientation to enable plant personnel to be immediately alerted of any issues. The bright Xenon visual signal covers very large areas across the plant floor.

For safety in all industrial situations, Pfannenberg offers SIL/PL compliant devices as well as ATEX hazardous area use models.

All-round flashing light
PMF

Sounder
DS

All-round flashing light

- High output Xenon flash (up to 30 joules).
- Visible in any direction.
- Mechanically stable and rugged – no moving parts.
- Versatile mounting options.

Sounder

- Up to 114 dB(A) output sound pressure level.
- Die-cast aluminium housing.
- Multiple tone capability.
- Sealed construction.

Safe and efficient operation of complex machinery.



Visual and audible signalling devices have many different roles in industrial manufacturing and quality assurance procedures. They indicate a wide range of different statuses and warn, alert and protect humans and machines from danger in SIL, Ex and function-monitored versions, sometimes operating in complex and sophisticated applications.

Metal industry.

The start-up of machines and presses, status displays on lifting and work platforms, malfunctions such as coolant or lubricant failure and the requirement to restock a feeder with parts – our products guarantee that a host of safety and production-relevant statuses throughout the manufacturing environment are signalled reliably. In doing this, they make a major contribution to cutting the number of accidents at work and to reducing line stoppage times.

Timber, paper and printing industry.

Where there is the potential for combustible dusts to ignite, our visual and audible ex signalling devices ensure that production runs safely, even up to the point of evacuation. Where there are greater demands on functional safety, with start-up warnings for example, our loop-enabled SIL devices are used. Our signal towers indicate smooth operation of high-volume printing facilities and sorting machines and in the event of a general fault signal, allow the section affected to be identified quickly.

X-ray and laser applications.

Our lights with function monitoring are used where even the normal operation of machines can present a danger to people. Examples here are X-ray applications in industrial quality assurance and the use of class 3B and class 4 laser systems. The failsafe signalling devices prevent X-ray machines from being switched on again if a safety component is defective and ensure that the laser is switched off.



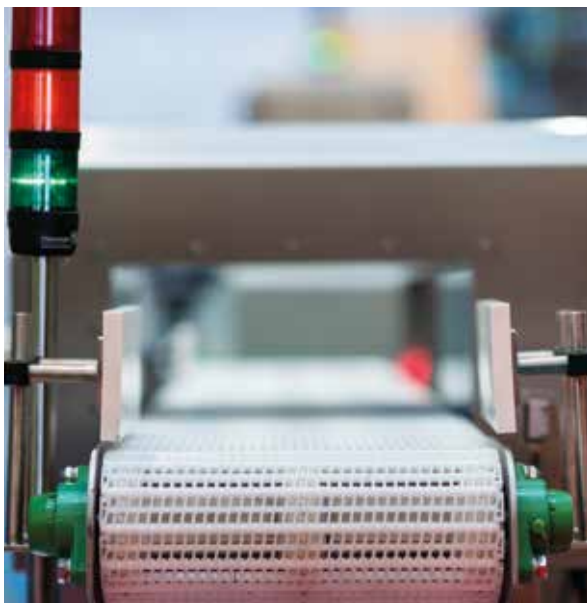
Gates and barriers.

The use of electrical gates and barriers in industrial, commercial and domestic areas can cause accidents for humans and vehicles if they are trapped, crushed or hit by them. In this case lamps are used which reliably indicate closing or opening statuses and warn of malfunctions and hazards.



Continuous excellence.

Rapid-cycle sequences are a major feature in the manufacturing and packaging of food and beverage products. Our specific components and solutions for signalling, alerting and thermal management support the production processes with outstanding performance levels.



Modern and innovative signalling technology.

Signalling technology is faced with a variety of different challenges running from the high operating speeds of different systems, various conveyor belts and production steps, to high background noise levels.

Status displays must give a permanent overview of machine and line statuses to optimise response times and minimise expensive downtimes.

Warning lights and alarm devices must signal hazards, risks and technical faults promptly in order to ensure system safety and reduce risks.

Against this background, combinations of audible and visual signalling devices reliably provide warnings and alarms even when loud conveyor belts

are running to capacity. For example, our BR 50 signal tower: modular in construction – it signals the particular conditions and hazardous situations using a continuous light, flashing light, blinking light or sound. Via an AS-i module it can also be integrated into AS-i networks.

Reliable cooling performance.

Nearly all products in the food sector are packaged by means of special packaging machines. In the field of primary packaging – ultramodern tubular bag packaging and shrink wrap machines are used, which enable enormous throughput levels.

To achieve maximum availability of the packaging lines, series 9 cooling units are responsible for cooling sophisticated control electronics.

The cooling units are available with a stainless steel hood and are suitable for space-saving partially recessed door, side mounting and the classical door, or side mounted versions. Because of the large distances between the intake and exhaust vents, they incorporate long ducting which ensures a reliable flow of air for the electrical enclosures – which eliminates the formation of hot spots.



Signal tower
BR 50

Cooling unit
series 9

Ready for any speed.

Labelling machines are used in the food and beverage industry. These apply labels to bottles and cans with great precision and at high speeds.

Maximum performance for high-speed processes.

Labelling machines are generally located in climatically stable environments; electronic components in electrical enclosures are cooled using powerful and energy-efficient 4.0 series **ECOOL** filterfans.

Type BR 50 signal towers ensure reliable signalling of all process states. With a lifetime of over 50,000 hours, they provide a technically and economically optimum solution.



Quality control with no downtime.

Quantities and weights are checked and labels, closures and seals are inspected. These processes happen at high throughput rates, in fractions of seconds.

For this, compact cooling units in stainless steel ensure reliable cooling of the sophisticated weight and quality monitoring control units.

To display process states accurately and trigger an alarm if necessary – integrated function-monitored status lights with a high IP protection system and audible alarms are used.



Security right to the end.

In the field of secondary packaging, cartoners and bulk packers are used. Compact series 3 cooling units are responsible for cooling the electrical enclosure electronics.

With IP 56 protection and a corrosion-free stainless steel hood, the maintenance-free units used in packaging processes prove to be significantly resistant to external factors.

Because of the weight and size of the moving parts, signalling devices with a high protection system are required. This is a specification which our Quadro F12 flashing light with IP 56 protection (IK08) fully satisfies.



Flashing light
Quadro F12

ECOOL Filterfan 4.0,
stainless steel design

Explanation of approvals.

Please note the following information regarding product certifications and approvals: Most standard Pfannenberg products are already certified through various approval authorities. Additional certifications are available upon request to conform with local requirements. Please be certain to confirm which certifications are normally included and whether these are adequate to satisfy your specific needs. Whenever additional certifications may be required, please contact us for additional information.

The following summarises the various certifications and approval authorities that Pfannenberg has worked with. This review is offered to assist with determining which certifications may be suitable for your local requirements. Please feel free to contact us for additional information to ensure that any products purchased will conform with specified requirements.



Underwriters Laboratories (UL) offers independent testing to ensure product safety. There are generally two levels of certification available depending on whether a product is intended to be used as a standalone device (listed) or a component (recognised).



UL recognised component



UL listed product

The most important markets/countries for the use of the UL logos are the United States and Canada. Approvals for the United States are marked with 'US' at the bottom right of the logo. Approvals for Canada with a 'c' at the bottom left. If there is no country code, then it has approval for the US market. The UL approval is not a mandatory approval for the North American market, but it can make it easier to import there. In addition, the approval generally has a high degree of acceptance among customers.



The EAC logo stands for EurAsian Conformity. It is comparable to the European CE mark and attests to a product's safety. The EAC mark is the approval for the Eurasian economic community and is valid for Russia, Belarus, and Kazakhstan. There is no specific identification of the country by a code. The mark is issued by the respective manufacturer on their own authority, but always with the involvement of an official certification body. The EAC is the successor of the GOST approval.



The CE classification documents the compliance with the European regulations relevant for the product. It is not a test mark, but an administrative one. The CE marking was created mainly to guarantee safe products for consumers within the European Union. CE marking is often referred to as a "passport" for sale to the EU market. CE marking confirms complete compliance with the "basic (safety) requirements" which are specifically determined in EU directives.



The Verband der Sachversicherer (VdS) [= Association of Material Insurers] tests and certifies components for facilities dealing with damage prevention. The VdS guidelines contain requirements for components used for fire alarm and security systems.



Germanischer Lloyd sets standards in technology, quality and safety for shipping and industry. Germanischer Lloyd is additionally a leading certifying body in the fields of wind power, environmental protection, the oil and gas industry and building technology.



The 'Physikalisch-Technische Bundesanstalt' (PTB) [= Federal Physical/Technical Institute] is a material testing and calibrating body. It is subdivided into several laboratories and, among other things, tests and approves technical equipment for potentially explosive areas. The existing GENELEC standards form the basis. The PTB is the authorised EU testing body for the Federal Republic of Germany.



The 'Bundesamt für Wehrtechnik und Beschaffung' (BWB) [= Federal Office of Military Equipment and Procurement] administers and catalogues the technical equipment of the armed forces. Affiliated to it are technical defence authorities and arsenals, which conduct product testing in accordance with VG standards. These materials are listed in the SAK catalogue.



The AS-i (Actuator Sensor Interface) is an inexpensive, fast bus system for the transmission of data and energy that reduces cabling and saves on I/O cards and terminal strips. AS-Interface products conform to the EN 50295 and IEC 62026-2 specifications.



The Bundesamt für Verkehr (Federal Ministry of Transport) governs public transportation in Switzerland. It covers transport by rail and cable car, freight trains, buses and ships.



The 'International Civil Aviation Organization' sets standards for technology, quality and safety in international air traffic. The 'Allgemeine Verwaltungsvorschrift zur Kennzeichnung von Luftfahrthindernissen' (AVV) [= General Administrative Rules for the Identification of Aviation Obstacles] sets the standards for technology, quality and safety in air traffic in Germany.



MarED is the co-ordination group for the Notified Bodies assigned by the Member States to carry out the conformity assessment procedures referred to in the Marine Equipment Directive (COUNCIL DIRECTIVE 96/98/EC of 20 December 1996 on Marine Equipment).



Products marked with the Ex test symbol and test number are approved for use in potentially explosive areas.



The certification department CNBOP-PIB conducts voluntary product certifications within the scope of fire protection for the European and local Polish market.

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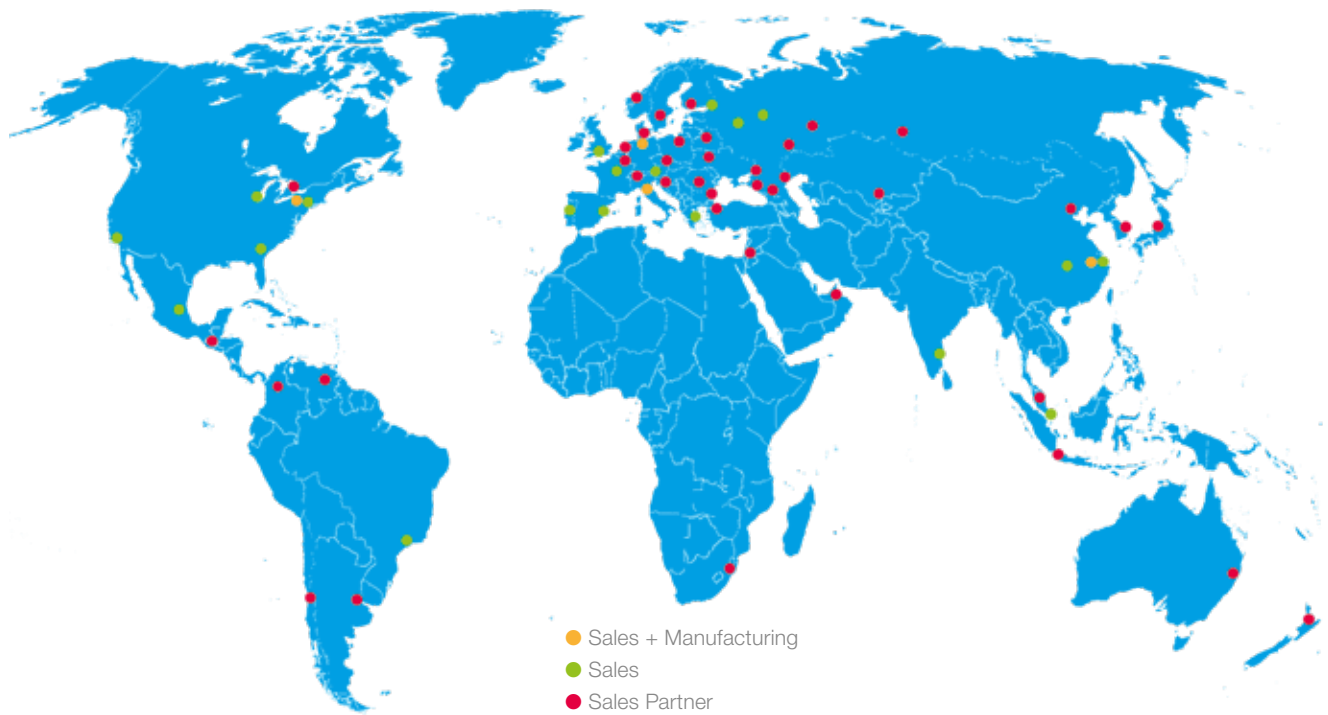


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Pfannenbergs – worldwide expertise in signaling technology and thermal management.



Detailed address information about the worldwide Pfannenbergs sales and service partners can be found on our homepage at:

- pfannenbergs.com/contact or
- by entering the Webcode #3559 in the search field on pfannenbergs.com.

A screenshot of the Pfannenbergs website homepage. At the top, there is a dark blue navigation bar with the text 'MY PFANNENBERGS | CHOOSE COUNTRY'. Below this is the Pfannenbergs logo and a navigation menu with links for 'ABOUT', 'PRODUCTS', 'SERVICE & SUPPORT', 'NEWS & PRESS', 'KNOW-HOW', and 'CONTACT'. A search bar is prominently displayed with the text '#3559' entered and a mouse cursor pointing at it. Below the search bar is a large banner image featuring a cityscape with a prominent building. The banner text reads: 'PROTECTING MAN, MACHINE AND THE ENVIRONMENT. Pfannenbergs is your reliable partner for production safety – particularly with regard to industry 4.0. Enterprises around the world count on our decades of expertise in thermal management for electrical enclosures, liquid cooling and signaling technology.'

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