Operating and Installation Instructions

Gas Monitor Unit

SK-02
SK-06
SK-10

(230 V_{AC})

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1 Description

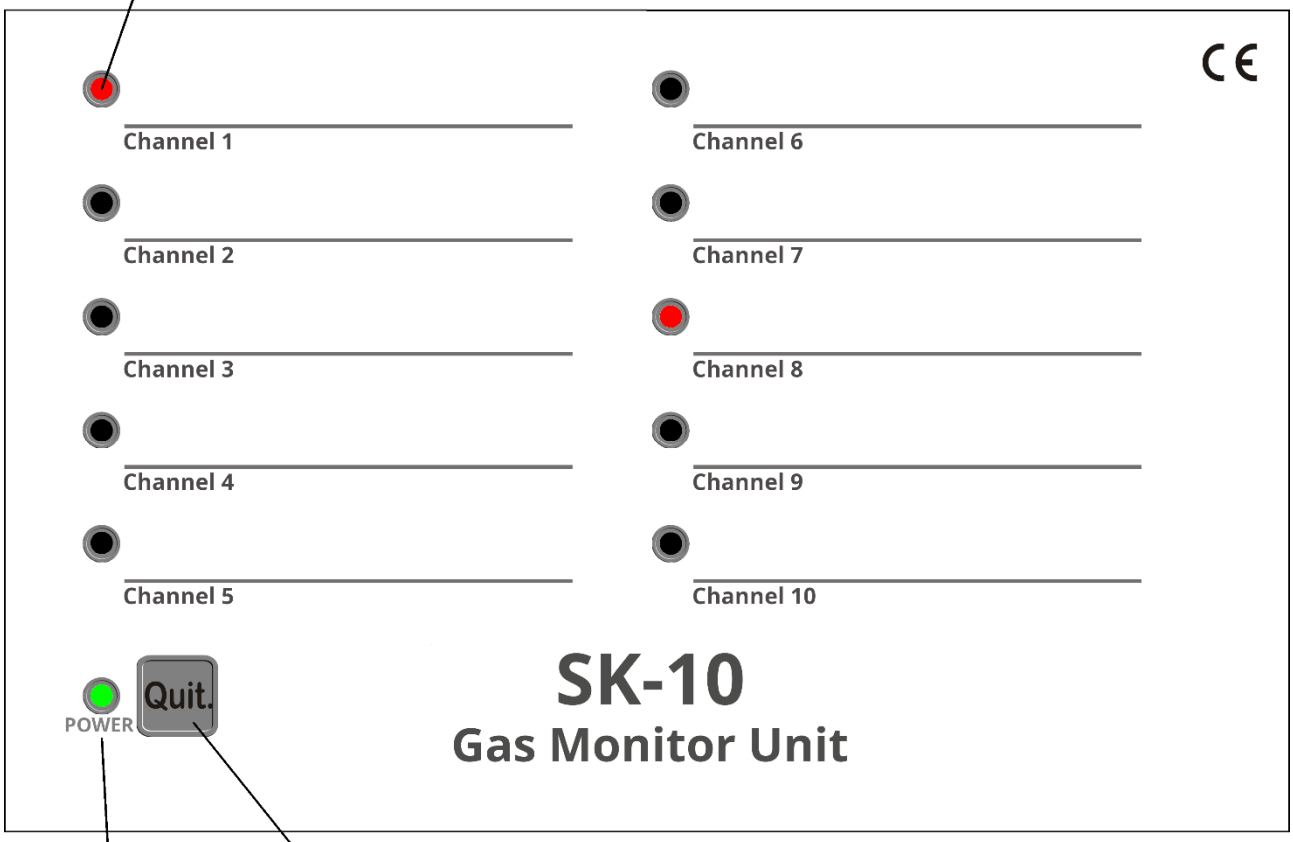
The gas alarm unit **SK-10** monitors up to 10 inductive or magnetic snap-gauges which contacts are opened in case of gas shortage.

If one or more contacts open up due to lack of gas, the alarm unit indicates the occurrence audibly and visually and additionally, advise external devices through potential-free relay contacts. The warnings can be acknowledged by pressing the Quit button.

This description also applies to the **SK-06** and **SK-02** units which differ on the number of input terminals.

2 Front view of the SK-10

red LED: gas shortage indicator



green LED: operation indicator

"Buzzer Stop" button

3 Function

No gas shortage

– All contacts of the connected manometers are closed.
– The green power LED is **ON** and indicates a correct supply voltage.
– All red Alarm LEDs are **OFF**.
– The relays "group message" and "non-acknowledged message" are turned **OFF** (contacts C and NC are connected).

Gas shortage

If a pressure gauge reports a shortage of gas by opening its contact, it will be indicated by flashing the corresponding red alarm LED:
– The red alarm LED (assigned to the input terminal pair) flashes.
– The relays "group message" and "non-acknowledged message" switch **ON** (contacts C and NO are connected).
– The internal buzzer announces a new gas shortage.

The gas shortage message can be acknowledged by pressing the “Buzzer Stop” button. Then:
– the flashing alarm LED (assigned to the input terminal pair) changes to continuous light **ON**,
– the relay "non-acknowledged message" switches **OFF** (contacts C and NC are connected) and
– the internal buzzer turns **OFF.**

Gas shortage is resolved

– The red alarm LED (assigned to the input terminal pair) turns **OFF**.
– If the gas shortage is resolved for all not acknowledged messages the relay "non-acknowledged message" will be turned **OFF** (contacts C and NC are connected).
– If all gas shortages are resolved, the relay "group message" also will be turned **OFF** (contacts C and NC are connected).

All gas shortages are resolved

– All red alarm LEDs are turned **OFF**.
– The relays "group message" and "non-acknowledged message" switch **OFF** (contacts C and NC are connected).

4 Installation and Configuration

! **Attention**! The **SK-10** is not qualified for applications in potentially explosive atmosphere areas. In these cases, isolating amplifiers with ATEX approval have to be used to connect appropriate gas pressure gauges with the alarm unit.
The gas shortage alarm device must be installed outside the Ex zone!

At X1 connect to the gas pressure gauges.

At X2 (optional) connect the "non-acknowledged message" to a central control system or to an external horn or signal lamp.

At X3 (optional) connect the “group message” to a central control system or to an external signal lamp.

At X4 connect to the supply voltage 230 V_{AC}/50-60 Hz.

Programming Mode – Inputs can be enabled or disabled as follows:

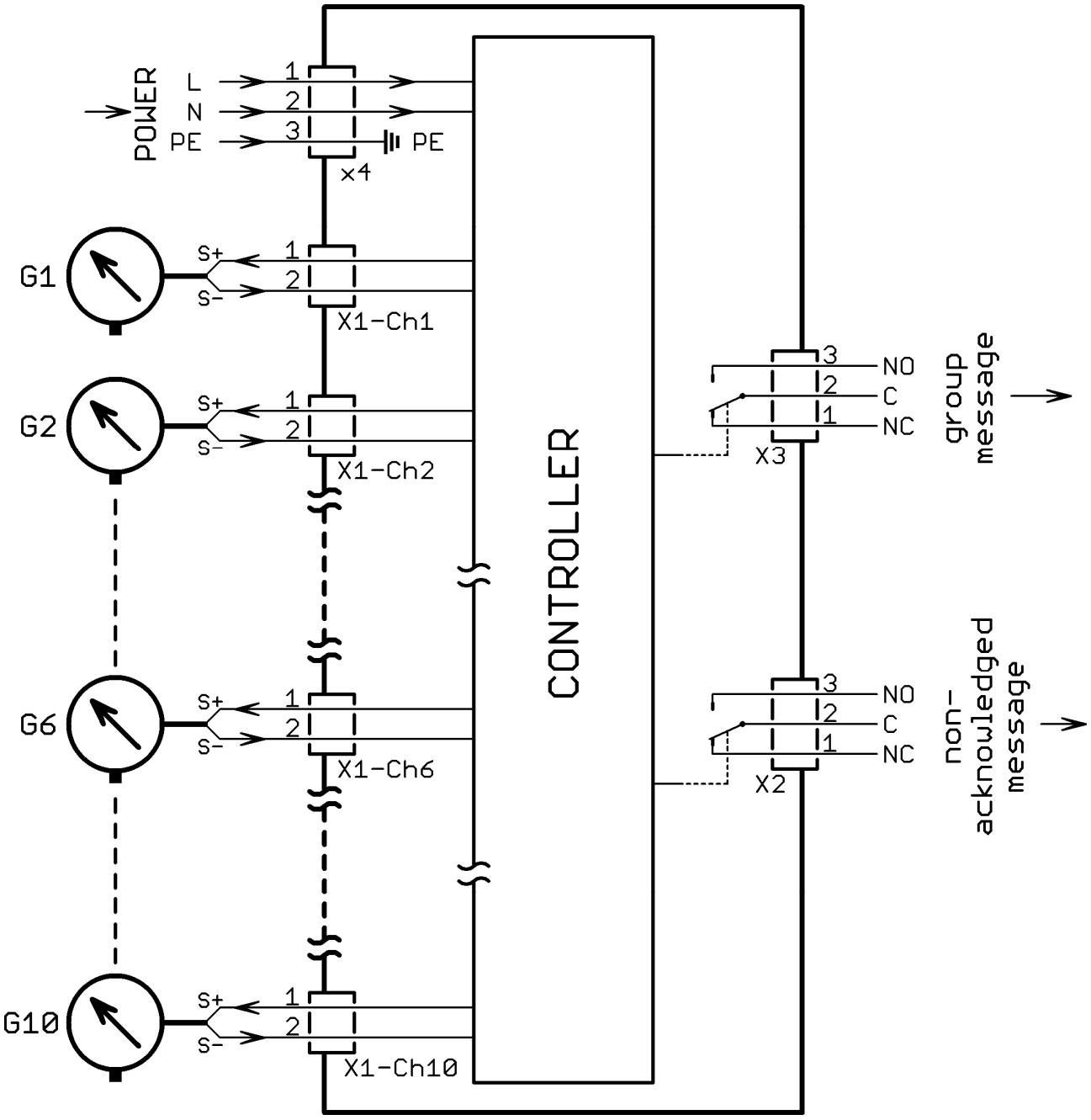
1st **Starting:** Press the "Buzzer Stop" button for about 4 seconds to hear two short beeps from the buzzer SU1. Immediately thereafter press shortly the "Buzzer Stop" button twice.

2nd The red LED of channel 1 will flash briefly in 1 second intervals.
Channel 1 is selected to be enabled / disabled. By pressing the "Buzzer Stop" button for approximately 1 second, the channel can be enabled or disabled. The flashing duration of the LED channel 1 changes:
- long flash → channel is enabled
- short flash → channel is disabled

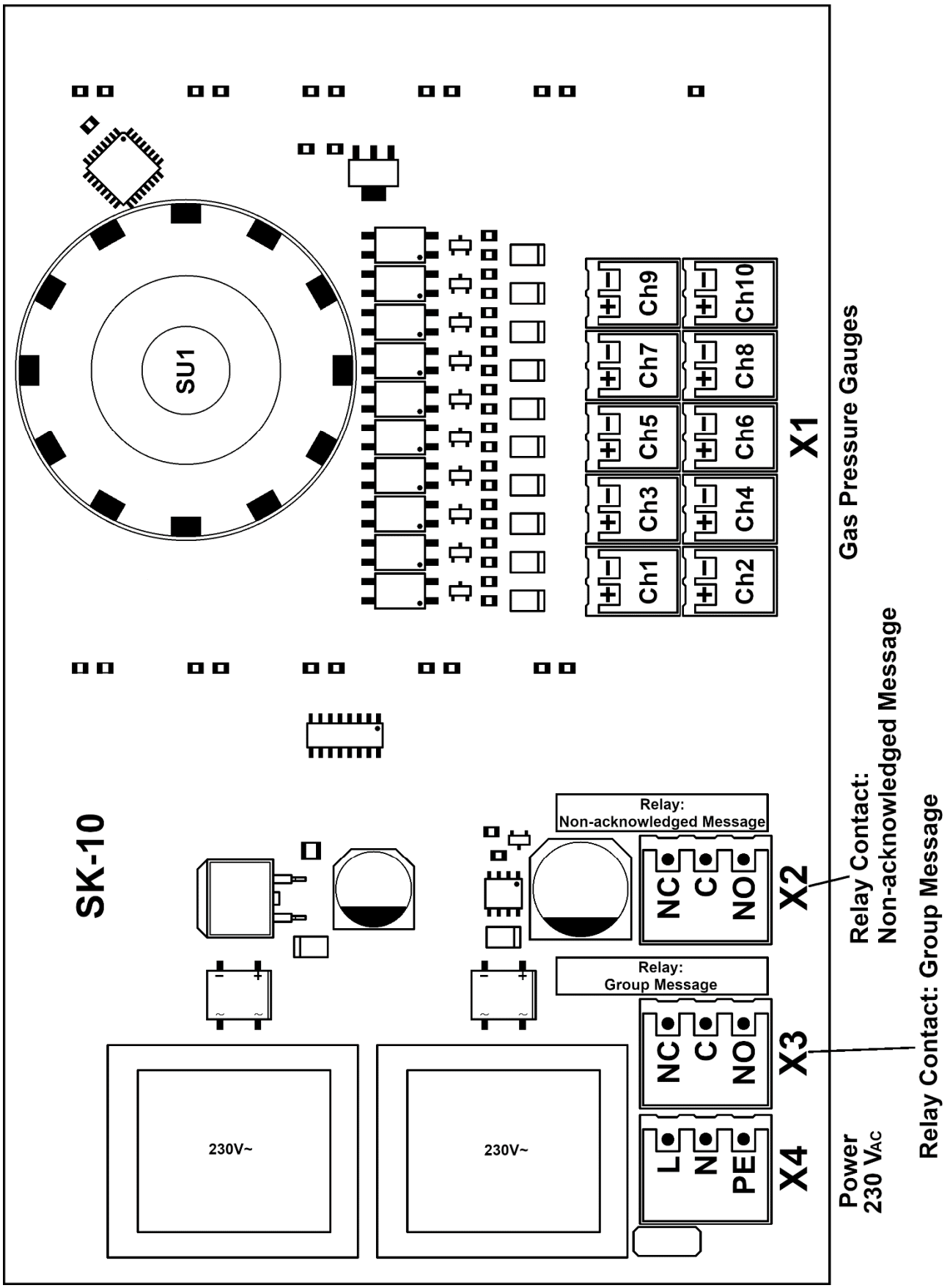
3rd By briefly pressing the "Buzzer Stop" button the next channel is selected to be enabled or disabled.

4th **To quit the programming mode** press the Buzzer Stop button for about 4 seconds until a beep and then two subsequent short beeps are heard from the buzzer SU1. The unit returns to the operating mode.

5 Connection Plan



X2, X3: message OFF → C and NC are connected
message ON → C and NO are connected


SK-10
SU1
Ch1
Ch2
Ch3
Ch4
Ch5
Ch6
Ch7
Ch8
Ch9
Ch10
X1
Gas Pressure Gauges
Relay:
Non-acknowledged Message
NC
C
NO
X2
Relay Contact:
Non-acknowledged Message
Relay:
Group Message
NC
C
NO
X3
Relay Contact: Group Message
L
N
PE
X4
Power
230 VAC
230V~
230V~

6 Technical Data

Parameter	Sym.	Conditions			min	typ	max	Unit
Operating voltage	U_V	50/60 Hz			207	230	250	V_{AC}
Power consumption	P_V	207 V_{AC} ≤ U_V ≤ 250 V_{AC}					3	VA
Pressure gauge input		X1-[1..10] Internal, non-stabilized, floating DC power supply unit for inductive and magnetic snap-contact gauges				10		V_{DC}
						10		mA
Relay-Outputs X2 non-acknowledged message; X3 Group message		potential-free, resistive load	Rated voltage	AC		230	250	V_{AC}
				DC		24	125	V_{DC}
			Rated current (externally fused)				6	A
Conductor cross section	ø	X1-[1..10] Push-in Cage clamp fine stranded	without ferrule		0,2		1,5	mm^2
					24		14	AWG
			with insulated ferrule		0,25		0,75	mm^2
			with uninsulated ferrule		0,25		1,5	mm^2
	ø	X2 X3 X4 Push-in Cage clamp fine stranded	without ferrule		0,2		2,5	mm^2
					24		12	AWG
			with insulated ferrule		0,25		1,5	mm^2
			with uninsulated ferrule		0,25		2,5	mm^2
Strip length		X1-[1..10]			8		9	mm
		X2; X3; X4			9		10	mm
Ambient temperature	T_O	Operating temperature			0	+20	+55	°C
	T_S	Storage temperature			-20		+60	°C
Case	W	Width				200		mm
	H	Hight				120		mm
	D	Depth				75		mm
		Material			ABS			
		Level of protection			IP65 / DIN 40050			
		Colour			RAL 7035			
		Cable glands			4 x M16			

7 Warning Notices

7.1 Danger of the Devices

This gas monitoring equipment is manufactured and tested in accordance with generally accepted technical standards of the electronics industry.

If used properly, the devices are safe to operate. The units may be operated in a perfect condition

and in accordance with the instructions only. Incorrect operation or incorrect commissioning and installation results in
– user life and body hazards,
– damage of devices and other properties of the user,
– device malfunctions.

7.2 Permitted Users

All persons involved with installation, commissioning, operation, maintenance and repair of the devices must
– be qualified,
– follow the operating instructions carefully and
– observe the recognized rules for occupational safety.

The devices may be installed and put into operation by trained personnel only. Electrical work must be performed by trained VDE-compliant professional person.

Untrained personnel may work in these products under supervision of trained professionals only.

The operator's manual must be made available for the operator by the system installer.

The installer and the user have to read and understand the manual and this safety information before working with the device. The minimum age for users is 18 years.

7.3 Intended Use

The unit of SK-10 is exclusively qualified for the monitoring of contact pressure gauges in normal rooms without potentially explosive areas, so, it may not be installed in environment with risk of explosion.

The device SK-10 must be located outside of the explosion prone area!

In these risk areas, **only explosion-proof pressure gauges** with a certificate of EC approved test centers for use in Ex-rooms may be used. This certificate does not say anything about the function, but merely indicates that the gauges are explosion protected.

When using the devices, local conditions must be observed. The technical data of the corresponding environmental conditions for the operation of this equipment must be maintained.

7.4 Electrical Connections

WARNING:
Line voltage (230 V_{AC}, 50-60 Hz) can cause severe burns. Careless behavior may be dangerous.
Electrical work may be carried out by qualified person only.
The devices may be installed only with disconnected power!
The VDE regulations, accident prevention regulations and operating manuals for the devices must be always observed.

7.5 Installation

Before installation, it must be verified that all requirements for trouble-free operation are met:
– Are the SK-10 and the contact gauges mounted correctly?
– Is the SK-10 accessible and visible?
– Are there required environment conditions for installation and operation?
– Are the SK-10 and the contact gauges connected properly?
– Is the power supply corresponding to the necessary power ratings?

After installation, the proper functioning of the entire system must be reviewed.

7.6 Maintenance

The devices must be inspected regularly by qualified personnel. The inspection should be documented conclusively.