MULTISCAN++PK-8D

Certified Control Panel for Car Parks

A	B	A	B

RS485

+	S1	S2	S3	S4	-

DETECTORS

▲

ESC   MENU   ENT

▼

PL4+D

- POWER
- EMERG.
- UNSET
- TEST
- FAULT

- O.RANGE
- ALARM 3
- ALARM 2
- ALARM 1
- U. SCALE

USB

REL.5			REL.4			REL.3				REL.2			REL.1			24VDC	
NO	C	NC	NO	C	NC	NO	C	NC		NO	C	NC	NO	C	NC	+	-
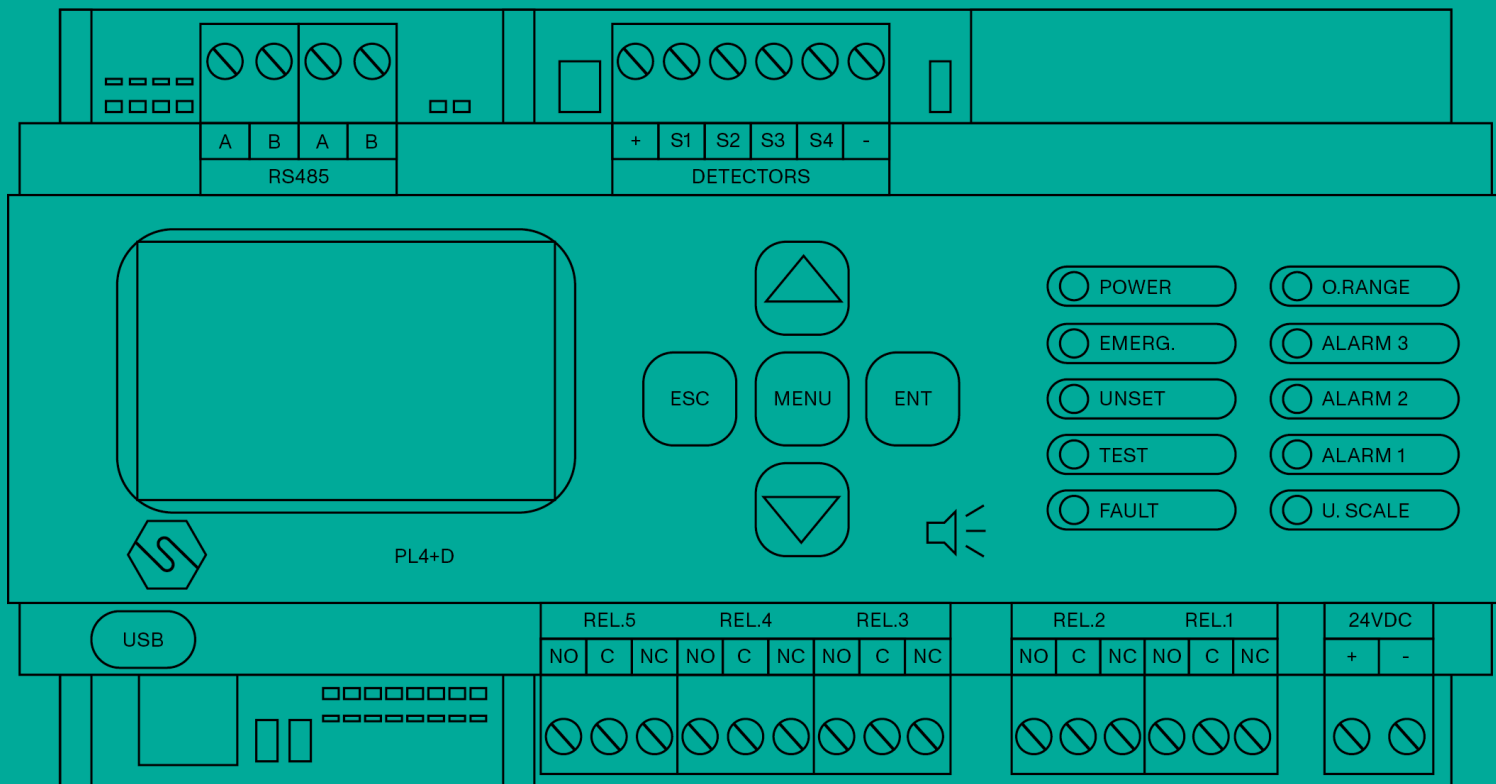
Manuale / Manual

THIS MANUAL MUST BE CAREFULLY READ BY ALL PERSONS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR INSTALLING, USING OR SERVICING THIS PRODUCT.

Like any equipment, this product will perform as designed only if installed, used and serviced in accordance with the manufacturer's instructions.

OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUFFER SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Sensitron s.r.l. with respect to this product are voided if the product is not installed, used and serviced in accordance with the instructions in this user guide. Please protect yourself and others by following them.

We recommend our customers to write or call us regarding this equipment prior to use or for any additional information relative to use or repair.

English

1.   Introduction

The highly innovative and versatile MULTISCAN++PK-8D gas control unit is the ideal solution for small car park systems with up to 12 gas detectors. Is has been specifically designed to meet EN50545-1 European standards.

The system provides for the direct connection of 4 detectors to the gas unit (4-20mA) and to additional 8 detectors that can be connected directly to the RS485 bus or via a remote module with 8 x STG/IN8-PK inputs (optional).

Each input can be configured for different types of gas: toxic, refrigerant, flammable, and oxygen, both for their deficiency and enrichment.

The backlit display offers an accurate indication of gas concentration and allows the display of established alarm levels.

The gas control unit manages up to 21 relay outputs, of which 5 are on board the gas control unit and the other 16 are via STG/OUT16S and STG/8REL cards (optional).

The housing of gas control unit is a plastic box 9 DIN module. A further plastic box, 12 DIN module can be supplied as optional.

The gas control unit power is 24Vdc (power supply available on request).
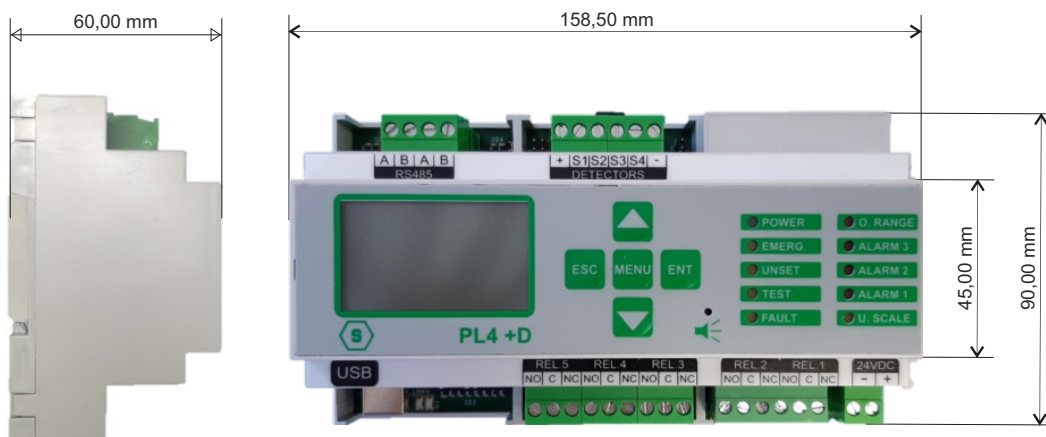
Figure 1)   Global dimensions MULTISCAN++PK-8D

Table 1)   Overview of devices connectable to the MULTISCAN++PK-8D gas control unit. The numbers with the (*) indication are available through additional modules.

Gas control model	Nr. serial bus RS485	Nr. max detectors	Nr. max outputs	S T . G / I N 8 N r . max modules	ST.G/OUT16 Nr. max modules
MULTISCAN++PK-8D	1	4+8(*)	5+16(*)	1	1

Other features of the MULTISCAN++PK-8D gas control unit are:

- Ê   Event log can be displayed on the screen or downloaded to a PC.
- Ê   USB port for PC connection for programming and control via specific software.

1.1 Product part numbers and accessories

*Table 2)   MULTISCAN++PK-8D control panel*

Code	Description
STMTS/PK-8D	MULTISCAN++PK gas control panel. 1 x RS485 type open bus line. 8 addressable gas detectors daisy chained to the RS485 control panel's loops and 4 x 4-20 mA inputs on-board the panel. 5 relay outputs and additional 16 via remote STG/OUT16S card. The panel comes complete with 1 USB port for PC connection. Housed in plastic box for din-rail mounting
AL09	24 Vdc power supply for STPL4+D & STMTS/RTU
STG/IPBOX	IP65 ABS box for STPL4+D & STMTS/RTU

Table 3)   Accessories

Code	Description
S T G / M T S S 1 - CONF	Windows PC software for MULTISCAN++S1 control panel programming. Running under Windows XP, Vista, WIN7, 8, 8.1, 10. The configuration software is supplied along with the control panel at no extra cost
STG/IN4-OUT4-PK	Remote module with 4 inputs 4-20mA and 4 output relays for MULTISCAN++PK
STG/IN8-PK	8 input remote module for MULTISCAN++ Park control panel.
STG/OUT16S	High safety 16-output remote module (Open collector type) with improved performance. Max 8 modules per line, for a total of 16 modules connectable to the system. For STMTS/PK-64B and STMTS/PK-32B max 8 modules connectable to the system
STG/8REL	Plug and play relay board to be connected to STG/OUT16 to provide 8 relay outputs
VMB/267V40	Metal Cabinet with enclosed a 24 Vdc 4A Power Supply to house one of the above remote cards
STG/BOX	IP55 Plastic box to house one STG/IN8-PK or STG/OUT16S card
STG/32-85	RS232/RS485 Interface for PC connection on RS485 line of MULTISCAN++

1.2 Block diagram system with MULTISCAN++PK-8D gas control unit

MULTISCAN++PK-8D

option: the detectors could be connected directly on the loop in daisy-chain mode
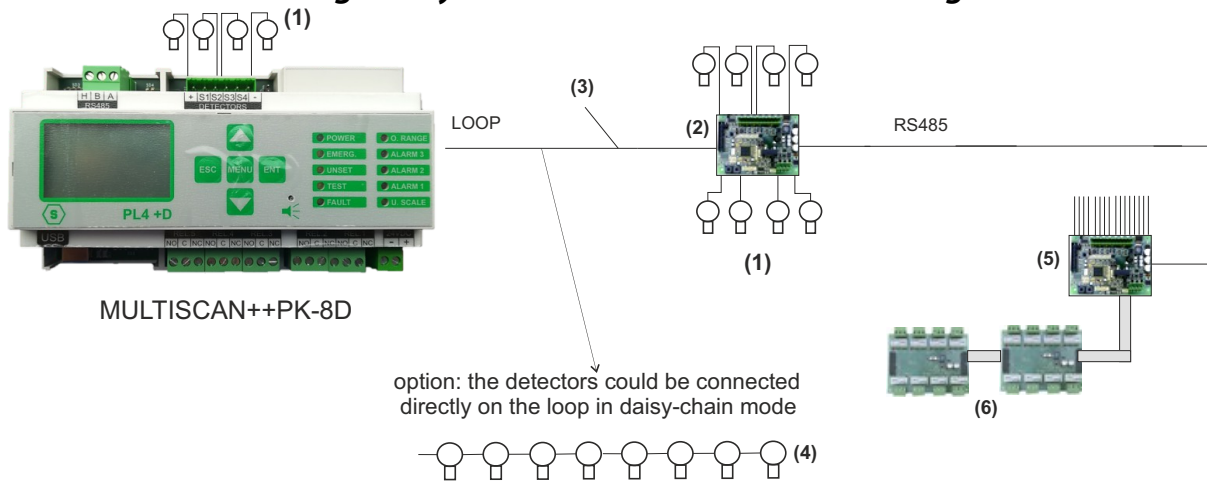
(1) 4-20 mA ANALOG GAS DETECTORS
(2) ANALOG 8 INPUT MODULE STG/IN8-PK
(3) 2 TWISTED WIRES FOR THE RS485 BUS + 2 WIRES FOR THE POWER SUPPLY (12-24 Vdc)
(4) GAS DETECTORS WITH RS485 OUTPUTS
(5) 16 O/C OUTPUTS MODULE STG/OUT16S
(6) 8 RELAY STG/8REL MODULE

Figure 2)   System block diagram

1.3 Technical specifications

Table 4)   Technical specifications MULTISCAN++PK-8D

Housing	IP65 plastic box, 9 DIN module
Inputs	Max. 12 detectors
Outputs	5 relays in the gas control unit 16 O/C or relay outputs via the STG/OUT16S and STG/8REL remote cards.
Serial ports	1 x RS485 1 x USB (PC connection)
Power	24Vdc
Absorption	Max 10 VA
Display	Liquid crystal display (LCD)
Optic indications	10 LEDS
Working temp.	0/-55°C
Storage temp.	-20 ÷ +60 C°
Working RH	15-85%
Storage RH	5-85% (non-condensing)
Conformity	EN 50545-1

2. Installation

2.1 Assembly and connections

Mount the gas control unit on DIN plank.

Figure 3) Gas control unit and its box (optional)

Connect the cable for power supply (24 Vdc) to the terminal block of gas control unit (see figure below).
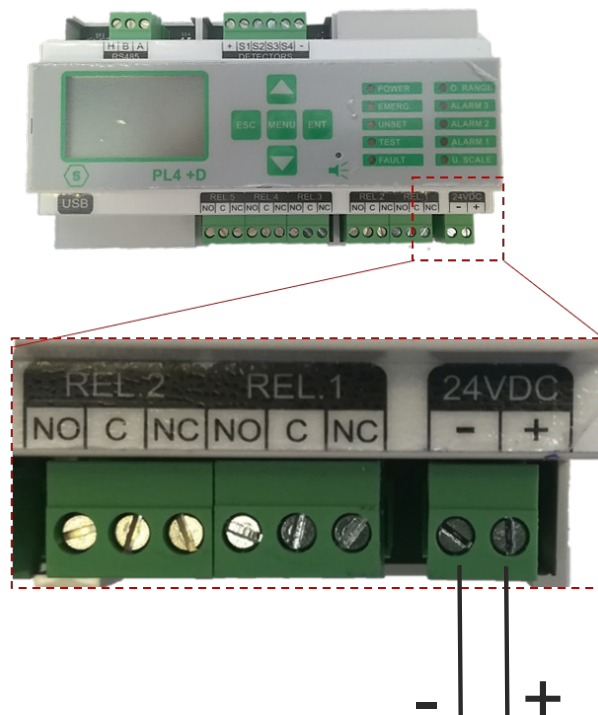
Figure 4) Power connection

2.2 Unit diagram and part identification

1. Power Supply (24 Vdc)
2. Relay outputs (5)
3. USB port
4. RS485 bus connection
5. 4 inputs 4-20 mA
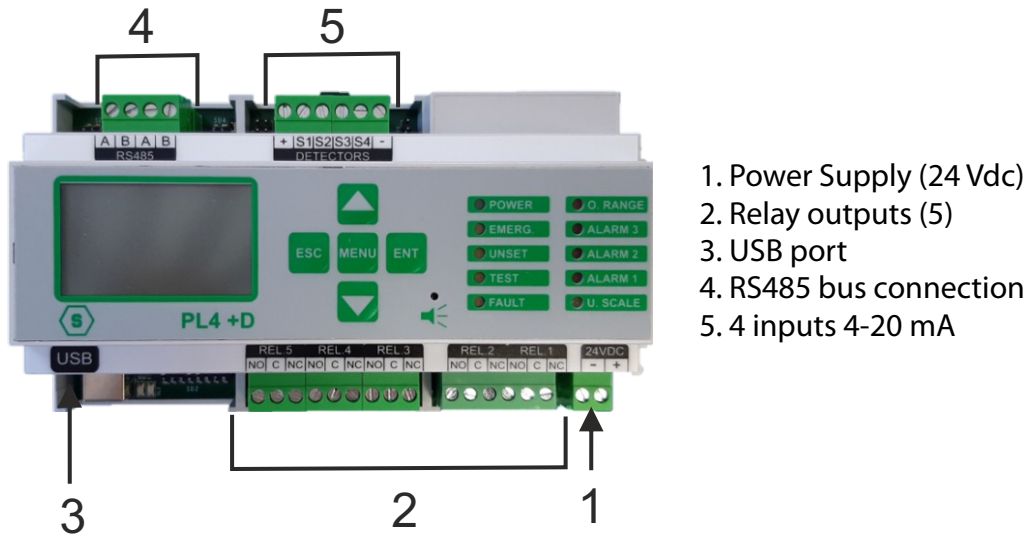
Figure 5)   Part identification

2.3 Layout MULTISCAN++PK-8D gas control unit

RS485 SERIAL LINE

4 x 4-20 mA ANALOG INPUTS

JP25: JP1-2 closed

USB FOR PC CONNECTION

SD2: dip switch for Baud Rate

5 RELAY OUTPUTS
NO: Normally Open
C: Common
NC: Normally Closed
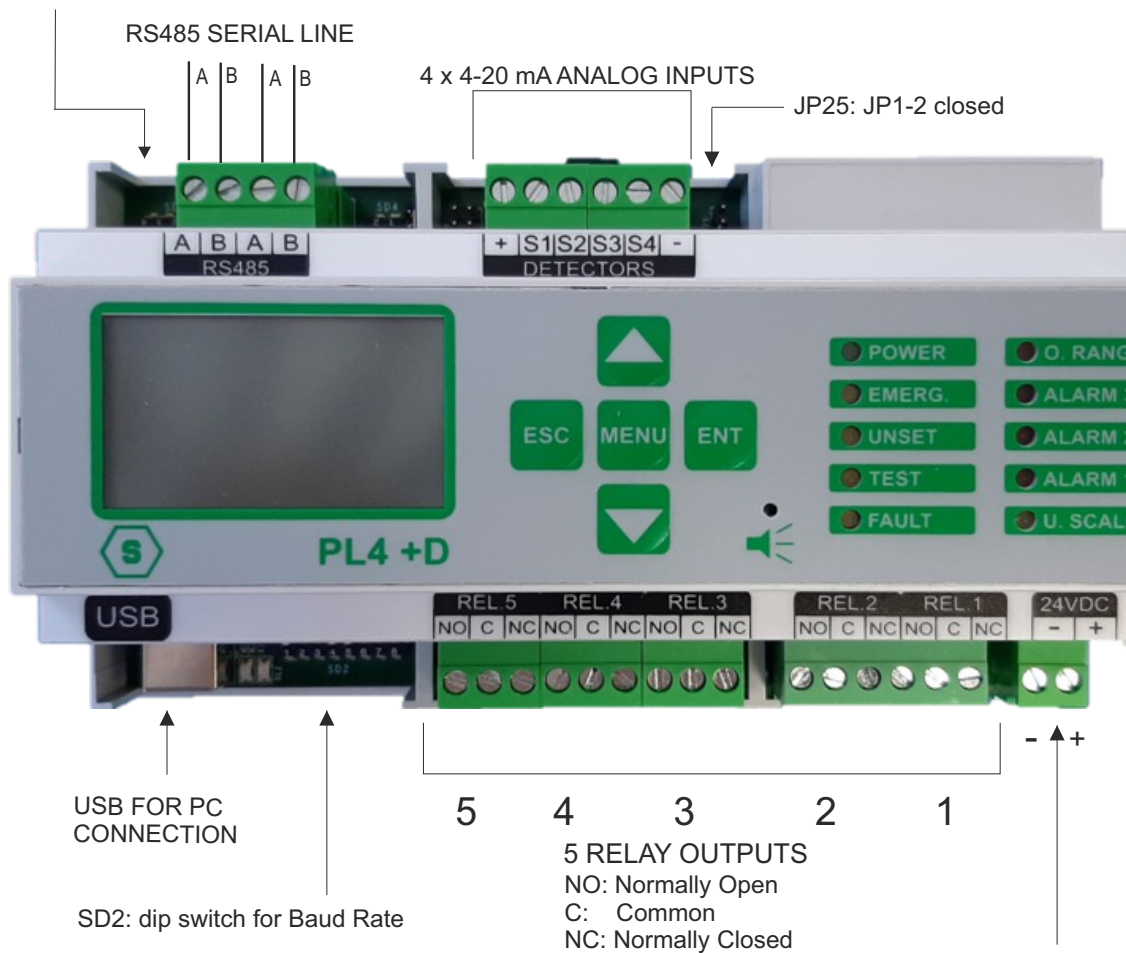
POSITIVE AND NEGATIVE FROM POWER SUPPLY 24 Vdc

Figure 6)

2.4 Dip switch SD2 settings

The series of SD2 dip-switches is used to set the terminal unit to the RS485 bus of gas control unit.

Figure 7)   Dip switch series for baud rate settings

Dip-switch 1: Baud Rate Bus RS485

Position	Bus communication speed	Detector and module compatibility
ON	115200	Smart P gas detectors; STG/IN8-PK and STG/OUT16S modules
OFF	9600	Not to be used

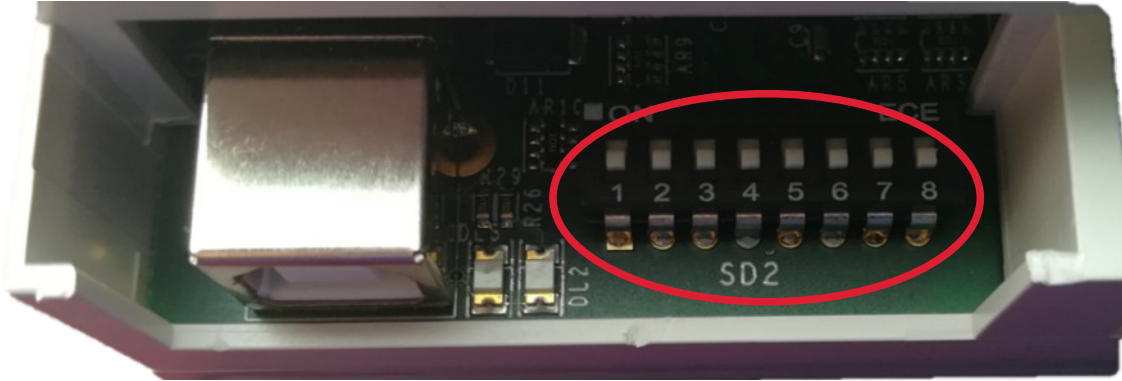**Dip-switches 2 and 3: RS485 bus communication protocol**

SW2	SW3	Protocol	Detector and module compatibility	Notes
ON	ON	Galileo	Smart "P" gas detectors and STG/IN8-PK / STG/OUT16S modules	Baud Rate 115200
OFF	ON	Not to be used		
ON	OFF	Not to be used		
OFF	OFF	Not to be used		

Dip-switches 4 and 5: Communication (baud rate) with the PC

Sw 4	Sw 5	Baud Rate
ON	ON	9600 Bit/sec.
OFF	ON	19200 Bit/sec.
ON	OFF	38400 Bit/sec.
OFF	OFF	115200 Bit/sec. (default)

Dip-switches 6 and 7: not used

Dip-switch 8: restore default settings

Position	Function
ON	If set to ON, default data is restored when the gas control unit is switched on
OFF	Normal position

2.5 Dip switch SD3 settings

The series of SD3 dip switches allows to set the language of text on the display of the remote terminal.
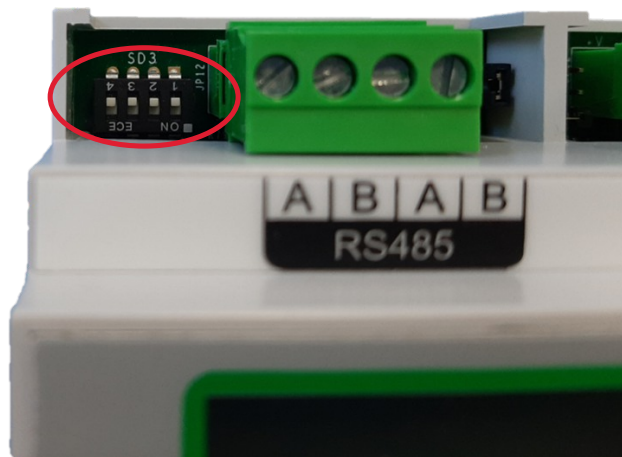
Figure 8) Dip switches series for language settings

Table 5)

SD3 dip switches for language settings

Language	SW4	SW3	SW2	SW1
English	ON	OFF	OFF	OFF
Italian	ON	ON	ON	OFF
Spanish	ON	ON	OFF	ON
Portuguese	ON	ON	OFF	OFF
German	ON	OFF	ON	ON
French	ON	OFF	ON	OFF
Slovenian	ON	OFF	OFF	ON

2.6 JP27 connector

If the JP27 connector is closed, the line terminator is enabled. It's important to maintain always this configuration.

Figure 9)   Always keep JP27 closed

2.7 Field device connections

The gas control unit has one RS485 data bus to which 8 gas detectors can be connected. The gas detectors are connected through the serial bus (directly in the serial RS485 if equipped with serial output or through one module with 8 STG/IN8-PK inputs if of type 4-20 mA) and the STG/OUT16S output module. The maximum length of each serial data bus is 800 m.

To connect devices, four conductors are required (intended both as detectors with a serial output as well as IN and OUT modules): two for the RS485 serial bus and two for powering the devices. For this reason, two different wires must be used or a single wire that has suitable characteristics, as described below.

- Ê The RS485 serial bus must be connected with an EIA RS 485 connection wire: No. 2 wires with 0.22/0.35 mm2 section with shield (TWISTED PAIR). Nominal capacity between conductors < 50 pF/m, nominal impedance 120 ohm. Total line length with this type of connection must not exceed 1,000 metres. An example of a recommended cable is a BELDEN 9841 or similar wire (EIA RS485 data transmission wire). Only connect detectors (and IN and OUT modules) in a "cascading" manner. Avoid tree or star connections since they reduce interference immunity.
- Ê Detector power supply (and IN and OUT modules on the bus) must be connected with a 2- core wire with adequate section based on the number of connected devices, their

distance from the power supply and each device's consumption (please see the technical manual enclosed with gas detectors for this purpose).

Each device connected on the unit's RS485 bus must have its own univocal address. See the appropriate section of this manual to set the address of the STG/IN8-PK and STG/OUT16S modules and see the relative manual for setting the detector address.

2.8 Detector connection

Gas detectors can be connected to the MULTISCAN++PK-8D gas control unit in two different ways, based on the detector output signal.

1. 4-20 mA analogue proportional output

The detector connected to the unit and STG/IN8-PK module will send a 4-20 mA signal referring to its range (i.e. 0-300 ppm, 0-30 ppm, 0-100% LFL etc.) and the unit, suitably programmed, will display the relevant gas concentration indication measured by the detector and consequently activate the alarms when the set values are reached.

2. RS485 digital proportional output

The detector connected to the gas control unit will send a data signal on the RS485 line. This signal refers to the range of the detector (i.e. 0-300 ppm, 0-30 ppm, etc.); the unit, suitably programmed, will display the relevant gas concentration indication measured by the detector and consequently activate the alarms when the set values are reached.

Detectors with 4-20mA output

Detectors with 4-20mA analogue output are either connected to the gas control unit, directly on the main board or via one remote 8-input STG/IN8-PK module. The module may be connected remotely to the gas control unit. For connection, a detector with a 4-20mA analogue output requires a 3-conductor cable: two conductors for the power supply (usually from 12 to 28 Vdc - refer to the gas detector technical manual) and one conductor for the 4-20mA signal. The generally recommended cable is a shielded 3 x 0.75, which allows up to 100 meters between the gas detector and STG/IN8-PK input module.

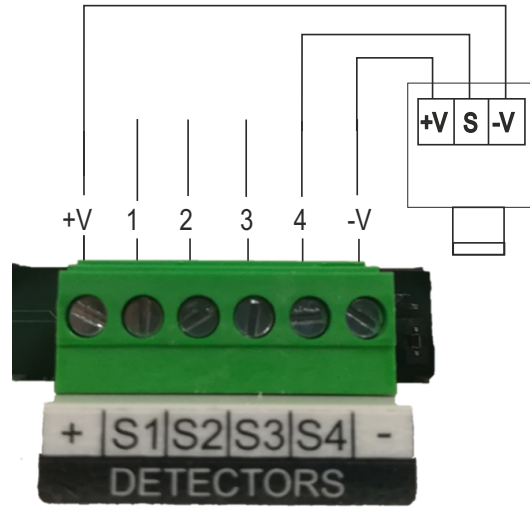## Detectors with 4-20 mA output directly connected to the gas control unit

Figure 10) Connection of the 8 detectors of the gas control unit

Detectors with a 4-20 mA output connected to the STG/IN8-PK module

The following diagram shows the connection of a gas detector with a 4-20 mA output to a STG/IN8-PK input module. During system start-up, make sure that each gas detector reaches a minimum voltage of 12 Vdc.
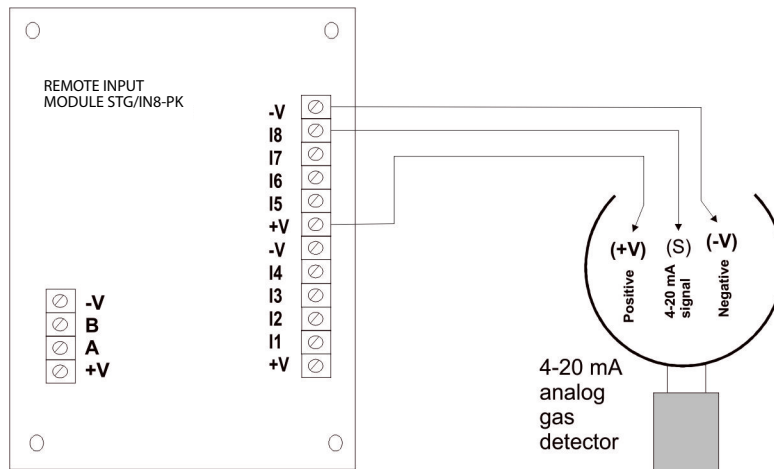
Figure 11) connnection of the 8 detectors of the STG/IN8-PK module

Detectors with RS485 output

Gas detectors provided with RS485 serial communication are connected directly to the RS485 bus of the MULTISCAN++PK-8D gas control unit. The STG/IN8-PK input module and STG/OUT16S output module are also connected to the RS485 bus.

4 conductors are needed for this type of connection: two for the RS485 serial and two for the power supply of devices. For this reason, we suggest that two different wires or a single wire is used. with the features described below.

1. The RS485 serial bus must be connected with an EIA RS 485 connection wire: No. 2 wires with 0.22/0.35 mm2 section with shield (TWISTED PAIR). Nominal capacity between conductors < 50 pF/m, nominal impedance 120 ohm. Total line length with this type of connection must not exceed 1,000 metres. An example of a recommended cable is a BELDEN 9841 or similar wire (EIA RS485 data transmission wire). Only connect detectors (and IN and OUT modules) in a "cascading" manner. Avoid tree or star connections since they reduce interference immunity.

2. The power supply to the detectors (and IN and OUT modules on the bus) must be connected with a 2-core wire with adequate section based on the number of connected devices, their distance from the power supply and each device's consumption (please see the technical manual enclosed with gas detectors for this purpose).

IMPORTANT!

Note: each detector connected on the RS485 line must have its own univocal address between 1 and 255 (247 for the ModBus protocol). Please see the gas detector technical manual for address settings.

The diagram below shows the connection of IN and OUT detectors and remote modules on the RS485 bus of the gas control unit.

PL4 +D

From the control panel or from the remote auxiliary power supply

Twisted / shielded 2x0,2 cable (Belden 9841 or equivalent)

OUTPUT MODULE

To the next detector or module
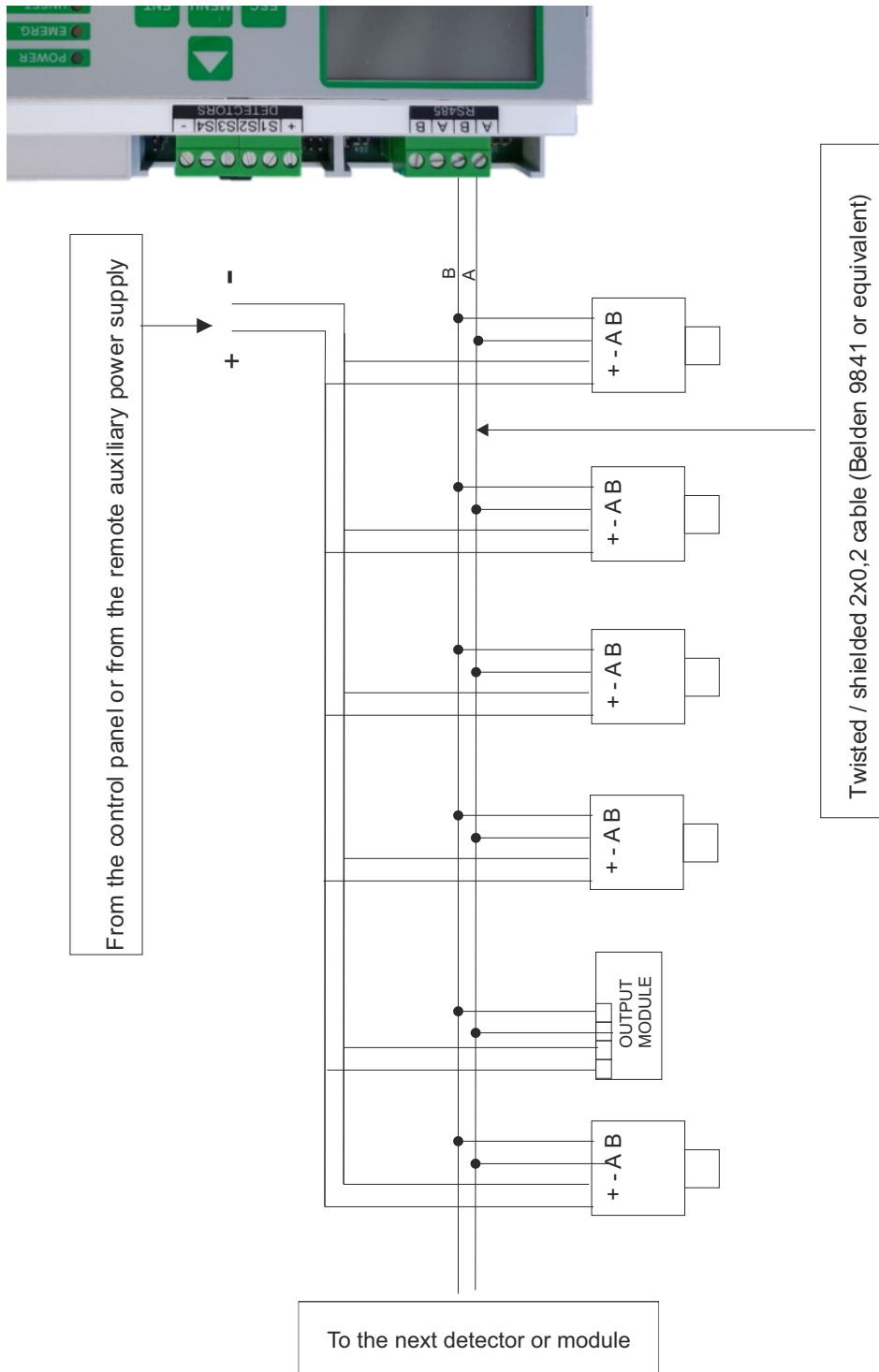
Figure 12)   Direct connection of detectors on the RS485 bus

Control panel unit

From the control panel or from the remote auxiliary power supply

Twisted / shielded 2x0,2 cable (Belden 9841 or equivalent)

STG/IN8S
MODULE

REMOTE INPUT
MODULE STG/IN8S

+ S -

4-20mA
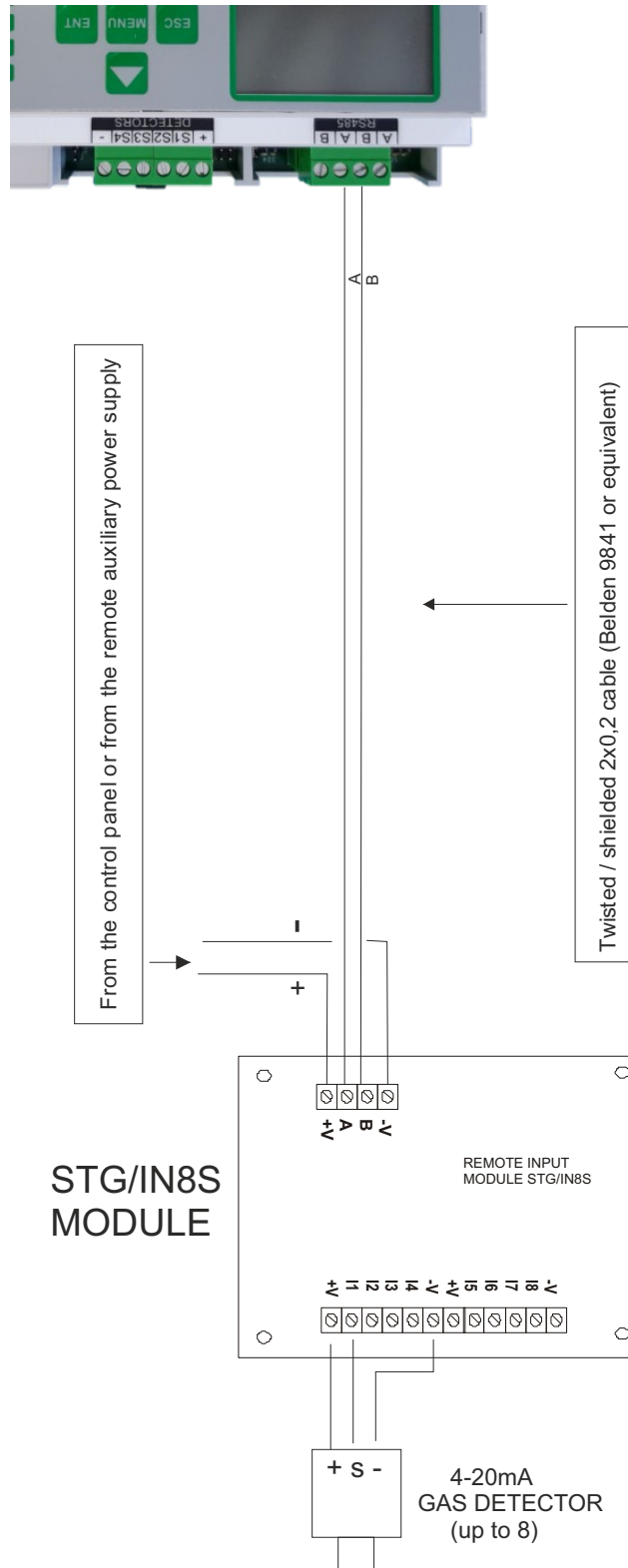GAS DETECTOR
(up to 8)

Figure 13) Detector connection by STG/IN8-PK

2.9   STG/IN8-PK remote input modules

STG/IN8-PK remote modules are field mounted and connected to the gas control unit via RS485 buses. They are used to connect 8 x 4-20mA analogue gas detectors. Each module must be addressed using the rotary switches on the PCB. The address must be univocal and between 1 and 255 (1-247 for Modbus protocol). See the summary table 1 for the maximum number of connectable modules to the gas control unit.
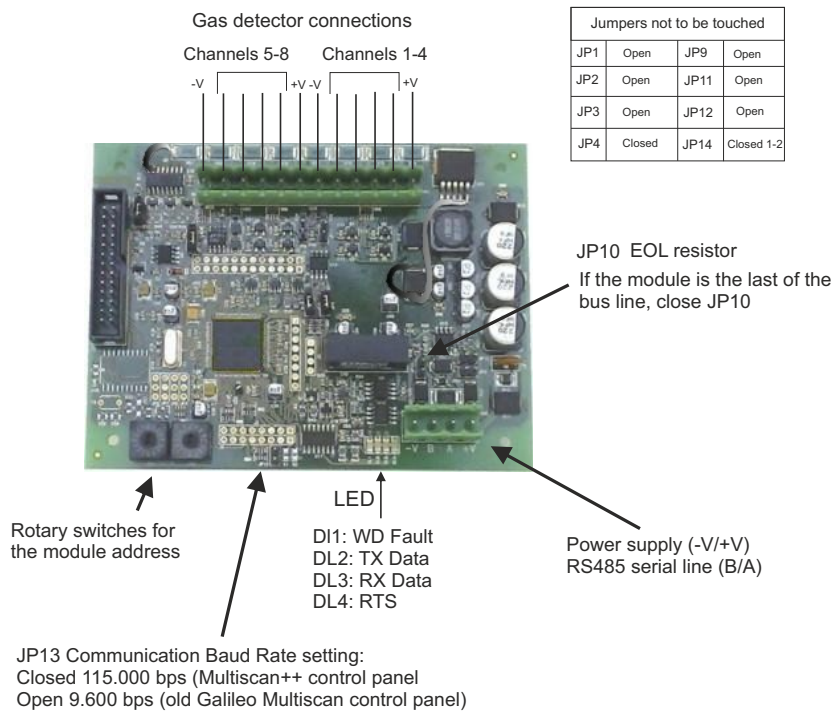
Gas detector connections

Channels 5-8   Channels 1-4

-V   +V -V   +V

Jumpers not to be touched			
JP1	Open	JP9	Open
JP2	Open	JP11	Open
JP3	Open	JP12	Open
JP4	Closed	JP14	Closed 1-2

JP10 EOL resistor
If the module is the last of the bus line, close JP10

Rotary switches for the module address

LED
DI1: WD Fault
DL2: TX Data
DL3: RX Data
DL4: RTS

Power supply (-V/+V)
RS485 serial line (B/A)

JP13 Communication Baud Rate setting:
Closed 115.000 bps (Multiscan++ control panel)
Open 9.600 bps (old Galileo Multiscan control panel)

Figure 14) STG/IN8-PK module

2.10   STG/OUT16S remote output modules

STG/OUT16S remote modules are field mounted and connected to the gas control unit via RS485 buses. They provide 16 Open Collector outputs (negative switch) with a programmable function for the remote activation of sirens, solenoid valves, relays, etc. Up to 2 8-relay boards can be connected to each STG/OUT16S module, transforming the output from Open Collector to a voltage-free exchange contact. See the summary table 1for the maximum number of connectable modules to the gas control unit.

Each module must be addressed using the rotary switches on the PCB. The address must be univocal and between 1 and 255 (1-247 for the Modbus protocol).
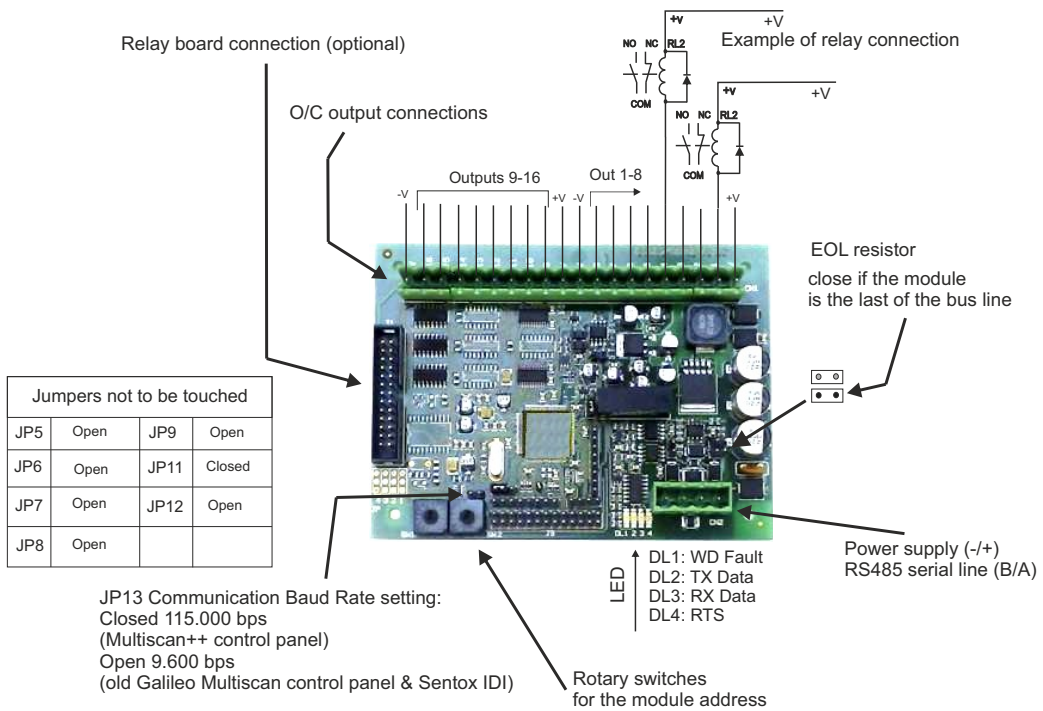
Figure 15)   STG/OUT16S module

2.11   STG/8REL relay expansion board

The STG/8REL 8-relay expansion board converts the O/C outputs of the STG/OUT16S output module into voltage-free exchange contacts. Up to two relay boards can be connected to each output module. A relay board is directly connected to the output module (J1 connector) and a second relay board is connected to the former.
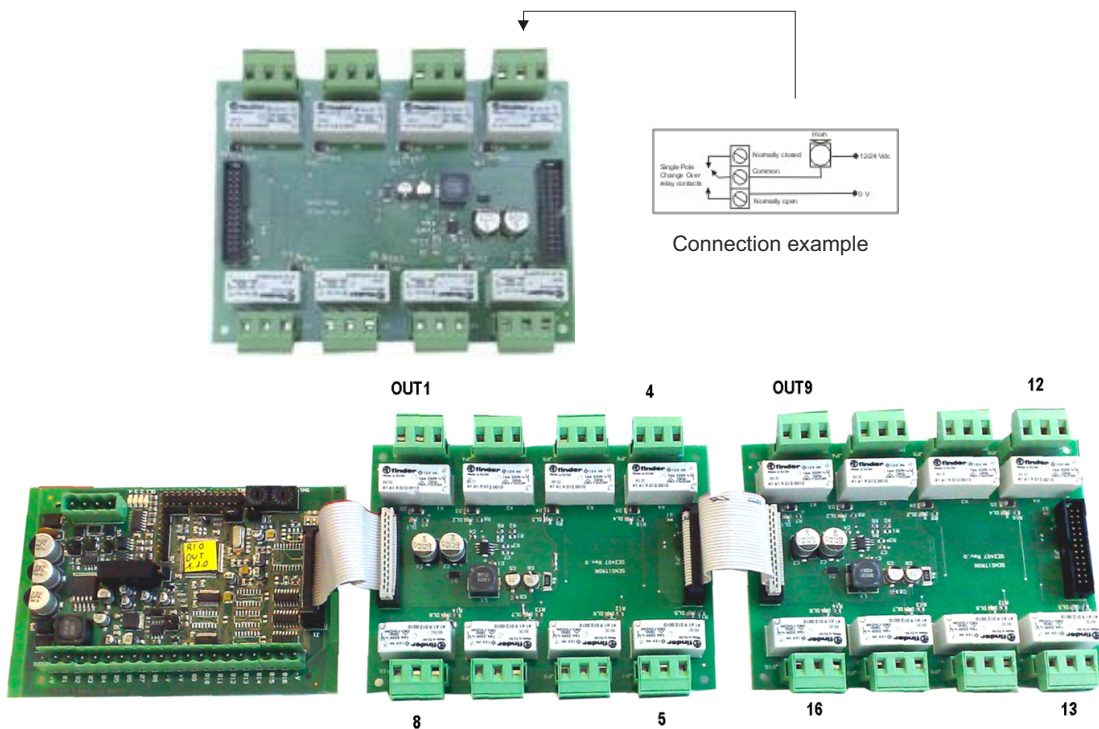

Connection example

Figure 16)   Relay board and connection to the output module

2.12 STG/IN8-PK and STG/OUT16S module addressing

STG/IN8-PK and STG/OUT16S modules are addressed using the two rotary switches in RSW 1 and 2 hexadecimals. Rotary switches permit hexadecimal settings (base 16). Each switch as 16 positions (0-F) and the pointer is positioned on the number chosen using a screwdriver to create a decimal value between 1 and 255 (see table 1). See the summary table 1 for the maximum number of connectable modules to the gas control unit.

Each module must have univocal address in the system. Dual addresses are not permitted even if modules are on different serial buses.
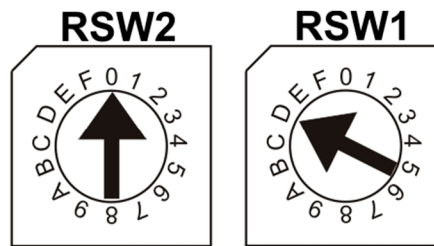
Figure 17)   Example: If the address switches are set in this mode, RSW2 at 0 and RSW1 at D, the corresponding address in decimal numbers would be 13 (see table below).

Table 6)   Conversion from decimal to hexadecimal numbers. (*) Addresses not available for the Modbus protocol, (**) Address not available for the Galileo protocol

DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
1	01	38	26	75	4B	112	70	149	95	186	BA	223	DF
2	02	39	27	76	4C	113	71	150	96	187	BB	224	E0
3	03	40	28	77	4D	114	72	151	97	188	BC	225	E1
4	04	41	29	78	4E	115	73	152	98	189	BD	226	E2
5	05	42	2A	79	4F	116	74	153	99	190	BE	227	E3
6	06	43	2B	80	50	117	75	154	9A	191	BF	228	E4
7	07	44	2C	81	51	118	76	155	9B	192	C0	229	E5
8	08	45	2D	82	52	119	77	156	9C	193	C1	230	E6
9	09	46	2E	83	53	120	78	157	9D	194	C2	231	E7
10	0A	47	2F	84	54	121	79	158	9E	195	C3	232	E8
11	0B	48	30	85	55	122	7A	159	9F	196	C4	233	E9
12	0C	49	31	86	56	123	7B	160	A0	197	C5	234	EA
13	0D	50	32	87	57	124	7C	161	A1	198	C6	235	EB
14	0E	51	33	88	58	125	7D	162	A2	199	C7	236	EC
15	0F	52	34	89	59	126	7E	163	A3	200	C8	237	ED
16	10	53	35	90	5A	127	7F	164	A4	201	C9	238	EE
17	11	54	36	91	5B	128	80	165	A5	202	CA	239	EF
18	12	55	37	92	5C	129	81	166	A6	203	CB	240	F0
19	13	56	38	93	5D	130	82	167	A7	204	CC	241	F1
20	14	57	39	94	5E	131	83	168	A8	205	CD	242	F2

DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
21	15	58	3A	95	5F	132	84	169	A9	206	CE	243	F3
22	16	59	3B	96	60	133	85	170	AA	207	CF	244	F4
23	17	60	3C	97	61	134	86	171	AB	208	D0	245	F5
24	18	61	3D	98	62	135	87	172	AC	209	D1	246	F6
25	19	62	3E	99	63	136	88	173	AD	210	D2	247	F7
26	1A	63	3F	100	64	137	89	174	AE	211	D3	248 (*)	F8
27	1B	64	40	101	65	138	8A	175	AF	212	D4	249 (*)	F9
28	1C	65	41	102	66	139	8B	176	B0	213	D5	250 (*)	FA
29	1D	66	42	103	67	140	8C	177	B1	214	D6	251 (*)	FB
30	1E	67	43	104	68	141	8D	178	B2	215	D7	252 (*)	FC
31	1F	68	44	105	69	142	8E	179	B3	216	D8	253 (*)	FD
32	20	69	45	106	6A	143	8F	180	B4	217	D9	254 (*)	FE
33	21	70	46	107	6B	144	90	181	B5	218	DA	255 (**)	FF
34	22	71	47	108	6C	145	91	182	B6	219	DB		
35	23	72	48	109	6D	146	92	183	B7	220	DC		
36	24	73	49	110	6E	147	93	184	B8	221	DD		
37	25	74	4A	111	6F	148	94	185	B9	222	DE		

2.13   Programming from a PC

The MULTISCAN++PK-8D gas control unit is fully programmable from a personal computer by means of special software. The software has been designed for simple and fast programming. Connection to the PC takes place via the USB port, available on the main board of the gas control unit.

The following cable is to be used:

Figure 18)   USB CABLE (printer type)

3. System power up and operation

The chapter explains the procedures for the operation, powering on and maintenance of the MULTISCAN++PK-8D gas control unit. The MULTISCAN++PK-8D gas control unit can only be programmed by means of a personal computer with the appropriate software.
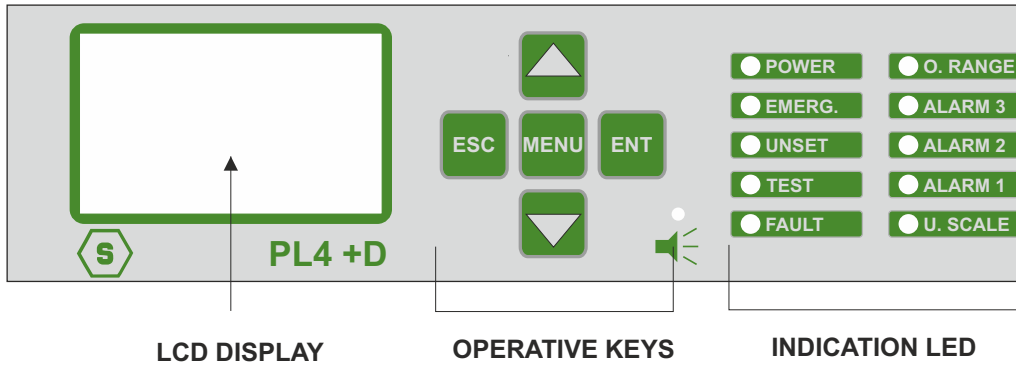

LCD DISPLAY   OPERATIVE KEYS   INDICATION LED

Figure 19)   Front panel of the gas control unit

3.1   Power ON

After ensuring correct installation of the system, the gas control panel MULTISCAN++PK-8D can be switched on. When the gas control unit is switched on for the very first time, the display won't have any screen, since the gas control unit must be programmed. Please refer to Chapter 4 for the programming part.
If the gas control panel has been programmed, when it is switched on, the Warm Up screen appears. The default Warm Up time is 3 minutes.
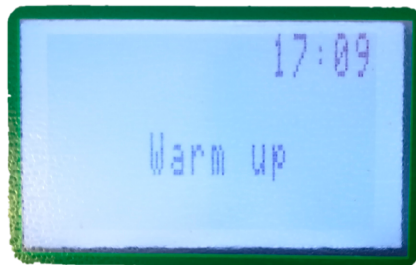

Figure 20)   Warm up screen

If the system has been configured, the display will show different channels, which correspond to the detectors connected. A maximum number of 4 channels can be visualised in a screen.
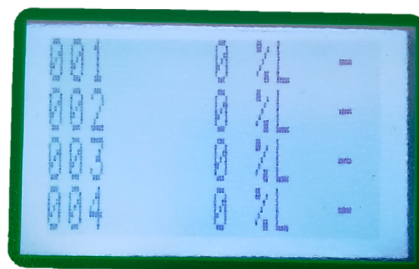

Figure 21)   Display in normal status

3.2   System status

The gas control unit communicates with the operator by means of the LCD display and LEDs on the front panel. Different information is displayed during different states of the system. A few general rules apply at any level as follows:

- Ê   The page scrolling can be done using the up/down arrow keys.
- Ê   The up/down arrow keys allow the user to move between editable parameters in the various menus.
- Ê   At any display level, the ESC key will switch back to the previous view.
- Ê   On any screen, if no key is pressed for 3 minutes, the display indication will automatically return to the main screen.

The system is designed to be in one of the following operating status:

- Ê   NORMAL
- Ê   ALARM
- Ê   FAULT
- Ê   TEST
- Ê   UNSET
- Ê   EMERGENCY

NORMAL
It is the normal system operating status without alarms and faults. The screen in this status displays the channels (gas detectors) with gas concentration measured in real time (see fig. 20).

ALARM
The Alarm status is activated when one or more gas detectors measure a gas concentration higher than the alarm threshold set during the configuration of the gas control unit. Programming of alarm thresholds and other parameters of each channel can be set during PC configuration.

In the alarm window the following info is available:

Figure 22)   Screen in Alarm status

If there are Alarms from multiple gas detectors, the alarm screen will present the information of the different channels in the following manner:

Ê   The events are ordered by severity, as follows: Over-range, Alarm3, Alarm2, Alarm1;

Ê   Over-range is seen as an Alarm event with the highest severity.

By pressing the Enter key, with an alarm event selected, a screen opens that shows the event details:

Figure 23)   Alarm1 event detail screen

From the main screen, by pressing the MENU button and selecting ACTIVE EVENTS, it is possible to view the channels in Alarm/Fault status that have not yet been reset.

FAULT
The Fault status will be activated in the following situations:

1.   Short circuit, open circuit, or channel malfunction

2.   Removal or malfunction of a ST.G/IN8 or ST.G/OUT16 module

3.   Detector in Under-scale (signal below "0")

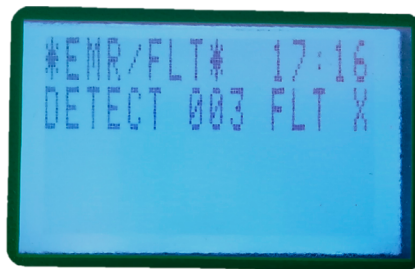4.   Detector in over-range (signal over 100% of the scale)

Figure 24)   Screen in Fault status

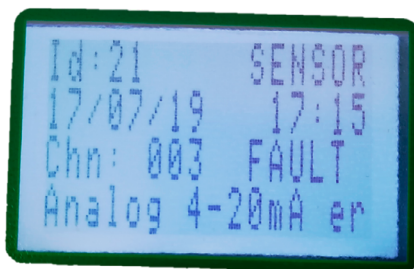By pressing the Enter key with a fault event selected, a screen opens that shows the event details:

Figure 25)   Fault event details

USER LEVEL

The system offers three user levels and, depending on these, various options are available. The three levels are as follows:

1. OPERATOR level (O)
2. MAINTENANCE level (M)
3. ENGINEER level (E)

Once logged in with a certain level, a letter in the top right side of the screen will inform about the level chosen, as follows: "O" for Operator. "M" for Maintenance and "E" for Engineer.

If the user is not logged in, the allowed operations are as per Operator level, without permitting to do the "ACK" of the events.

TEST/MAINTENANCE

This state is meant for testing and maintenance purpose. This testing function requires an operation sequence and can be activated for each detector being connected. A user with the OPERATOR or MAINTENANCE level cannot put under TEST/MAINTENANCE more than 50% of the system's channels and outputs.

The signals from channels under TEST will be displayed but will not be considered, in the way that no alarm will be triggered even though the alarm thresholds are being exceeded. In the same way, the relays under TEST will not be activated, even if an alarm event associated is taking place while the relay is in TEST/MAINTENANCE mode.

EXCEPTION: In case the system just includes one channel only, it will be possible to put that channel under test. The same principle applies in the case when just one single output is defined. That output can be put under test.

UNSET

The state is useful for virtually excluding single detectors or parts of the system, without physically interrupting the connection. The UNSET condition may be activated for each channel or part of the system.

In the same way as for TEST/MAINTENANCE mode, a user with OPERATOR or MAINTENANCE level cannot UNSET more than 50% of the system's channels and relays. The only exception is the ENGINEER level, which may UNSET the whole system if necessary.

EMERGENCY

This is a particular malfunction status that can occur for the following two reasons:
- Ê   Malfunctioning of the Vcc power supply of the gas control unit
- Ê   Lack of 230 Vac primary power supply

3.3   Menu

In normal status, the main screen shows the terminal name, the time and the indication to press the operative keys of vertical movement to visualize the connected detectors. Press one of the arrow keys   to visualize the list of detectors connected to the gas control panel. Press the operative button MENU to visualize the sub-menus and their description.

The sub-menus available before login are:

LOGIN	allows to login with one of the three user levels
LOGOUT	allows to logout
ALARM THRESHOLDS	allows to view and/or modify sensor alarm thresholds
RELAY DELAY	allows to view and/or modify relay activation and de-activation delay times
EVENT LOG	allows viewing of the history of events
SET BACKLIGHT	settings of display backlight
SHOW RETRY	visualization of failed interrogations on bus RS485
SYSTEM INFO	information about the gas control unit (name, FW and HW versions, etc.)
ACTIVE EVENTS	(appears only if there are active events, i.e. Alarms or Faults that have not been reset)

If the login is as Operator (O), the sub-menus remain the same. If the login is as Maintenance (M) or Engineer (E), the sub-menus are different:

LOGIN	allows to login with one of the three user levels
LOGOUT	allows to logout
CONNECTED	changes detectors' (and/or relays) status from Disconnected to Connected
DISCONNECTED	changes detectors' (and/or relays) status from Connected to Disconnected
TEST	selects Test mode for sensors and relays
END TEST	restores normal operation of the sensors or relays in Test mode
ALARM THRESHOLDS	allows to view and/or modify sensor alarm thresholds
RELAY DELAY	allows to view and/or modify relay activation and de-activation delay times
EVENT LOG	allows viewing of the history of events
SET DATE TIME	allows to set date and time
SET SER. LIMIT (*)	future option
VIEW EXT. IP (*)	future option
SET BACKLIGHT	settings of display backlight
SHOW RETRY	visualization of failed interrogations on bus RS485

SYSTEM INFO	information about the gas control unit (name, FW and HW versions, etc.)
ACTIVE EVENTS	(appears only if there are active events, i.e. Alarms or Faults that have not been reset)

(*) sub-menus available only if the login is as Engineer (E).

3.4 Active events and event management

By selecting ACTIVE EVENTS and pressing ENT, a list of current active events is displayed. If there are active Alarms and Faults/Emergency situations, they will be shown on two screens.

Figure 26)   Active Events Screens: Alarm and Fault screen

When a new event occurs, the screen will automatically switch to the **ACTIVE EVENTS** list and the buzzer of the gas control unit will sound. Until MENU is pressed for the new event, it will not be possible to go back to the main screen.
The screens in the figure above show events for which acknowledge has not yet been performed. Once the event has been acknowledged (by pressing MENU), an "X" is shown in the right column.

It is possible to perform 3 operations for active events:

Ê   press **ENT** for additional details about the event

Ê   press **MENU** to acknowledge the event and silence the buzzer of the gas control unit

Ê   press **MENU** to restore the gas control unit to its normal status (this is only possible if the alarm condition has been acknowledged before and if the gas detector is no longer in the alarm and/or fault status)

ACKNOWLEDGE
When an event occurs (alarm or fault), the buzzer of the gas control unit will sound and the display will switch to the Active Events page, which will indicate the sensor in Alarm and/or Fault. To silence the buzzer of the gas control unit, press the MENU key (insert the login password if asked); the gas control unit buzzer will stop and an X will appear to the right of the event line.

RESET
Pressing MENU with the cursor on the active event previously acknowledged (the one marked with "X"), this will get reset and the event will disappear from the active events list. As

described above, there are two situations:

1. **The user is already logged in for a previous operation that requires login.** In this case pressing MENU the screen image will simply refresh and delete the event line from the list.

2. **The user is not yet logged in.** In this case the LOGIN dialogue window pops up and the user should key in the password. After which the screen will be refreshed and the event deleted.

A user with "Operator" level is NOT allowed to reset active events. He/she can only acknowledge them so that the display image may be switched back to the main screen. The reset may only be done by "Maintenance" or "Engineer" level users.

4. Warranty coupon for repairing

Warranty on Sensitron products is valid one year from the manufacturing date placed on the product and it is extended of one year from the date of the installation on condition that the installation is performed within the first year of life of the product. As proof will be considered the stamp and date of the installer placed on the present coupon which is to be duly kept by the user and returned to the installer in case of any working tests and repairs.

Data di installazione *	
Modello/i	
Numero di matricola	
Timbro installatore	
Firma installatore	

* Use one single coupon for every installation date

ATTENTION: Please be aware that all perishables installed in our products (sensors, buffer batteries, etc.) benefit only of the warranty conditions stated by the original manufacturer.

5. *Instructions for disposal*

When the device reaches the end of its life, it should be disposed of in accordance with local waste management requirements and environmental legislation.
Employed materials are subdivided into the following categories:

- Ê   Remote terminal unit enclosure: Plastic
- Ê   Base board: Waste Electrical & Electronic Equipment (WEEE)

Alternatively, the old device may be securely packaged, clearly marked for environmental disposal and returned to Sensitron.

ENGLISH

SENSITRON
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MULTISCAN++/S1-32
Manual

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