GHG 64 Control Elements

Variable mounting of windows, control devices and signal lamps

Control your panel

In addition to the use of familiar bus bar and connection boxes for built-in components, e.g. windows, switches, indicating devices, actuators and switch blocks, a direct use of flameproof enclosures for Ex-d cover-mounting devices is also possible. The result is a multitude of possible combinations for the configuration of complex controls.

In accordance with your specifications, threaded Ex-d holes for accommodating the desired screw-in components are drilled into enclosure covers in our works.

Thanks to the modular design of the pushbutton, switch contact blocks can be exchanged at a later point in time. By simply undoing a bayonet connection inside the enclosure, individual contacts such as NC or NO can easily be replaced by multiple contact blocks without affecting the explosion protection. Here the extension of individual contacts to multiple contacts with up to four NC or NO contacts is possible.

Long-life LED lamps ensure safe operation on a lasting basis. Windows allow the monitoring of the built-in components. Ex-d actuating elements for various circuit breakers, such as mushroom-head pushbutton, key-operated switches or photocell inserts, complete the product range.



Features

- **Variable mounting of windows, actuators and signal lamps**
- **Rotary switches for main switch**
- **Pushbuttons with up to four contacts**
- **Pushbuttons with Emergency Stop function**
- **Key-operated switches/pushbuttons**
- **Signal lamp in various colours**
- **Padlocking facilities**
- **Nameplates**
- **Actuating elements for circuit breakers (MCBs)**



Mushroom-head pushb.w.lock



Mushroom-head pushbutton



Pushbutton



Key-operated pushbutton



Signal lamp

Technical data components for cover mounting

	Built-in Ex d control units / indicator elements / actuators for GHG 64
Marking accd. to 2014/34/EU	Ⓔx II 2 G Ex d II
EC-Type Examination Certificate	PTB 06 ATEX 1009U
Operating temperature range	–20 °C up to +70 °C –20 °C up to +100 °C (option)
Application temperature[1)]	–20 °C up to +40 °C –20 °C up to +55 °C (option)
Rated voltage switch base	up to 500 V
Rated voltage indication lamps	230 V
Rated current switch basel	up to 63 A
Degree of protection accd. to EN 60529	IP65 (IP66, listed switch base up to 10 A, optional)
Fixing thread Ex-d	M22 x 1.5

Ordering details

Type	Content	Order No.
Switch base		
	1 NO	**GHG 640 9617 P0001**
	1 NC	**GHG 640 9617 P0002**
	1NO + 1 NC	**GHG 640 9617 P0003**
	2 NO	**GHG 640 9617 P0004**
	2 NC	**GHG 640 9617 P0005**
	2 NO + 1 NC	**GHG 640 9617 P0006**
	1 NO + 2 NC	**GHG 640 9617 P0007**
	2 NO + 2 NC	**GHG 640 9617 P0008**
	3 NO + 1 NC	**GHG 640 9617 P0009**
	1 NO + 3 NC	**GHG 640 9617 P0010**
	4 NO	**GHG 640 9617 P0011**
	4 NC	**GHG 640 9617 P0012**

Type	Content	Order No.	Thread length	
Signal lamp			**25 mm**	**40 mm**
	green	**GHG 640 9614...**	**P0011**	**P0021**
	red	**GHG 640 9614...**	**P0012**	**P0022**
	yellow	**GHG 640 9614...**	**P0013**	**P0023**
	blue	**GHG 640 9614...**	**P0014**	**P0024**
	farblos	**GHG 640 9614...**	**P0015**	**P0025**

Ordering details

Type	Content	Order No.	Thread length	
			25 mm	**40 mm**
Signal lamp	yellow	**GHG 640 9607...**	**P0011**	
	blue	**GHG 640 9607...**	**P0012**	**P0022**
	red	**GHG 640 9607...**	**P0013**	**P0023**
	green	**GHG 640 9607...**	**P0014**	**P0024**
	white	**GHG 640 9607...**	**P0015**	**P0025**
	black	**GHG 640 9607...**	**P0016**	**P0026**
Key-operated pushbutton				
	with 2 keys	**GHG 640 9608...**	**P0011**	**P0012**
Mushroom-head / EMERG.STOP pushbutton				
	D 36 mm with lock	**GHG 640 9603...**	**P0011**	**P0013**
	D 50 mm with lock	**GHG 640 9603...**	**P0012**	**P0014**
	with twist-release	**GHG 640 9604...**	**P0011**	**P0012**
	EMERG.STOP pushb.	**GHG 640 9606...**	**P0011**	**P0012**

Ex-d(e) control units, control switches, terminal boxes and distributions can be built in accordance with EC-Type Examination Certificate PTB 08 ATEX 1043X



Rotary switch base mounted



Rotary switch cover mounted



Photocell



Wndow, round



Window, square/rectangular

Ordering details

Type	Content	Order No.
Main switch up to 1000 A	**Rotary switch for cover**	
	Switch 32 - 63 A	**GHG 640 9612 P0001**
	Switch 63 - 100 A	**NOR 000 001 170 030**
	Switch 100- 250 A	**NOR 000 001 170 031**
	Switch 250-1000 A	**NOR 000 001 170 032**

Type	Content	Order No.
	Photocell 250 VAC / 10 A	**GHG 640 9601 P0003**

Ordering details

Type	Content	Order No.
	Window square, 60 x 60 mm	**on request**
	Window rectangular, 140 x 60 mm	**on request**
	Window rectangular, 140 x 180 mm	**on request**
	Window round, Ø 80 mm	**on request**
	Padlocking-facility Pushbutton engaged	**GHG 640 9614 P0001**
	Padlocking-facility Pushbutton released	**GHG 640 9614 P0002**

Ex-d(e) control units, control switches, terminal boxes and distributions can be built in accordance with EC-Type Examination Certificate PTB 08 ATEX 1043X.



Size 5



Size 4



Size 3



Size 2



Size 1

Technical data

	Ex-d Motor starter
EC-Type Examination Certificate	PTB 08 ATEX 1043X
Marking accd. to 2014/34/EU	Ⓔx II 2 G Ex d IIB / IIB + H2 T5, T6 Gb Ⓔx II 2 D Ex tb IIIC T80 °C, T95 °C Db IP66
IECEx Certificate of Conformity	IECEx PTB 11.0077 X
Marking accd. to IECEx	Ex d IIB + H2 T6, T5, T4 Gb
Permissible ambient temperature	–20 °C up to +40 °C –55 °C up to +55 °C (option)
Rated voltage	up to 690 V
Rated current	up to 100 A
Connecting terminals	up to 400 mm^2
Degree of protection accd. to EN 60529	IP65 (IP66 optional)
Weight	see ordering details
Enclosure material	die-cast aluminium
Enclosure colour	RAL 7032/7022

Ordering details

Content Motor capacity to AC 3	Main switch	Cable entry	Weight approx.	Order No.
11 kW	25 A	3 x M25	13.0 kg	**on request**
15 kW	25 A	2 x M32 / 1 x M25	23.0 kg	**on request**
22 kW	40 A	2 x M40 / 1 x M25	35.5 kg	**on request**
Reversing circuit				
11 kW	25 A	3 x M25	13.5 kg	**on request**
15 kW	25 A	2 x M32 / 1 x M25	23.5 kg	**on request**
22 kW	40 A	2 x M40 / 1 x M25	36.0 kg	**on request**
Star-delta starter				
7.5 KW	40 A	4 x M25	23.5 kg	**on request**
12.5 KW	40 A	4 x M25	24.0 kg	**on request**
18.5 KW	40 A	3 x M32 / 1 x M25	37.0 kg	**on request**
30.0 KW	63 A	3 x M32 / 1 x M25	38.0 kg	**on request**
37.0 KW	100 A	1 x M40 / 2 x M32 / 1 x M25	63.0 kg	**on request**
55.0 KW	100 A	1 x M40 / 2 x M32 / 1 x M25	63.0 kg	**on request**

You have your specific requirements for which we provide the appropriate solution:

- Ex low-voltage distributions
- Ex motor controls
- Ex lighting circuit distribution systems
- Ex heating circuit distribution systems
- Ex instrumentation applications
- Ex wireless LAN

Depending on the task in hand and taking the specified size and technology or specific ambient conditions into consideration, e.g. aggressive media, harsh industrial conditions or offshore applications, we engineer the optimum GHG 64 Ex-d distribution system for you as a solution for the most cost-effective, local control/power distribution in a hazardous area.

With this modular system, all enclosure sizes are fully compatible, thus making it possible to flange several smaller enclosures onto the large enclosures, whereby they are flush with all the adjacent areas. Thus, any distribution required can be realized using flameproof connections or connection and bus-bar boxes.

We can, of course, also integrate customer-specific functional units, such as frequency converters or electronic sub-assemblies, into our Ex-d solution as built-in apparatus.

According to your inquiry, we submit an optimum solution proposal for your required application.





- Compact design
- IIB + H2 applications
- Cost optimization thanks to low maintenance flat flamepaths and the compact design
- Can be used in extreme ambient temperatures from-55°C to +55°C
- Wide range of actuators
- Copper-free aluminium with high quality powder coating
- Up to IP 66 to EN 60529



With us you have the choice

With us you always have the possibility of choosing between fully configurated standard and customised equipment with direct cable entries, flameproof connection compartments or Ex-e connection compartments according to your requirements.

Customised solutions

We can supply you with an individual solution customised according to your wishes. We deliver individual units, combinations on wall or floor-mounting frameworks or free-standing for operation from both sides that are ready for connection to any place in the world.

Based on your specific requirements, we put together all the necessary components, assemble them with your specific built-in components, test all the functions and deliver them within the agreed time to the specified location.

It goes without saying that our CE Declaration of Conformity also observes and takes the built-in industrial components into consideration and, what is more, our customised solutions are also covered by other available national approvals, thus allowing you to concentrate fully on your core business. .

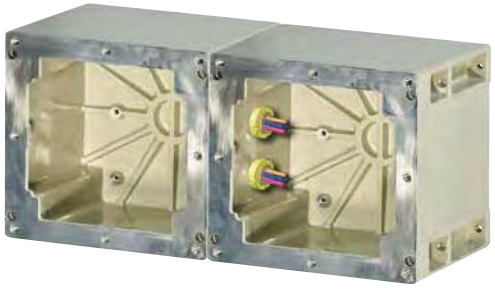






Our standard solution

As with the GHG 66 enclosure series, we also supply the GHG 64 enclosure series with fully assembled products, e.g. manual motor starters for direct, reversing and star-delta switching, as well as safety switches for up to 800 A, four-pole, and standard distributions with circuit breakers. These units have their own order numbers, have been fully tested and can be supplied at short notice.



Complex requirements for local explosion- protected controls

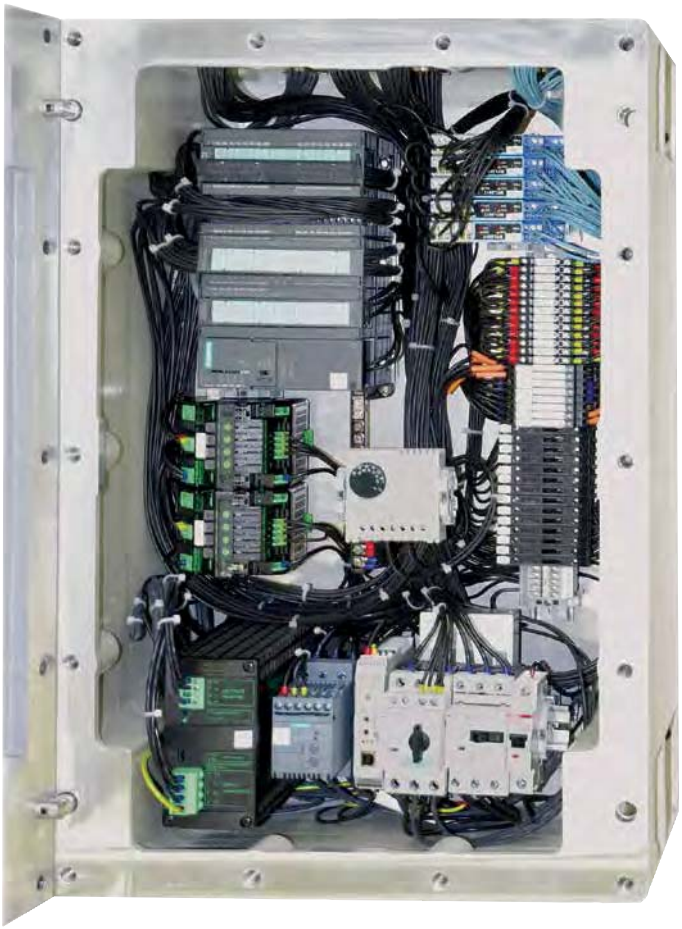
In addition to the stringent enclosure requirements, in the case of controls special emphasis is placed on the clear arrangement of the control and indicating elements.

For example, in the case of marine applications. The illustrated control unit is used for the operation of two electric motors of the hydraulic pump of the ship loading arm in a hazardous area that is classified as Group IIB.

This is a challenging task, as the components in the required compact design always have to be easily accessible. Here we were able to offer the customer an optimised solution that completely fulfils the given specifications using the GHG 64 concept.

Further applications of this kind, where a high degree of protection and compact design are required, are not only found in the oil and gas industries in installations for loading operations onshore and on offshore platforms or on oil or gas tankers, but also in pharmaceutical plants, at suppliers and in areas with Ex dust applications, e.g. in areas where sacks are emptied, mills and mixers, filling installations, etc.





Wireless solutions for the processing industry

New radio systems make reliable wireless communication for measuring and control applications possible. The demand for solutions in the processing industry is growing all the time. The range of possible applications even covers the equipment/field level. Here we are working together closely with MTL, the leading manufacturer of industrial radio systems, and can supply you with complete solutions on the basis of our GHG 64 enclosure system. This means that you can use various systems with open interfaces. The requirement profiles for the hardware are complex.





Intelligent instrumentation

Thanks to the GHG 64 enclosure concept, it is possible to combine the reliable safety of a modular, explosion-protected enclosure concept with the advantages of a continuous communications infrastructure between the main, control and process levels. Here, for example, Ethernet-based communication systems can also be used in hazardous areas. This allows the use of a modern information architecture and, at the same time, the efficient adherence to all the explosion protection criteria.