TELEDYNE
OLDHAM SIMTRONICS
Everywhereyoulook™

USER MANUAL

CPS_CPS 10 SYSTEM

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The information contained within this manual is true and correct to the best of our knowledge.

Due to ongoing research and development, the specifications of this product may be changed at any time without notice.

TELEDYNE OLDHAM SIMTRONICS S.A.S.

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We have taken all the necessary measures to ensure that your instrument provides total satisfaction.

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- The CPS model is not intended to be used as Life Safety Equipment.

GUARANTEE

- 2 years guarantee in normal conditions of use on parts and technical labour, return in our workshops, excluding consumables (sensors, filters, etc.).

General Information

Please read the following notice carefully before installation and start-up, paying particular attention to the end-user material safety instructions. This user's guide should be distributed to every individual involved in the installation, operation, maintenance or repair of the CPS system.

The information contained in this manual, the data and technical drawings are correct as of the date of publication. Should questions arise, please contact TELEDYNE OLDHAM SIMTRONICS for additional information.

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This manual is a translation of the French original. In case of discrepancy between the French version and any translated version, the French version shall take precedence and shall prevail in all matters pertaining to any relationship between the parties.

Safety Warnings

Pictogram labels have been placed on the central controller to call attention to general use safety precautions. These labels are an integral component of the central controller. Replace any label that has peeled off or become illegible. The meanings of these labels are explained below.

Icon	Significance
	This symbol indicates useful additional information.
	This symbol indicates: Earth ground connection.
	This symbol denotes: Protective earth terminal. A cable of the adequate diameter must be connected to ground and to the terminal having this symbol.
	This symbol denotes: **Attention! In the present mode of use, failure to adhere to the instructions preceded by this symbol can result in a risk of electric shock and/or death.**
	This symbol indicates: You must refer to the instructions.

European Union (and EEA) only. This symbol indicates that this product must not be discarded with household waste, as per the EEA directive (2002/96/EC) and your own national regulations.

This product must be disposed of at a collection point that is reserved for this purpose, for example, an official site for the collection of electrical and electronic equipment (EEE) in view of their recycling, or a point of exchange for authorized products that is accessible when you acquire a new product of the same type.

Any deviation as regards these recommendations for the disposal of this type of waste can have negative effects on the environment and public health, as these electric and electronic products generally contain substances that can be dangerous. Your full cooperation in the proper disposal of this product promotes a better use of natural resources.

Important Information

The modification of any piece of equipment or the use of any third party parts will automatically void all guarantees.

The central controller is intended to be used for precise applications of a technical nature. Exceeding the indicated values is strictly prohibited.

The use of the *CPS10* unit has been projected for the applications specified in the technical characteristics. Exceeding the indicated values cannot in any case be authorized.

Poisoning may result from exposure to substances as:

- silicones (e.g. waterproofing, adhesives, release agents, special oils and greases, certain medical products, commercial cleaning agents).
- tetraethyl lead (e.g. leaded petrol, particularly aviation petrol 'Avgas').
- sulfur compounds (sulfur dioxide, hydrogen sulfide).
- halogenated compounds (R134a, HFO, etc.).
- organo-phosphorus compounds (e.g. herbicides, insecticides, and phosphate esters in fireproof hydraulic fluids.

TELEDYNE OLDHAM SIMTRONICS recommends regular testing of fixed gas detection installations (read 6.4).

The installation of this product and all electrical connections should be performed by a qualified professional, in accordance with the manufacturer's specifications and with the standards of authorities in the field.

Failure to observe these warnings may result in serious injury. Exercise great caution, particularly when working with electricity during installation (couplings, network connections).

Table of Contents

1 Overview of the CPS System

The CPS (**CAR PARK SYSTEM**) system is designed to measure and monitor pollutants in underground parking facilities and tunnels.

The system consists of:

- a central controller for collecting readings and managing alarms;
- various addressable digital modules (sensor modules, relay modules, analog output modules, logic input modules);
- instruments and accessories to process alarms and actions

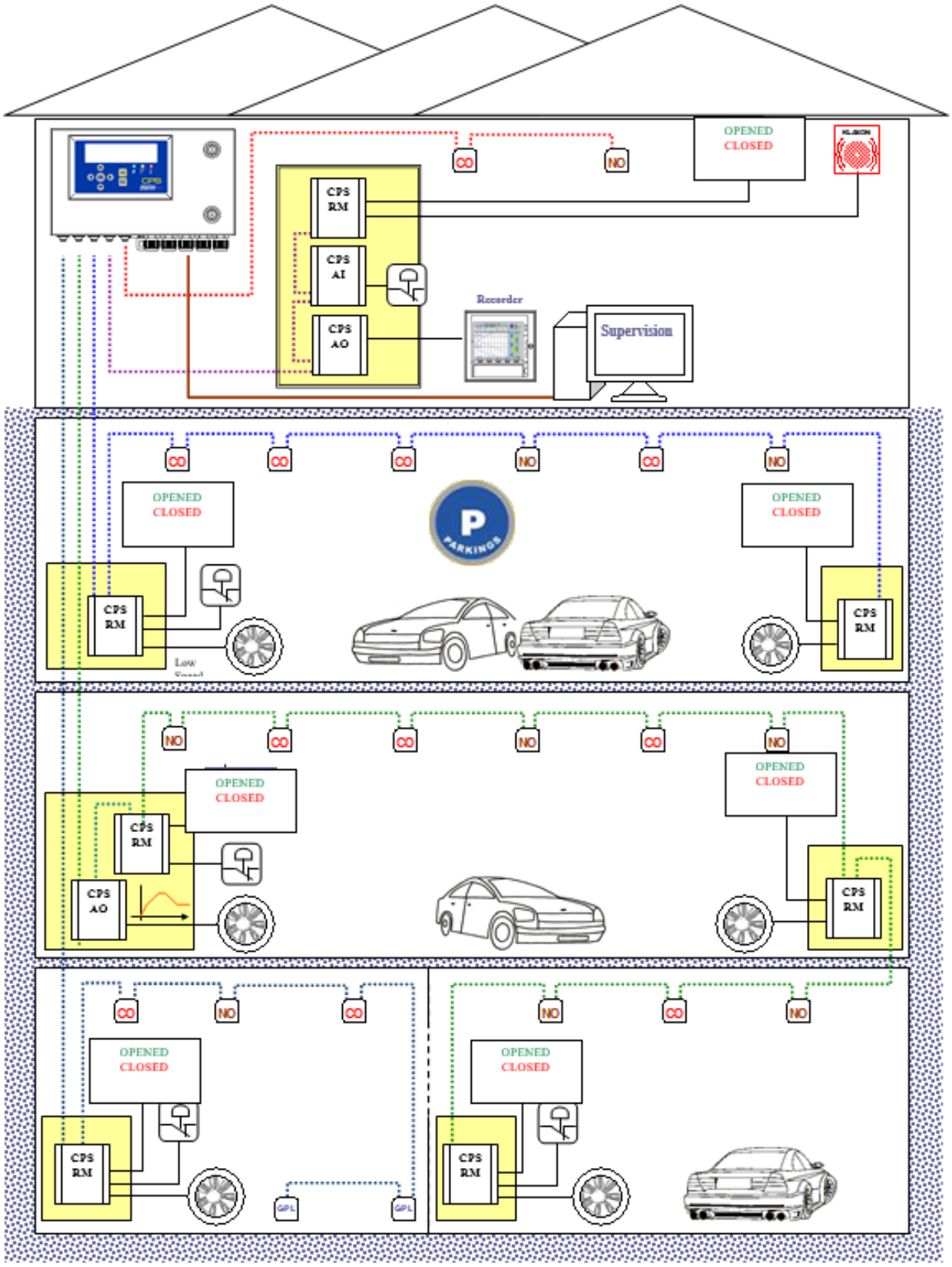
The CPS system can manage the detection of **10 different gases,** and all detectors are clearly localized and identified.

Data from each sensor is collected in the central controller in less than one second. If gas levels exceed the programmed limits, an audiovisual alarm is triggered and can activate the ventilation system in the affected area of the parking facility.

Use the ***COM*_CPS software** to program the central controller.

The system status can be quickly verified with semi-automatic calibration for various sensors.

Example of application « parking «



1.1 The CPS central controller

Figure 1: CPS

The central controller is available in a wall-mount version. It is designed to control:

- **256 digital modules** distributed over 8 lines, with a maximum of 32 modules per line;
- **256 addressable relays** max. distributed across all relay modules;
- **224 logic inputs** max. distributed across all logic input modules and relay modules.
- **256 analog outputs** max. distributed across 4 analog outputs modules.

Modules are connected through a digital RS-485 network using JBUS/MODBUS protocol.

The central controller connects to 256 toxic sensors, and **runs on only 24 Watts**.

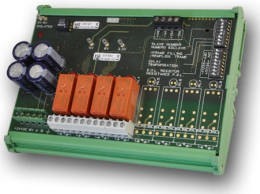
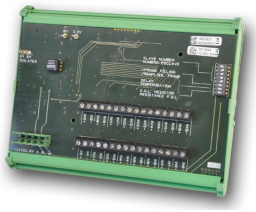
The central controller can be connected to a supervision system via an RS-485 output interface using ModBus protocol.

Optional features include:

- **a battery back-up**, ensuring continual operation in case of a power outage (approx. 1 hour for 50 TOX-type sensors);
- **an integrated printer** (rack-mounted version only) for recording alarms and events;
- **an external printer** (for both rack- and wall-mounted versions).

1.2 Digital addressable modules

Various digital addressable modules can be positioned on the same line.

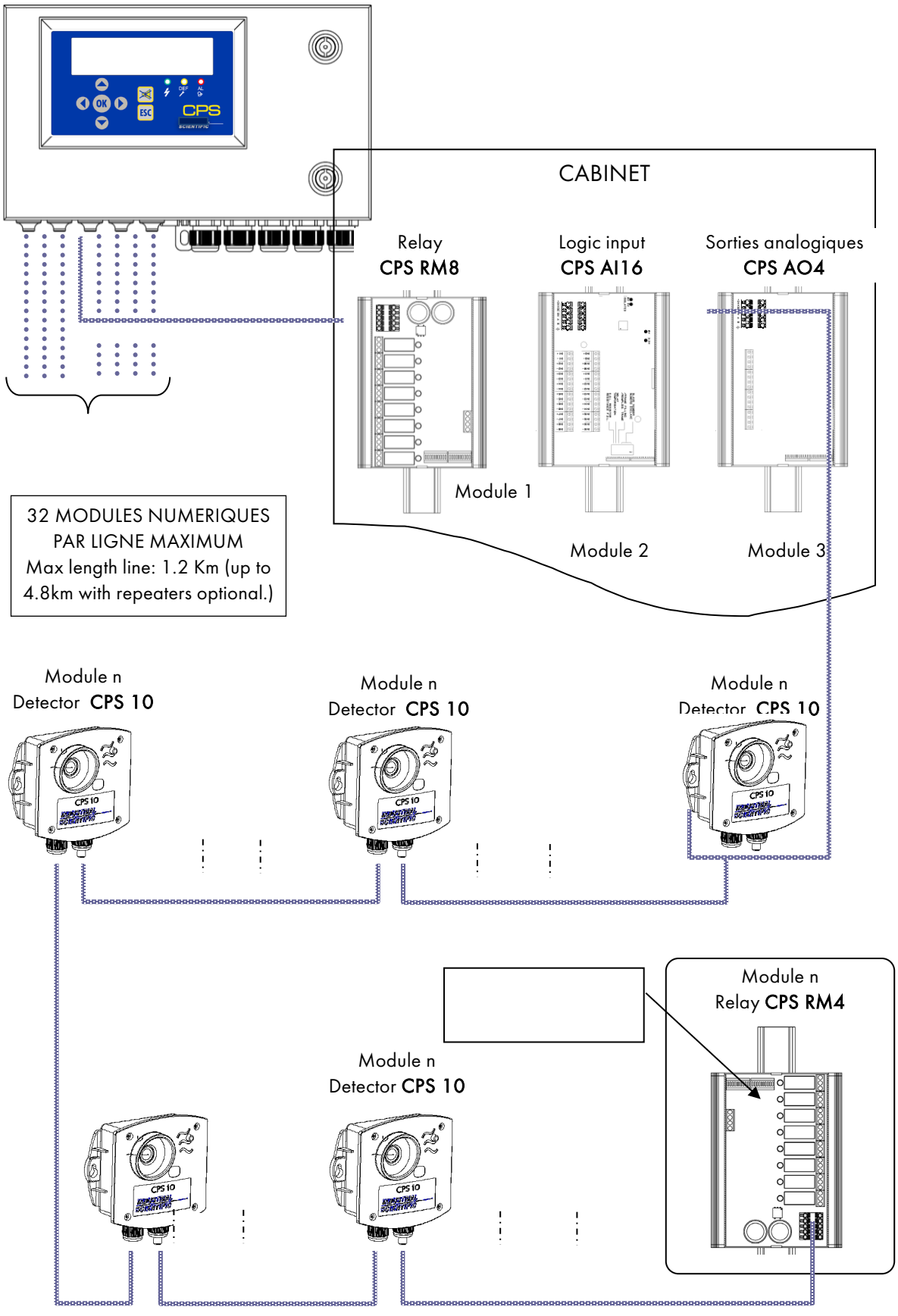
	CPS 10	SENSOR MODULE CO, NO, NO2, CH4, LPG, ...
CPS RM4 	CPS RM8 	RELAY MODULE 4 relays + 2 LI* 8 relays + 2 LI* (*) : LI = Logic Input
	CPS AI16	LOGIC INPUT MODULE 16 Logic Inputs
	CPS AO4	ANALOG OUTPUT MODULE 4 opto-isolated 4-20 mA outputs + 2 LI*

1.3 Digital linking

Modules are linked in-line via an MPI 22 or equivalent RS-485 double twisted pair cable, at least 0.22 mm² in diameter. One pair supplies power to the module, the second pair is used for the digital RS-485 link.

TELEDYNE OLDHAM Simtronics – personnel should verify that the correct cable has been used in terms of type and capacity.

Figure 2


CABINET
Relay
CPS RM8
Logic input
CPS AI16
Sorties analogiques
CPS AO4
Module 1
Module 2
Module 3
32 MODULES NUMERIQUES
PAR LIGNE MAXIMUM
Max length line: 1.2 Km (up to
4.8km with repeaters optional.)
Module n
Detector CPS 10
Module n
Detector CPS 10
Module n
Detector CPS 10
Module n
Relay CPS RM4
Module n
Detector CPS 10

1.4 The *COM*_CPS software application

The ***COM*_CPS** software application is designed to help configure the CPS central measuring controller on a PC. *COM*_CPS software operations are addressed in a separate manual.

1.4.1 System and Hardware Requirements:

*COM*_CPS must be installed on a PC running Windows 2000 or Windows XP.

The minimum requirements to install *COM*_CPS are:

- Windows 98 SE, Windows NT, Windows 2000, Windows XP with 256 MB RAM, Windows VISTA.
- A CD-ROM drive
- At least 10 MB of free hard drive space
- A USB connection (cable not included) or a free RS-232 port (specific cable provided) to link the CPS central measuring controller to the PC.

Refer to the *COM*_CPS software instructions before installing or using the software, and before programming the central controller.

The *COM*_CPS software allows you to:

- configure one or more central controller(s) via PC;
- save settings and upload them later to the CPS central controller(s).
- view or modify central controller configuration data within the application.

The *COM*_CPS software can be used to modify the following main configuration settings:

- STEL and TWA calculations
- Predefined status tables printing times
- Conditions that would activate an internal buzzer
- Communication speed for the RS-485 series connection with a master device
- Settings for various sensors and alarm values
- Personalized sensor add-on options
- Delay settings
- Rising edge or falling edge triggers
- Average alarm integration time
- Verification of explosive gasses
- Creation of installation architecture: sensors/relays

COMCPS	Whenever this sign appears in front of a chapter, the functions described in that chapter are configured with the *COM*_CPS software.

1.5 Architecture du système

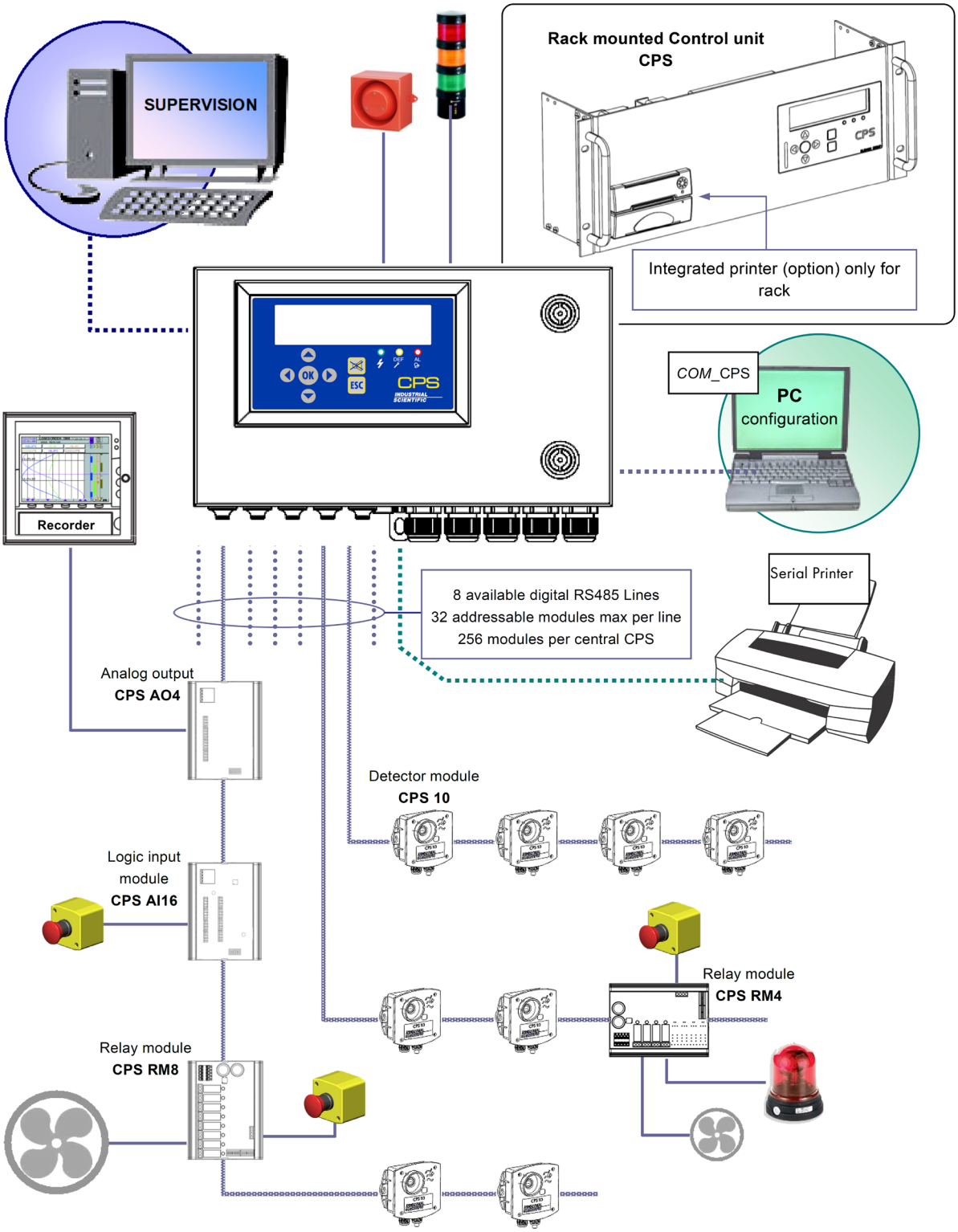


Figure 3

2 Assembly / Installation

2.1 Installation of the CPS central controller

The CPS central controller should be installed in a dry, climate-controlled area protected from explosive gases and dust. Ideally, the station should be located in a secure, accessible location under surveillance (security office, control room, equipment room ...).

2.1.1 Mounting the metal wall casing

For the wall-mounted CPS in a metal case: The central controller cover opens at a 90° angle to the left. Make sure to leave adequate space to completely open the cover once the central controller is mounted.

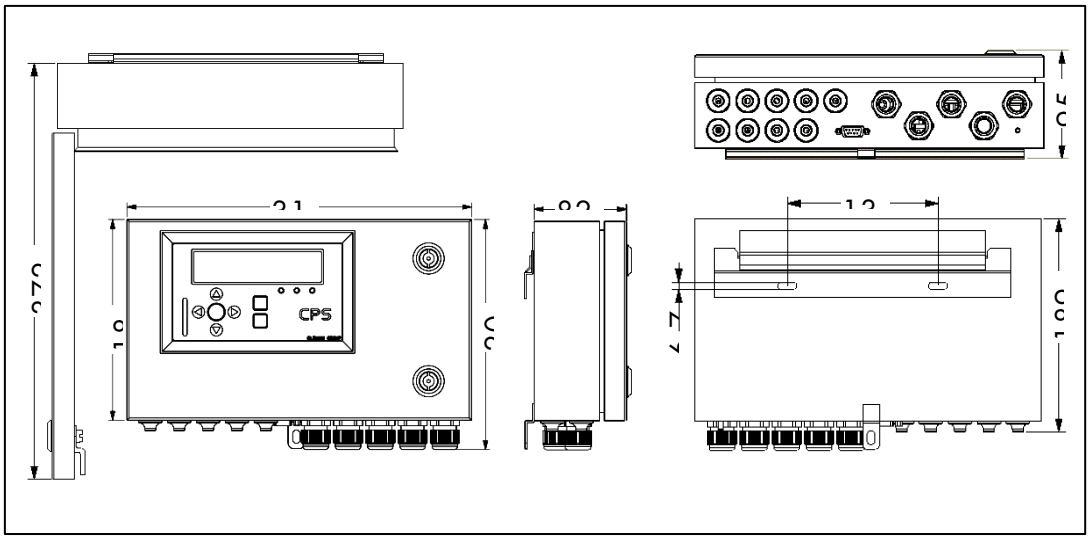


Figure 4

2.2 Installing digital modules

2.2.1 Mounting theCPS 10 sensor module

Mount the sensor modules on a flat surface using two screws (Figure 4)

The modules should be placed in an accessible area, so that maintenance and inspection operations can be conducted as easily and as safely as possible. Nothing in the area should prevent the sensors from obtaining measurements of the ambient environment.

When mounting the sensor module on a vertical surface, position the cable glands on the underside of the module to ensure proper calibration.

2.2.2 Mounting the other modules

The other modules (relay, logic input, analog output) should be mounted on a DIN rail inside of a cabinet or an electric box (Figure 2).

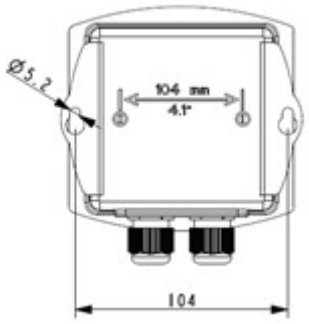
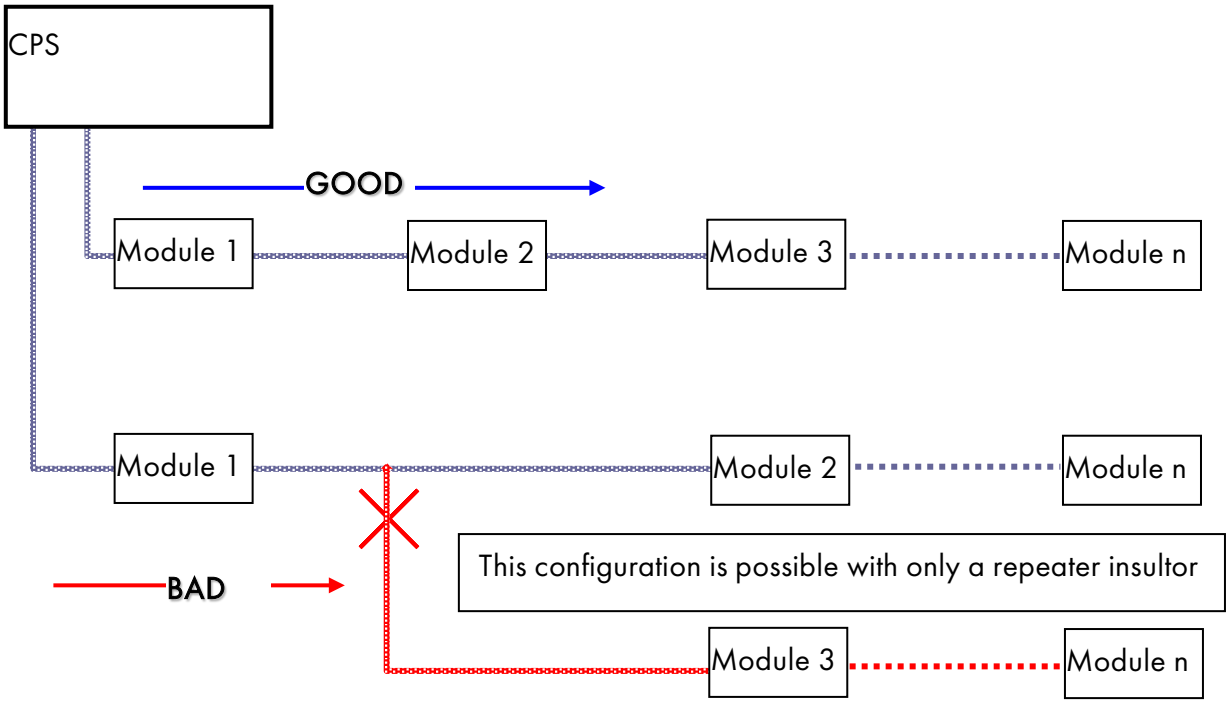


Figure 5: Detector module OLCT 10N

Figure 6: Addressable digital module

2.3 Connection of modules in a line

All modules in a line should be wired in-line from the controller, not in a hub and spoke model.



3 The CPS Central Measuring Controller

3.1 View of wall-mounted CPS

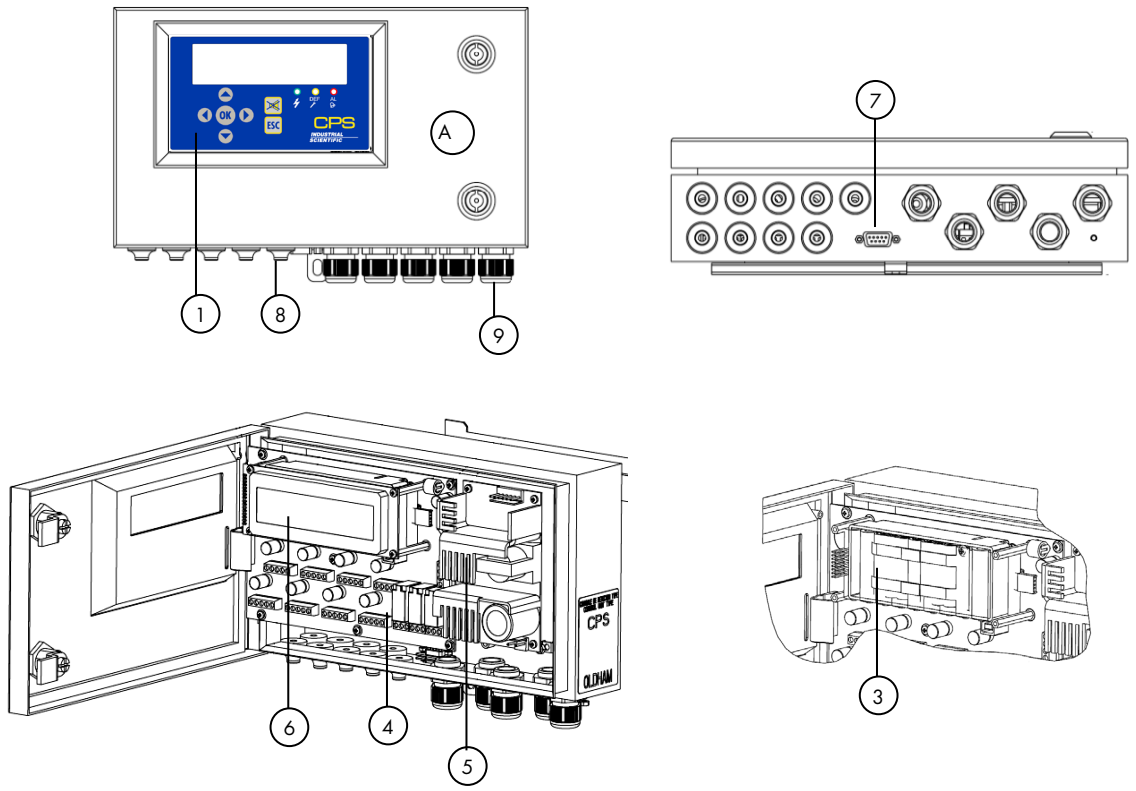


Figure 7

PART	DESIGNATION	PART NUMBER
A	*CPS* Wall casing	6514868
1	*CPS* Front panel	6122477
3	Battery pack (optional)	6311098
4	*CPS* Mother board	6451596
5	24V 60W Power supply	6111308
6	*MX 256* Controller display	6314610
7	RS232 SUB D9 Connector	6116263
8	M16 Grommet: D5 to D7mm	6131166
9	M20 Cable gland : D6 to D12 mm	6143577
	Plastic screw	6143578

3.2 Overview of the Motherboard

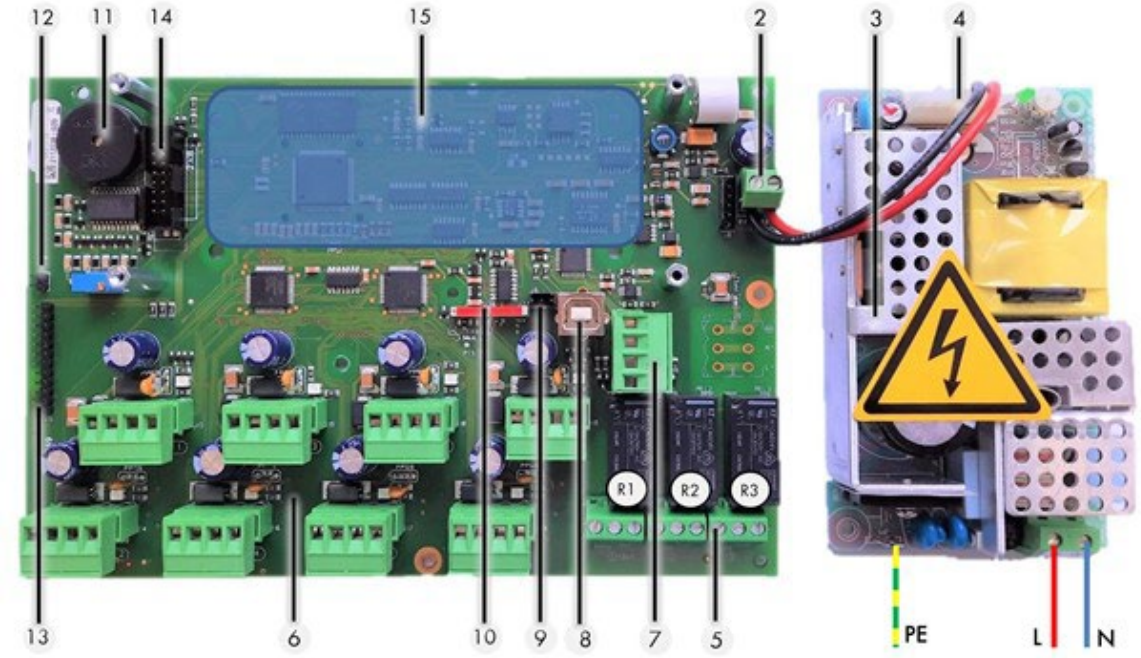


Figure 8

Part	Connector function
2	24 VDC external power supply connection
3	110-240VCA power supply for (wall-mount) power supply module
4	24 VDC power supply output for power supply module motherboard power
5	Internal contact relay outputs (RTC) dry contacts, potential free
6	Digital addressable modules 8 line connectors for connecting digital modules (CPS 10 – CPSRM – CPS DI16 – CPS AO4)
7	RS-485 digital output links to a supervision system
8	USB serial interface (PC/COMCPS connection for configuration)
9	RS-232 serial interface link PC/COMCPS connection for configuration, External serial printer connection
10	Mini-switches
11	Buzzer
12	Jumper (Buzzer Activation)

Part	Connector function
13	Front Panel connector
14	Display connector
15	Battery Pack (optional)
R1, R2, R3: controller shared internal relays	

3.3 Central controller electrical connections

Electrical connections are wired through the central controller MOTHERBOARD and the power supply 24V. For the CPS central controller (wall-mounted version), you must open the casing door to access the electrical panel.

Electrical connections must be done by a qualified professional. Observe all current Directives, notably the European Low Voltage Directive. Customers in France must observe standard NF C 15-100.

WARNING
Contact with voltage may result in serious injury or death.
Install all equipment and complete all wiring work before turning on the power.

WARNING
Improper installation can result in incorrect gas level readings or system failure.
Carefully follow all instructions to ensure proper system operation.

3.3.1 Main power supply

Test the current and voltage running through a network before making any connections. Never connect the device without first disconnecting the power supply. The central controller does not have an on/off switch.

Protect the central controller from upstream current with a 4A bipolar differential circuit breaker with a type D response curve. This circuit breaker must be included in the electrical installation of the building and must be placed near of the device and must be available for the operator. On the circuit breaker will be indicated that it is the circuit breaker of the device.

Main power supply 100-240VCA: connector terminals L, N, and PE of the power supply 24V (Fig 3) for wall-mounted version or see connector picture 4 for rack version..

Pre-cabled wires are used to connect to the 24 VDC power supply module. The transformer output connector is also hardwired to link to the 24 VDC central controller connector and to the (optional) integrated printer for the rack-mounted version.

3.3.2 Grounding the central controller

The central controller is intended for use in areas that meet the Class II requirements for overvoltage and degree of pollution as per EN IEC 60947-1. In order to comply with the standard, the internal ground terminal *must* be grounded (Fig 3).

3.3.3 Digital lines

The various digital modules are connected with "Bus" connectors (Fig. 5). Recommended cable: RS-485: 2 shielded twisted pairs, 100 Ω.
One pair is used to power the module, and the other is used for communication. The cable shield or tress should be connected to the terminal: ⏚

Data wires and the schield wires should be cut as short as possible.

3.3.4 Internal relay dry contacts

The RCT dry contacts for the 3 internal relays R1, R2, and R3 are available on the CPS central controller motherboard on connectors J23, J24, and J25 (Fig. 7).
Working load: 2 A at 250 VAC, 24 VCC.
Associated alarm type: R1 (alarm/fault), R2 (alarm), R3 (alarm).

3.3.5 RS-485 serial link out

Recommended cable: RS-485 cable: 1 shielded twisted pair, 100 Ω.

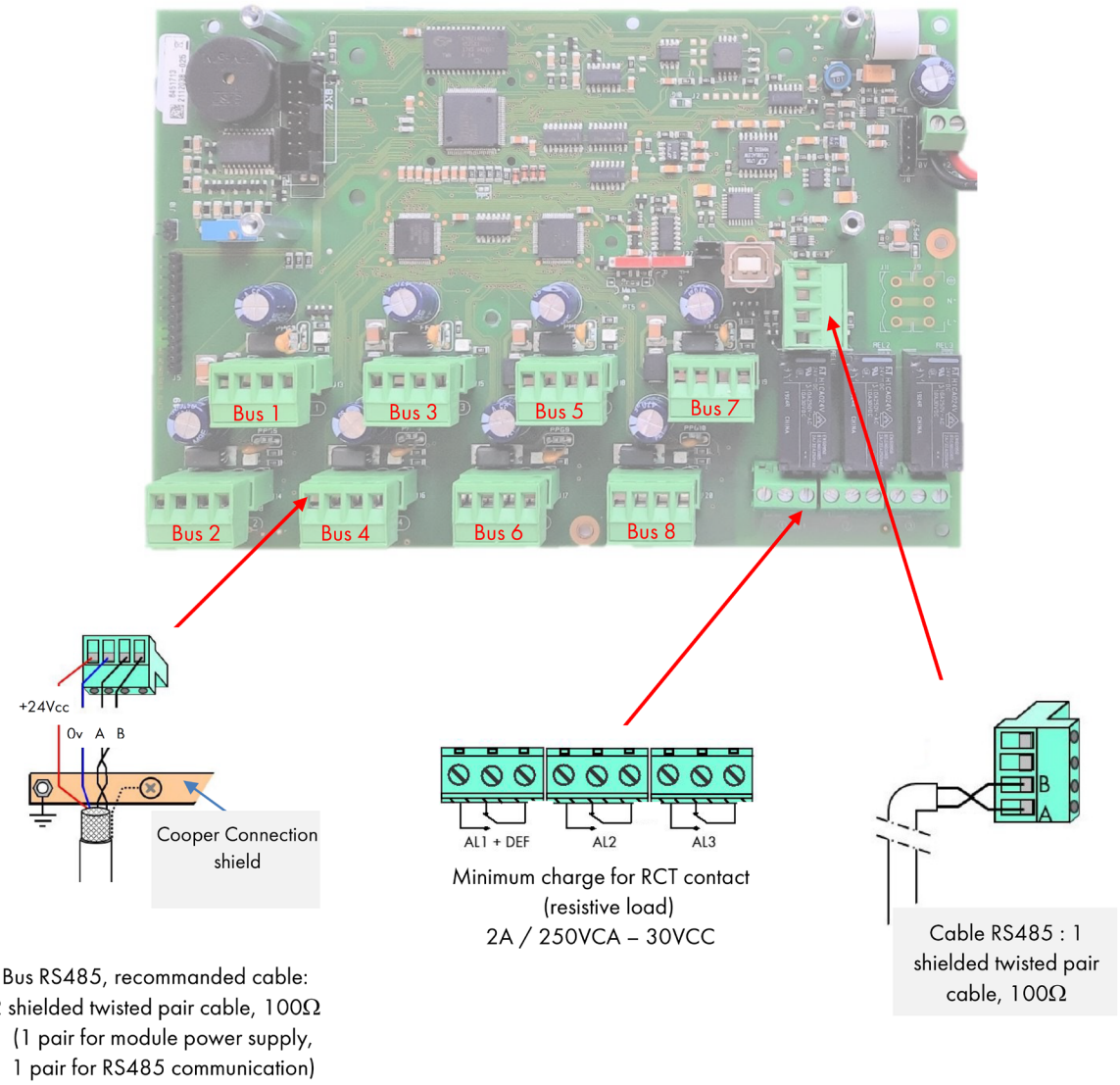


Figure 9

3.3.6 Inspecting the digital buses

Bicolor (red/green) LEDs located above each line start, on the motherboard, allows for inspection of the bus links as follows :

LED appearance	Status
Red + Green LEDs lit (LEDs blink rapidly, almost imperceptibly) **Orange** in appearance	Normal operation. Red LED→ question Green LED ← response
Red LED blinks once per second (green LED is off) **Red** in appearance	Communication fault. Missing or faulting module.
Irregular blinking	Poor communication quality
Both LEDs off.	No active modules

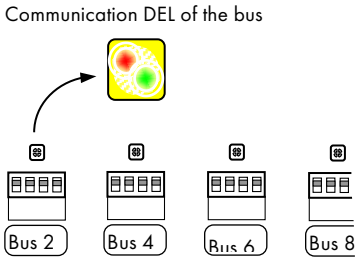


Figure 10

3.3.7 Mini-switches

Mini-switch A allows the CPS controller to download and read the user program. When the switch is in the "MEM" position (open padlock), the user program memory is accessible and the message "switch open" is displayed on screen. The CPS central controller waits to download the program from the *COM*_CPS software. The CPS central controller goes into "shut-down" mode when mini switch A is in the "MEM" position.

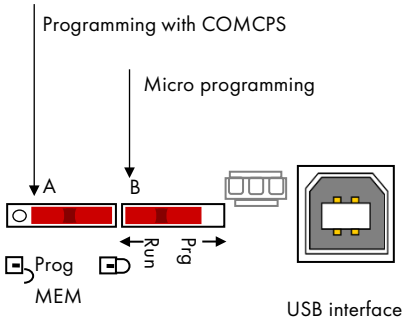


Figure 11

When the *COM*_CPS software programming is complete, the mini switch should be flipped back to the "Prog" position (closed padlock), and the central controller should be rebooted to initialize all of the newly loaded settings.

Mini-switch B only used for the central controller's internal microprocessor. It should always be in the "Run" position.

3.3.8 *COM*_CPS Internal relay and buzzer

The CPS central controller is equipped with **3** internal **relays [R1, R2, R3]** and a shared **Buzzer**. The operating settings for the relays and the buzzer can be set with the *COM*_CPS software (see table below).

The internal buzzer is activated when a specific program-defined event occurs (fault or alarm). All lines share relays R1, R2, and R3.

The buzzer's pitch will vary according to the alarm threshold. Alarms 1 and 2 have the same frequency. Alarms 3 and 4 have a different pitch, allowing the operator to distinguish between alarm levels.

The buzzer can be disconnected by removing the "buzzer activation strap" (J10) located on the motherboard next to the buzzer (cf -: Overview of the Motherboard).

Function / Component	Relay R1	Relay R2	Relay R3	Buzzer
AL 1	X	X	X	X
AL 2	X	X	X	X
AL 3	X	X	X	X
AL 4	X	X	X	X
Module error	■	X	X	X
System fault*	■	X	X	X
Out of Range and Fault	X	X	X	X
Positive security	■	X	X	■

* : (System fault) alarm is triggered if there is a communication fault between modules, a short-circuit in a power supply line, or a module inversion.

X: Function can be activated or deactivated

■ : Default configuration setting, cannot be changed by user.

3.3.9 USB / RS-232 serial connectors

The CPS central controller is equipped with a serial port which are used to:

- download the user software (see COM_CPS instructions);
- program the integrated micro application according to the position of mini switches on the board (factory setting).

The serial port has 2 interfaces: USB and RS-232. Only one can be used at a time.

The settings for the central controller can be modified after the program has been created. (Use either the USB or RS-232 adapter to connect the PC to the CPS central controller (See Chapter 6.1).

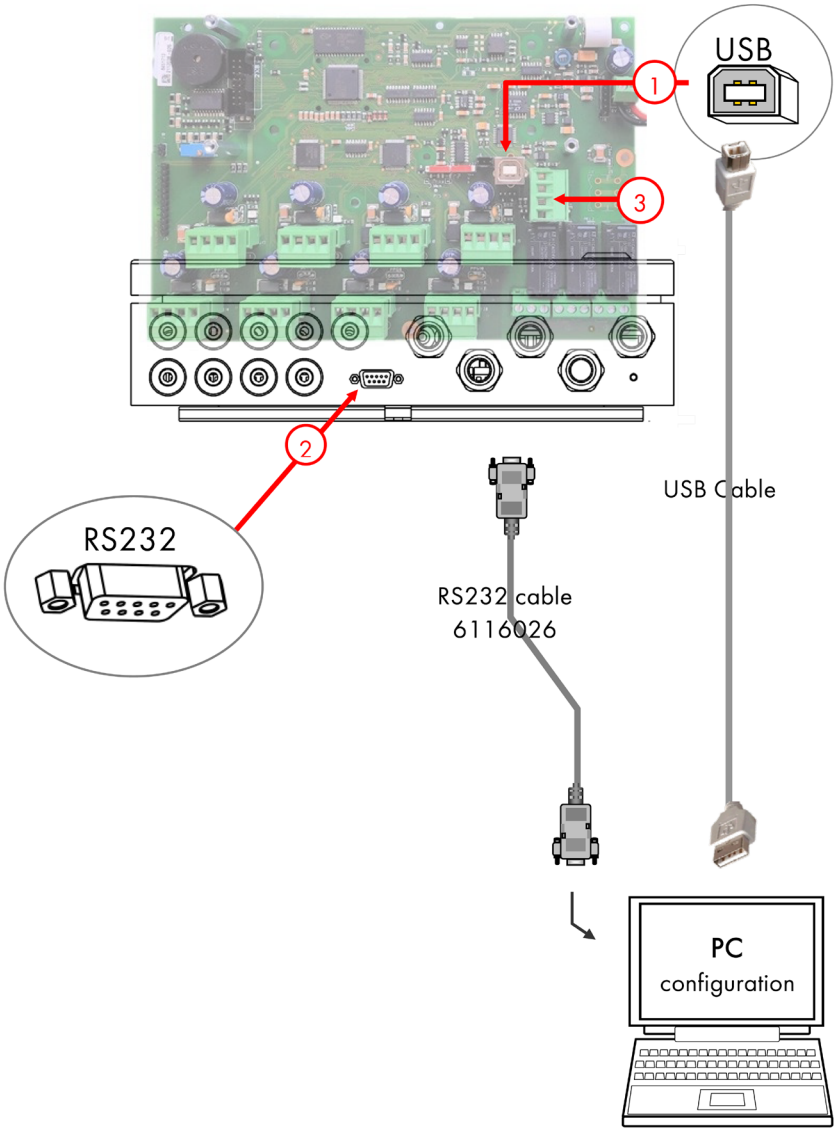


Figure 12

USB Interface (Rep 1,Figure 12)

Use a USB cable to connect the PC to the CPS central controller running the *COM*_CPS application.

The USB interface emulates a serial port and is preferable to an RS-232 serial connection.

The corresponding USB driver must be installed before the PC is connected to the central measuring station (see *COM*_CPS instructions).

SUBD9 RS232 Interface (Rep 2,Figure 12)

Use a cross-over RS-232 serial cable to load the user software.

RS-232 cable series reference number: **6 116 026**

A serial printer can be permanently connected.

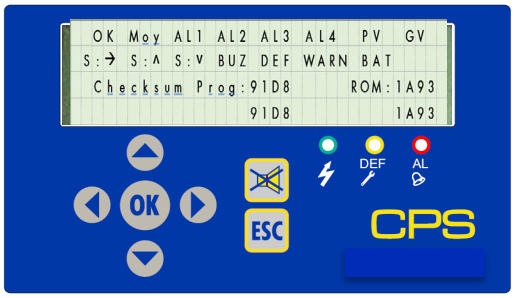
This would allow you to load the software via the USB interface without disconnecting the printer.

3.3.10 RS-485 serial connection

The RS-485 serial port (3) is reserved for the supervision system and is composed of an RS-485 interface using JBUS/MODBUS protocol.

A table containing all of the important information pertaining to the central controller can be found in the **corresponding annex of Chapter 8**.

3.4 The front panel circuit



The central controller front panel circuit is equipped with:

1 LCD display: backlit, 2 lines by 32 characters and a pictogram line for viewing sensor readings and the zone in question, various test point data, settings, events, etc.

3 lights on the front panel of the central controller (green for power, yellow for errors, and red for exceeding thresholds) serve as constant system status indicators.

7 keys to select on-screen information and/or validate certain operations via menus. The menus are available in English, French, German, Spanish and Dutch.

Display Screen	
OK	No alarms or errors
Moy	Icon associated with one or more alarm icons indicates (by blinking) that the associated alarm is an averaged alarm.
AL1	SOLID = instantaneous alarm 1 BLINKING = averaged alarm 1 (takes priority over solid state)
AL2	SOLID = instantaneous alarm 2 BLINKING = averaged alarm 2 (takes priority over solid state)

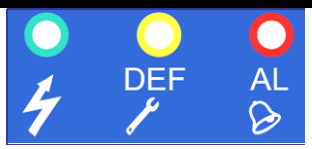
Keys	
▲ ▼	Keys primarily used to modify values (ex: line number)
◀ ▶	Keys primarily used to navigate menus or to change variable current (ex: go from line number to sensor number)
OK	Key used to validate a menu or an input that would alter system operation. (ex: activation of a relay)
ESC	Key used to return to a previous menu screen or to cancel a selected value before it has been validated.

Display Screen	
AL3	SOLID = instantaneous alarm 3 BLINKING = averaged alarm 3 (takes priority over solid state)
AL4	SOLID = instantaneous alarm 4 BLINKING = averaged alarm 4 (takes priority over solid state)
S:→	SOLID = stable signal in hysteresis interval (calculated over 1 minute)
S:∧	SOLID = signal increased in relation to the minute before BLINKING = Exceeding the scale (takes priority over solid state)

Keys	
	Key used to acknowledge a locked alarm (programmed for manual acknowledgement) or to dismiss a buzzer relay after its holding time, even if an alarm is still active.

Display Screen	
S:v	SOLID = signal decreased in relation to the minute before BLINKING = Negative fault (takes priority over solid state)
BUZ	SOLID = buzzer on
WARN	SOLID = Error
PV	SOLID = LS (low speed) relay control active
GV	SOLID = HS (high speed) relay control active
DEF	SOLID = calibration underway
BAT	SOLID = mains power supply OK BLINKING = battery or mains power supply problem

Lights



Green LED: power supply status indicator

SOLID = OK

BLINKING = power supply problem (no power to main or problem with the battery pack)

Orange LED : indicates the presence of one or more faults.

Red LED: signals the presence of one or more alarms.

3.5 COM_CPS Alarm thresholds

Six alarm thresholds can be programmed and adjusted for each sensor:

Alarm 1, Alarm 2, Alarm 3, Alarm 4, Out of Range and Fault.

Alarms 1 – 4 can be:

- **Instantaneous**;
- **delayed** (0 to 3,600 seconds);
- **averaged** (period of 1 to 480 minutes).

This makes it possible to calculate STEL and TWA values.

So, for example, you could choose to activate Alarm 1 if the average calculated levels over a period of *8 consecutive hours* exceeded *50 ppm*, and Alarm 2 if average levels over a period of *10 minutes* exceeded *100 ppm*, and Alarm 3 if the *instantaneous reading* exceeded *200 ppm*.

Averaged alarms are only triggered at the end of a complete time interval.

If the line or the detector module stops, average value calculations are halted and will only begin again once the line or the detector module has been reactivated.

Both the instantaneous and averaged alarms can be set to trigger on an increasing value (rising edge) or on a decreasing value (falling edge).

- **Rising edge**: alarm is activated when levels increase. Use this option for sensors measuring Explo, CO, H2S, etc.
- **Falling edge**: alarm is activated when levels decrease. Use this option for O2 sensors, for example.

Out of Range alarm: can activate an alarm, a relay, or an LED.

"Verification" option: this option is activated for explosive gases. When a "verification" alarm occurs, the level displayed will be frozen at the maximum value until it is acknowledged (manually or automatically) and on the condition that the gas levels have fallen under the alarm threshold.

Example of ventilator command functionality for CO/NO detection

Alarm threshold	CO (ppm)	NO (ppm)	RESPONSE
Alarm 1	50	25	Ventilators start on low speed
Alarm 2	100	50	Ventilators go to high speed
Alarm 3	150	75	Max speed ventilation + alarm lights in the surveillance area
Alarm 4	200	100	Visual & audible alarms + restricted area access + evacuation orders for individuals in the area

3.6 COM_CPS Alarm acknowledgement

Alarms can be rearmed in two ways:

Manual acknowledgement: the audible alarm can only be dismissed after the "Acknowledge" button on the CPS central measuring controller has been pushed; or

Automatic acknowledgement: the audible alarm will be automatically dismissed once the alarm condition has ended.

If an alarm is triggered, a corresponding message will appear on the screen, an audible alarm (BUZZER) is activated, and the red LED on the front panel is illuminated.

Touching the "Acknowledge" button once will remove the message from the screen and will turn off the BUZZER.

Touching the "Acknowledge" button a second time will re-arm the programmed alarms. These alarms will not turn off until the concentration of gas falls below the threshold.

Hysteresis (0 à 1%) : the hysteresis corresponds to the value, in% relative to the measurement range, below which the alarm can be cleared (automatically or manually).

4 Digital Modules

4.1 View of Digital Modules

4.1.1 SENSOR MODULE CPS 10

Part	DESIGNATION	CO	NO	NO2	EXPLO
A	CPS 10 SENSOR MODULE	6 513 591	6 513 592	6 513 593	6 513 594
1	CPS 10 SENSOR	6 798 301	6 113 331	6 113 332	
2	CPS 10 BOARD	6 451 597	6 451 598	6 451 599	6 451 600
3	SENSOR WASHER	6 136 243	6 136 243	6 136 243	

Part	DESIGNATION	
4	Power supply & network connector	
5	Configuration switches (Adresses)	
6	Calibraton LED	
7	Button [sensor replacement]	
8	Measurement connector [sensor replacement]	
9	Sensitivity adjustment [sensor replacement]	
10	Zero adjustment [sensor replacement]	
11	6153046	CPS 10 Magnetic switch
12	6136052	D2 line washer (qty : 0.316)

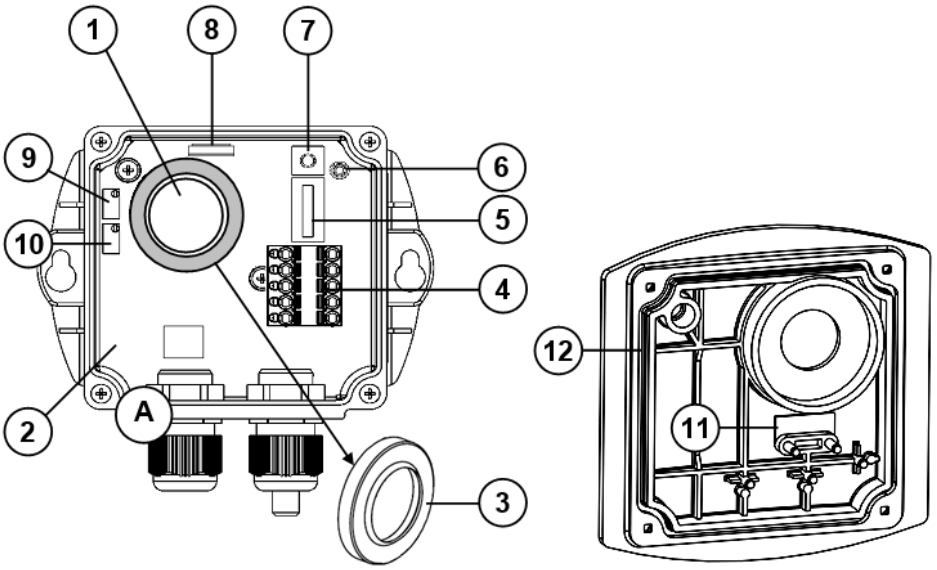


Figure 13

4.1.2 RELAY MODULES CPSRM4-CPSRM8

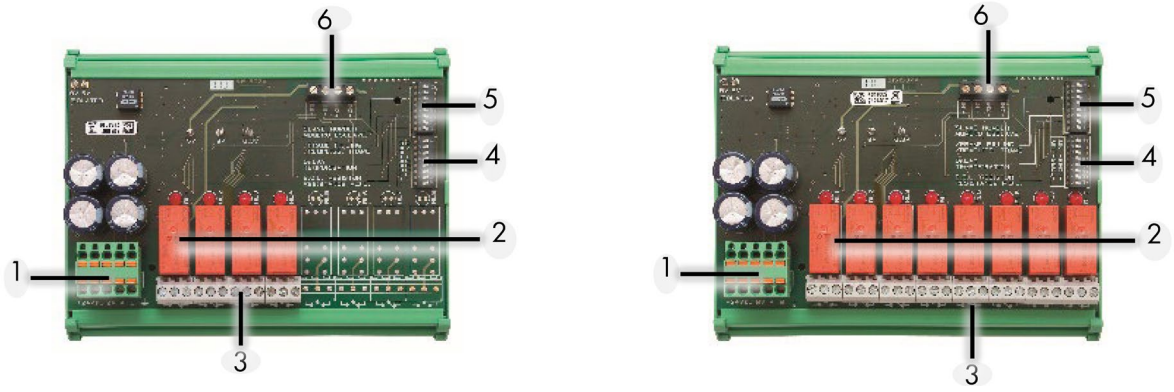


Figure 14

Designation	CPS RM4	CPS RM8
P/N	6313962	6313963

Par	Designation
1	Power supply & network connector
2	Programmable relays (8 or 4)
3	potential free RTC output contact
4	Safety switch + or - relays
5	Configuration switches (Adresses)
6	Logic Input terminals (2 Inputs)

4.1.3 LOGIC INPUT MODULE

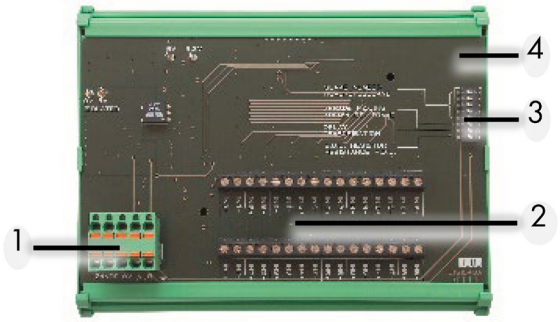


Figure 15

Designation	16 Logic input module
P/N	6313964

Part	Designation
1	Power supply & network connector
2	Logic input terminal (16 Inputs)
3	Configuration switches (Adresses)
4	Module board

4.1.4 ANALOG OUTPUT MODULE

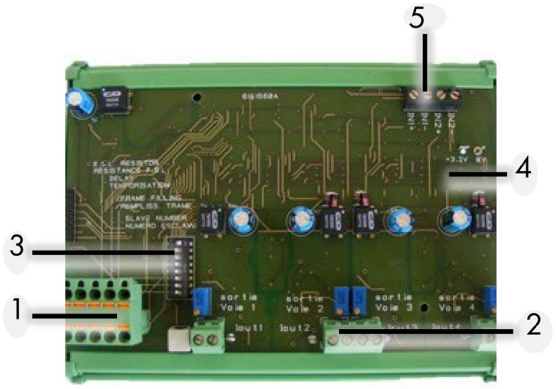


Figure 16

Designation	4 analog output module
P/N	6313980
Part	**Designation**
1	Power supply & network connector
2	Analog output terminal (4 outputs)
3	Configuration switches (Adresses)
4	Module board
5	Logic Input terminals (2 Inputs)

4.2 Connecting Digital Modules

4.2.1 General topology of the RS-485 network

Modules are connected in "parallel" in the RS-485 network, comprised of a 1 twisted pair cable for signals, 1 or more pairs to supply power to the modules, and 1 shield wire.

A 120 Ω end of line resistor (**EOL RESISTOR**) should be placed at the last module in the line, at the end of the bus (see § **Erreur ! Source du renvoi introuvable.**).

The modules are equipped with a double connector, which can be split to easily connect conductors and also allows you to isolate the module while maintaining line continuity.

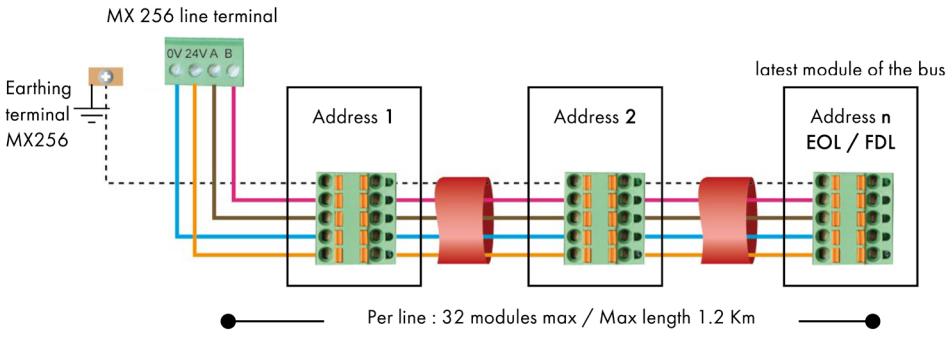


Figure 17: NETWORK RS485

4.2.2 Wiring the digital network

An improper installation can cause incorrect gas level readings or system failure.

Do not run cable near equipment such as motors, transformers, or any lines generating a large magnetic field.
Always check to ensure that the cables are completely separated from other circuits.

The sensor module has two cable glands. One connects to the input wire, and the other connects to the output wire which is routed to the next module.

The modules should be wired with RS-485 shielded twisted pair cable, with a normal impedance of 100 , of at least 0.22mm² in diameter. +24VDC, 0V A and B terminals are linked to +24VDC, OV terminals A and B in other modules in the line, and then linked to the connector corresponding to the central controller. The cable shield should be connected to a ground terminal marked with the following symbol: ⏚ (Figure 17).

Do not leave any stripped wire ends exposed. To guard against electromagnetic disturbances, the data cables and the screen (tress) cables ⏚ should be cut as short as possible .

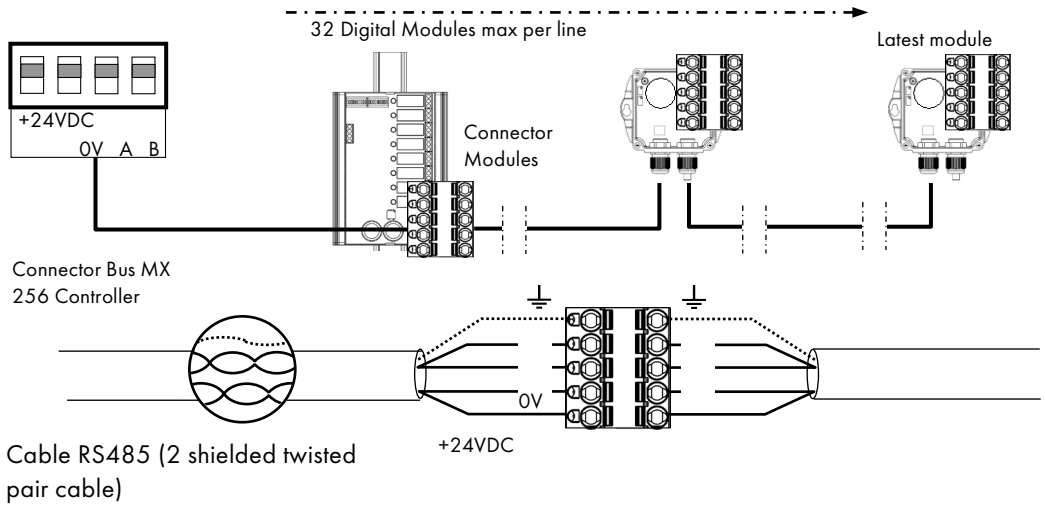


Figure 18: Digital line wiring

4.3 Configuring the communication settings

4.3.1 Slave address

All modules in a line should be identified with a unique slave number. Switches 1-5 on the Configuration Switches unit (**Figure 19**) contained in each module, allow you to set a binary numerical address (1...32)..

n the illustration to the right, the address 9 (10010) has been defined.

Possible combinations are listed in the address table below.

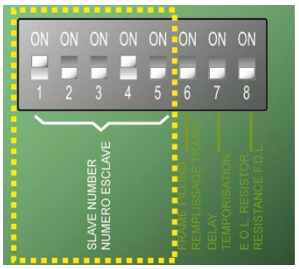


Figure 19 : interrupteurs de configuration

.

Address Table

Slave Address	SWITCHES ON = 1 ; OFF = 0				
	1	2	3	4	5
1	1	0	0	0	0
2	0	1	0	0	0
3	1	1	0	0	0
4	0	0	1	0	0
5	1	0	1	0	0
6	0	1	1	0	0
7	1	1	1	0	0
8	0	0	0	1	0
9	1	0	0	1	0
10	0	1	0	1	0
11	1	1	0	1	0
12	0	0	1	1	0
13	1	0	1	1	0
14	0	1	1	1	0
15	1	1	1	1	0
16	0	0	0	0	1

Slave Address	SWITCHES ON = 1 ; OFF = 0				
	1	2	3	4	5
17	1	0	0	0	1
18	0	1	0	0	1
19	1	1	0	0	1
20	0	0	1	0	1
21	1	0	1	0	1
22	0	1	1	0	1
23	1	1	1	0	1
24	0	0	0	1	1
25	1	0	0	1	1
26	0	1	0	1	1
27	1	1	0	1	1
28	0	0	1	1	1
29	1	0	1	1	1
30	0	1	1	1	1
31	1	1	1	1	1
32	0	0	0	0	0

Notes:

The physical address of a module (1...32) should be identical to the address recorded in the controller configuration program with *COM256*.

When replacing a module, set the configuration switches in the new module to the same position as those of the module being replaced.

Switches 6 (FRAME FILLING) and 7 (DELAY) should be in the OFF position (unused options)

4.3.2 End of line resistor

The last module in each line should be equipped with an end of line resistor.To connect the resistor, flip the number 8 configuration switch (EOL RESISTOR) of the last module into the ON position.

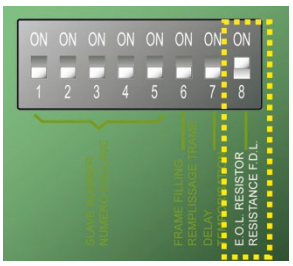


Figure 20: Configuration switch

This switch should be in the OFF position for all other modules in the line

4.4 CPS 10 Detector Module

The CPS central controller accepts 10 types (or 10 different configurations) of sensors. The type of sensor used in the module depends on the gas being monitored. Electrochemical sensors are used to measure CO, NO, NO_2, for example, while catalytic sensors measure gases such as GPL, CH_4, and H_2).

Available Detector Types

Sensor			Measurement range		Sensor life expectancy
Carbon monoxide	CO	:	0 ... 300	ppm	36 months
Nitric oxide	NO	:	0 ... 100	ppm	24 months
Nitrogen dioxide	NO_2	:	0 ... 30.0	ppm	24 months
Methane	CH_4	:	0 ... 100	% LEL	48 months
Liquefied petroleum gas	LPG	:	0 ... 100	% LEL	48 months
Hydrogen	H_2	:	0 ... 100	% LEL	48 months

Sensor module fault

In the event of a sensor module fault, gas levels are no longer taken into account, and all alarms are cancelled, except for the negative threshold (or fault) which is activated. Average values are no longer taken into consideration and the calculation of average values is paused.

If a sensor faults, it can be replaced while the central controller is still running (hot swap) without replacing the detector.

4.4.1 Detector settings

The following settings apply to each type of detector:

- **The abbreviated name** to be displayed on the central controller: NO, CO, CO2...

- **The name of the gas**: Carbon monoxide, Nitric oxide, Oxygen, Methane ...
- **Unit**: ppm, LEL, %v/v ...
- **Range with display format**: 100, 10.0, 1.00, ...
- **Actionable thresholds**:
  - 4 instantaneous thresholds: 0-100% measuring range,
  - 4 averaged thresholds: 0-100% measuring range, (time interval programmable from 1 to 480 minutes).

If the operating time is inferior to the averaging time interval, the averaging time interval is ignored.

An instantaneous threshold is associated with an averaged threshold to generate an alarm. These two thresholds can be set to trigger on the rising edge (increasing alarm) or the falling edge (decreasing alarm).

- **Alarm delays** (0s to 60 min):

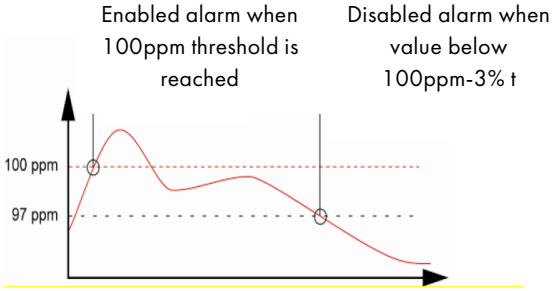
Each of the 4 alarm thresholds can be delayed. If gas levels are in excess of an alarm threshold for an amount of time inferior to the programmed delay, the alarm will not activate.

The alarms can be acknowledged automatically once the alarm is turned off, or manually when the gas levels are once again under the threshold.

- **Fault thresholds:**
  - "**underscale**" negative signal (exceeding the lower threshold): -10% of the range.
  - "**SUP**" out of range (exceeding the upper threshold): +120% of the range.
  - "**Verification**" for all explosive gas sensors, in case an LEL threshold is passed, the SUP alarm remains on even after levels fall under the threshold. The fault alarm is also triggered
- **Hysteresis :**

Max. 1% of range. Default value= 0%.

Example (see opposite page):
Measurement range = 300 ppm; Alarm = 100 ppm
Hysteresis (1% of range) = 3 ppm
Level at which alarm can be dismissed = 97



4.5 External relay module

The relay module is available in two versions: CPS RM4 (with 4 relays) and CPS RM8 (with 8 relays). It also has two logic inputs (LI) which can be activated.

In maximum configuration, the CPS can manage 256 relays (ex: 32 modules with 8 relays each). For more information about the logic inputs: see: Logic inputs module.

The relays are individually programmable. The operation of each relay depends on its configuration and its function.

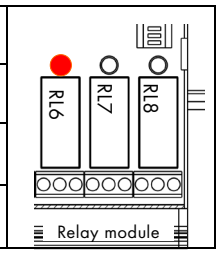
Each of the 6 sensor alarms [AL1 - AL2 - AL3 - AL4 - Out of Range - Fault] can control one or more of the 256 relays. Several events can be linked to one relay.

In case of a module relay fault, all relays of this module are restarted.

The CPS central controller will change the relay status unless they belong to a different module type. Restarting will resolve the problem.

4.5.1 Relay status lights

Each relay has a red LED to indicate its status	
Red LED appearance	Status
DEL lit	Activated relay (alarm condition exists)
DEL off	Non-activated relay (no alarm condition)



4.5.2 "Positive/negative" relay security

In addition to switches of CONFIGURATION, RELAY MODULES INCLUD SWITHCHES OF POISITVE AND NEGATIVE SECURITY CONFIGURATION. Flip the switch to **ON (positive security)** or **OFF (negative security)** as desired. Each switch acts on its corresponding relay (switch 1 → relay RL1, switch 2 → relay RL2, etc.). (Fig. 11).

Note: Only switches 1-4 are active in the CPSRM4 module.

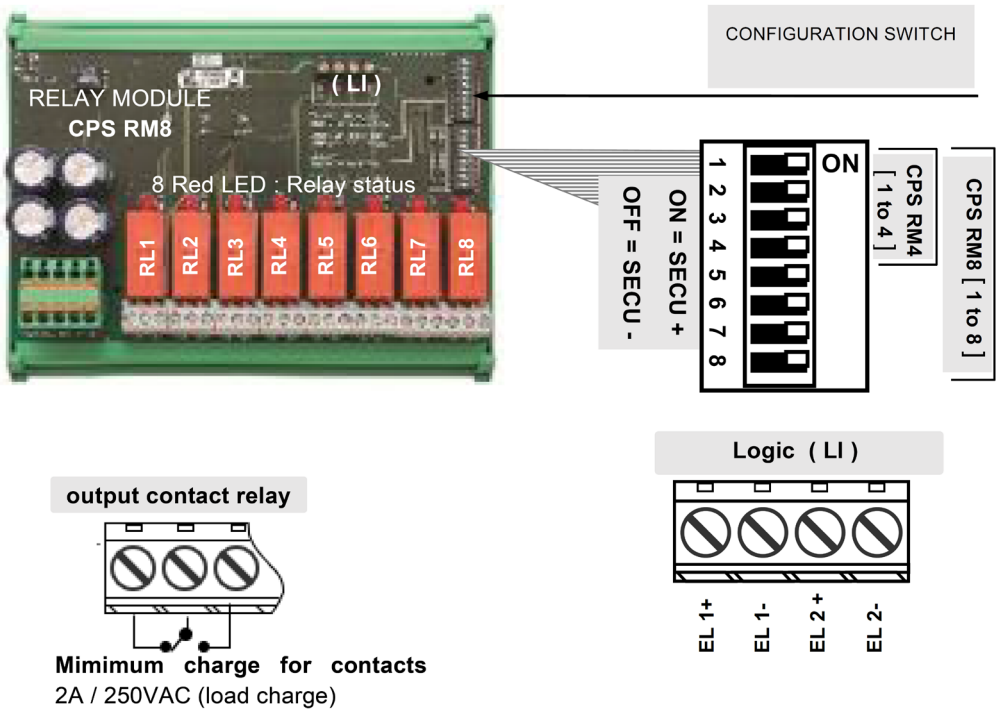


Figure 21: positive / Negative relay Security

4.5.3 *COM_CPS* Configuration des relais

"Normal" relays

The relay is activated when an alarm occurs and is deactivated when the alarm condition ends.

The variables acting on a relay in alarm status are:

- Alarm delay
- Automatic / Manual acknowledgement
- Forced state change via the CPS menu
- Forced state change via a logic input command

"Buzzer" relays

The "Buzzer" relay is used to control an audible alarm.

It can be re-armed with the [**Acknowledge**] key on the central controller, even if the alarm condition has not changed.

The occurrence of a new alarm will reactivate the relay and reset the delays.

The "Buzzer" relay can be automatically dismissed before the end of the alarm with a 15 to 900 second delay (standard setting for "Buzzer" relays) or manually, even if the alarm condition has not changed. It can be configured with a minimum operating time of 1 sec. to 5 min.

The variables acting on a relay after an alarm has occurred are:

- Alarm delay
- Automatic / Manual acknowledgement
- Forced state change via the CPS menu
- Forced state change via a logic input command

Alarm and/or "Buzzer" relay delays

Alarm delays		Relay delays
		"**Buzzer modes**"
Instantaneous Alarms 1 ... 3600 seconds	Averaged Alarms 1 ... 480 minutes	Min. activation time: 0 ... 300 seconds Acknowledgement time: 15 ... 900 seconds
Standard settings for each sensor type		Standard settings for all "Buzzer relays"

"LS/HS" Relays

Low speed (**LS**) relays and high speed (**HS**) relays are always used together, allowing you to control a parking facility ventilation system at two speeds.

LS (low speed) : The relays are designed to control slow ventilator speed (star-triangle configuration for a two-speed ventilator).

HS (high speed) : The relays are designed to control high speed ventilator speed (star-triangle configuration for a two-speed ventilator).

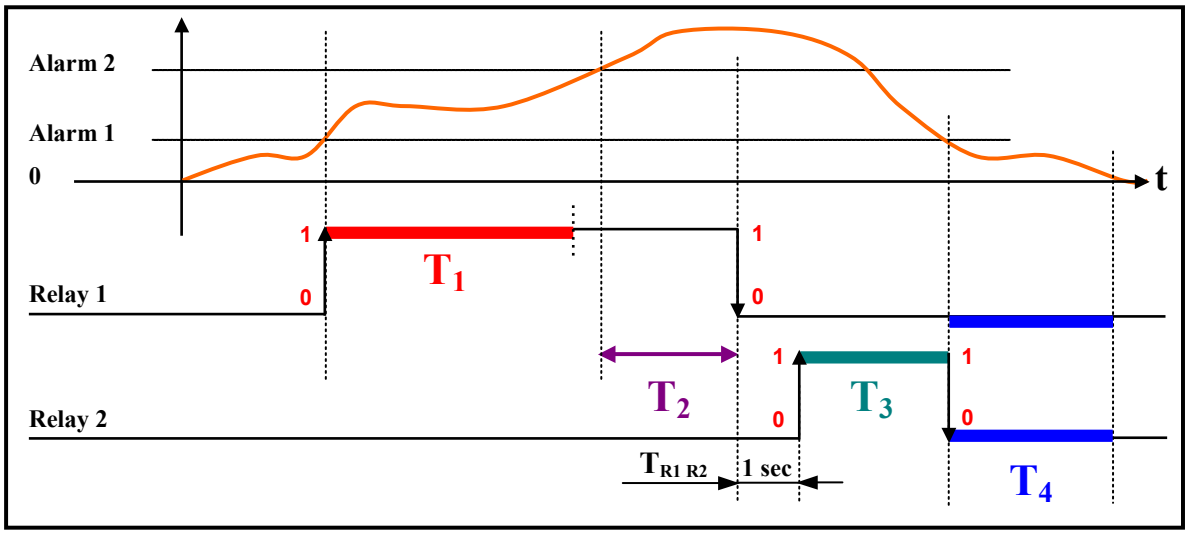
The working logic of the relays defined hereafter, takes into consideration the start-up and shut-down intervals during which very high levels of current may occur, capable of damaging motor windings if phases occur in the incorrect sequence.

"LS / HS" Operation

Requirements: Alarm level 1 < Alarm level 2

The LS relay is activated by Alarm 1

The HS relay is activated by Alarm 2



Phases		Action operation	Default Delay*
T_1	Min. duration LS operation Adjustment(s): [1 ... 32767]	Minimum duration, in seconds, during which the ventilator operates at low speed	5 min.
T_2	HS operation delay Adjustment(s): [2 ... 32767]	Minimum duration for Alarm 2, after which the ventilator switches to high speed	15 min.
$T_{R1\ R2}$	LS/HS transition time 1 second (cannot be changed)	Transition time between Relay 1 and Relay 2 is 1 second (standardized throughout the central controller)	1 sec.
T_3	Min. duration HS operation Adjustment(s): [1 ... 32767]	Minimum duration, in seconds, for the ventilator to operate at high speed. HS relay deactivated if Alarm 1 condition ends	10 min.

Phases		Action operation	Default Delay*
T_4	LS-HS stop delay Adjustment(s): [1 ... 32767]	Duration, in seconds, after low or high speed ventilator operation has been stopped, before the ventilator can be restarted at low speed.	10 min.

Time values T_1, T_2, T_3 and T_4 can be modified. When the "**Sensor simulation**" menu is used (see the chapter on the maintenance menu/simulation on page 43) the times are decreased, by default, to 12 seconds, 24 seconds, 36 seconds, and 24 seconds, respectively.

Note: An underscale alarm (= fault) activating a LS or HS relay will force the relay into HS position (with respect to the defined time).

"Forced ventilation" function

This is a forced relay state change via the CPS menu. This function allows you to block or release the HS (high speed) command at specified times.

Forced relay state change via a logic input command

In both cases the response is immediate and priority safety settings are maintained: HS takes precedence over LS, and both relays are shut-down if there are contradicting signals.

4.6 *COM*_CPS Logic Input Module

This module contains 16 logic inputs, linking priority commands, such as fire extinguishers directly to the central controller.

A maximum of 224 total logic inputs across all modules can be activated.

Example 1: 112 modules having 8 relays each, with activated inputs.

Example 2: 7 modules with 16 logic inputs with activated inputs.

Each input can override all other commands to activate or block up to 256 relays.

Priority inputs

Two levels of input priority can be managed on each module with the *COM*_CPS software.

Priority inputs have control of the other inputs (all of the non-priority inputs are "blocked" when a priority input is activated).

In the event that two different inputs of the same priority level send contradicting orders, the relay is shut-down.

In the event of a fault, the inputs are set to zero.

However, other logic input priority levels are added to them. Here is the list of entries, from the highest priority to the lowest priority :

- Supervision remote screen Input
- Priority logic Input
- Logic Input
- Control from the control unit keypad or forcing relays via supervision
- Module alarm / fault

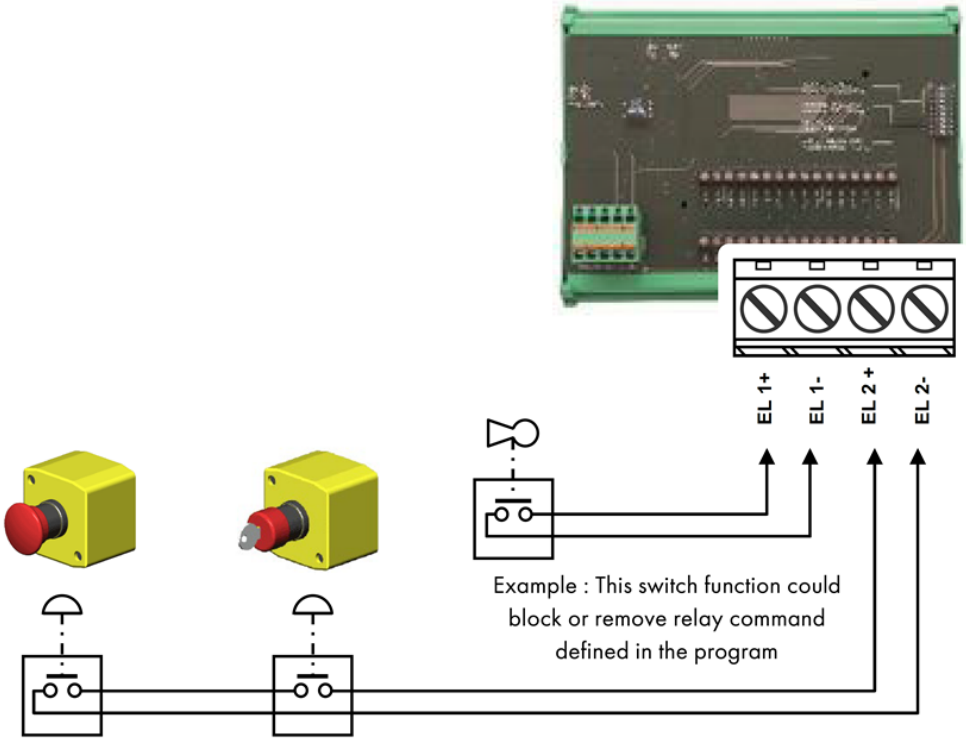


Figure 22: Logic Input Module

4.7 COM_CPS Analog Outputs Module

This module is comprised of 4 opto-isolated 4-20 mA analog outputs which can be individually activated or deactivated.

Activated: the output analog signal (4-20 mA) varies, according to the input

Deactivated: the analog output signal will be frozen at 0mA, regardless of the input signal.

Several events can be linked to one output. In this case, the largest analog value will be recopied onto the analog output.

The output module also has two logic inputs (LI), identical to those on the "Logic input" module.

A "slave address" for the module can be set with the "DIP" switch (DIP1).

An analog output OFF command from the central controller corresponds to 4 mA.

An analog output ON command from the central controller corresponds to 20 mA.

Example of use with analog output module

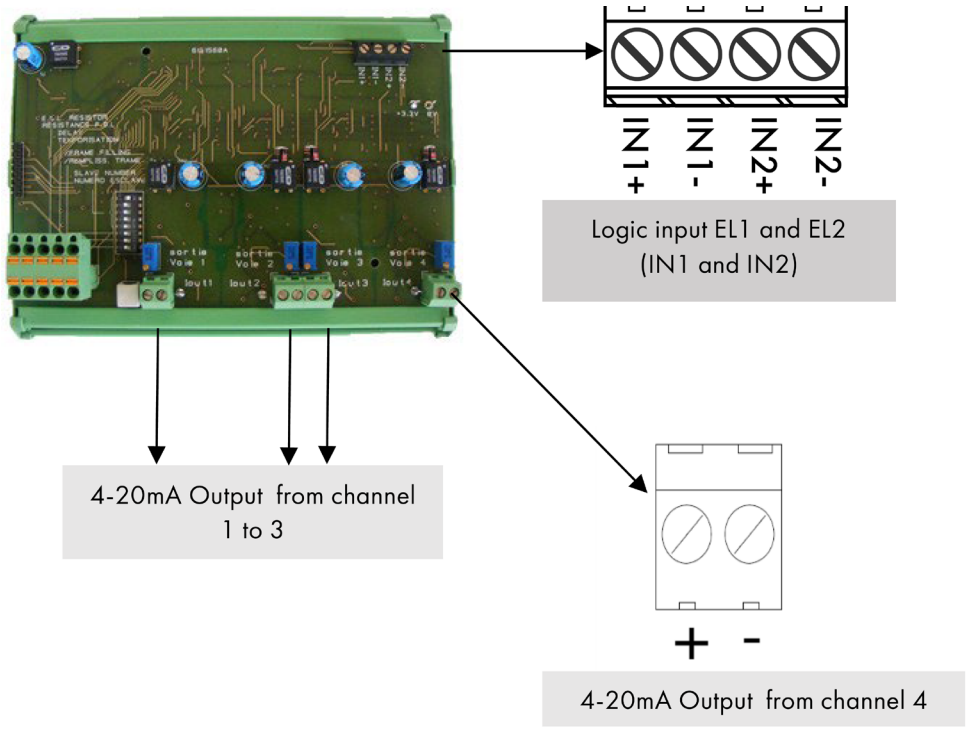
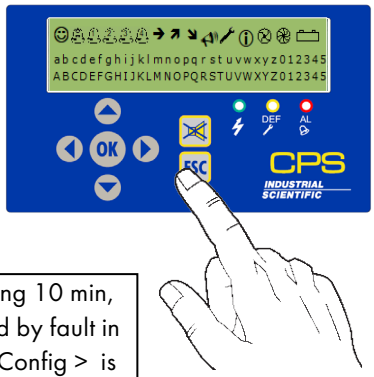


Figure 23 : Analog output module

5 Detailed Menus

5.1 Menu Tree



Start Display

Events

Cycle

Starting

ESC

If a button is not pushed during 10 min, the display mode, determined by fault in the menu < System > < Start Config > is automatically used

Control

OK

ESC

Scan& Display

Sensor Display

Events

Relay status

Status 4-20mA

Print

OK

ESC

Cyclique

Événements

Event Print

ON/OFF printer

Module status

All module status of line

Printing System status

OK

ESC

System

OK

ESC

Activation Line, Module, relay
[XXXX acces]
(Activate : Line - module - relays - 4-20mA output)

Date and Hour

Start Config.

Maintenance

OK

ESC

Simulation

Module Control

Bus default

Maintenance reset

OK

ESC

XXXX acces

4-20mA output

Relay status

One sensor

OK

ESC

OK

ESC

Version COM_CPSF

OK

ESC

[XXXX acces

Infos Modules
Status
fault
Measures
Temperature
.....

.....
POWER SUPPLY
CRC
DAY NUMBER
SINCE LATEST
CALIBRATION

.....
Ref. Module
Rate of
overscale

.....
Visualisation
retry
.....

.....
[xxxx acces]

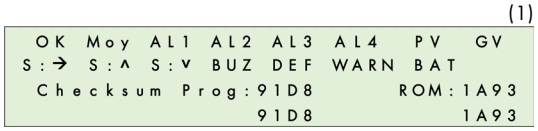
Reset retry module

Installation CPS
Reset for calibration
calculation and overscale

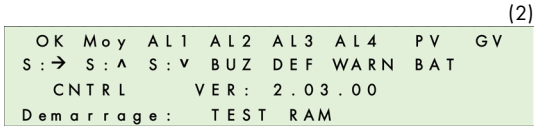
5.2 Start-up Phase

No faults or alarms are processed during the first minute after start-up. During this phase, the controller runs a Checksum test (1), a RAM test (2), a line start-up (3) and a module mapping test

(1)



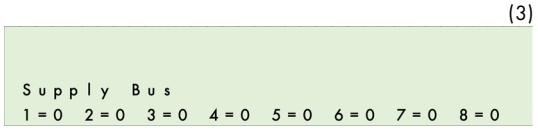
(2)

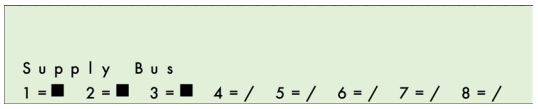


with a program stored in its memory

Voltage builds progressively in the lines. Progress bars show the overall progress for line power-up.

(3)



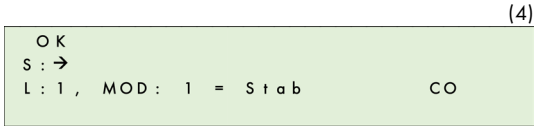


Only the power-up of activated lines is shown (identified by a diamond " ◇ " during the initial power-up phase, and by a black square " ■ " at the end.)

An exclamation point " ! " indicates a short-circuit line fault. The line can be reactivated through the menu system

Next, a sensor stabilization phase occurs (4) during which time, the alarms are deactivated

(4)

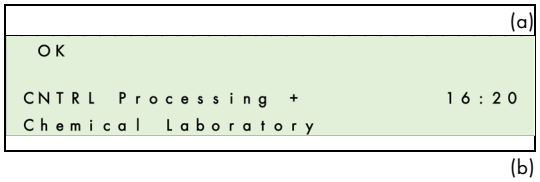


An inspection phase immediately follows in order to verify that the configuration program set with the *COMCPS* software correctly maps to the modules installed and activated.

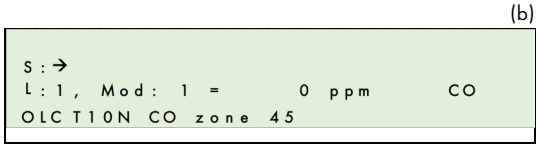
If no errors are found, the program runs normally. If errors are detected, the modules in question will be flagged as faulting

After the start-up phase, the screen will display information pertaining to the selected mode: events (a) or cyclic (b). The controller begins to process data coming in from the various modules

(a)

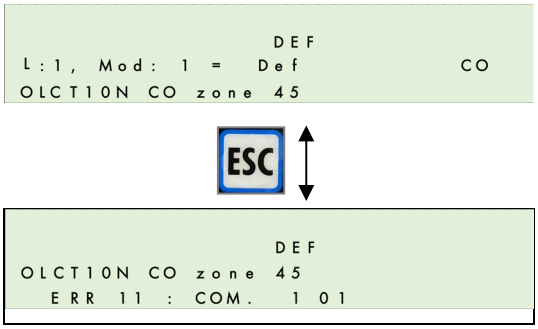


(b)



In cyclic display mode, when no alarms are triggered the levels from each sensor are displayed on the first line of the display screen.

In case of a power outage, the program configuration will be saved. When the controller is turned on, the last program installed by *COM256* will be loaded.



If a sensor faults, the message "Def" will replace the reading value. If the power supply is interrupted within a line, the two points in front of that line will blink. Identify the problem by touching the [ESC] key to display the error message.

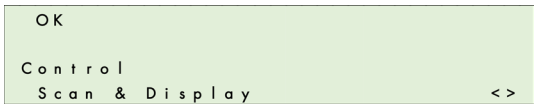
If the gas level exceeds a high or low threshold, "Ovs" will appear on the display screen where the value for that sensor would normally appear. This message will display simultaneously with a blinking arrow (pointing up or down, depending on the situation).

5.3 Control Menu

5.3.1 Normal Display

Alarm pictograms will appear and disappear in along with the alarm conditions detected by a given sensor. The display shows gas level readings, which may not always be identical to the status of a relay. Under normal conditions, alarm pictograms reflect relay status.

Example: LS and HS relays are configured to run on a delayed trigger. Pictograms do not take this delay interval into consideration. So it is possible that the LS or HS relay is on, while the alarm pictogram does not display on screen, due to the alarm delay.

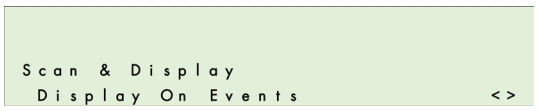


Cyclical display

This menu allows you to view all of the activated sensors on screen, at a display rate of one sensor every two seconds.

Event display

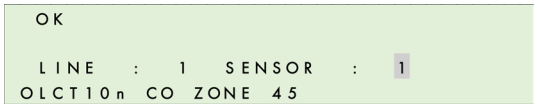
This menu allows you to view the status of all sensors in alarm mode, faulting, or in calibration, at a rate of one sensor every two seconds.



5.3.2 Sensor Display

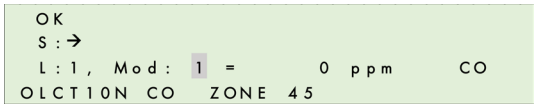
This menu allows you to freeze the display on a specific sensor by selecting the line and the module number (The program automatically selects active sensor modules).

Touching the [**OK**] key once will bring up the sensor name, the abbreviated gas name, the gas level and unit of measure (ppm, % LEL, $v/v).



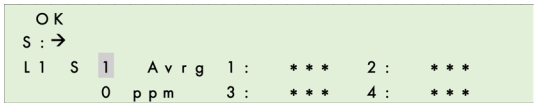
If the sensor is faulting, "Def" will display in place of the level reading.

Select the line or the sensor (if appliable) using the [◀] [▶] (horizontal) keys.



Select the line number or the sensor number (if appliable) using the [▲] [▼] (vertical) keys.

Press [OK] to select the sensor.



Press [OK] a second time to display both the gas reading level and the 4 averaged readings if average readings were activated. If averaging was not activated, < *** > will display on screen.

If a communication fault occurs, the value will be replaced by < *** > and the averages will stop on the last calculated value.

For all other faults, the gas level will be displayed in order to help the user identify the problem.

5.3.3 Events

This menu can be used to search through a history of the most recent 1,200 events. State changes are recorded in the history.

If Alarm 1 ends and Alarm 2 is triggered, AL2 ON will be recorded

Examples:
(a) The shut-down of a line causes the shut-down of alarms and relays for that line.
(b) The "fault" alarm is triggered for module 3, line 1.

Other examples:
Module 2, line 8 turned on
30/06/06 (day/month/year) 14:40:36 L:8, Mod:02
Module ON

Alarm 2 triggered

30/06/06 14:49:37 L:8, Mod:02

Alarm 2, OFF ⇒ ON

State change for Relay 2 (command relay)

30/06/06 14:49:37 L :8, Mod:29

Relay 2 Normal ON

Conditions for Alarm 2 end

30/06/06 14:51:03 L:8, Mod:02

Alarm 2, ON ⇒ OFF

Acknowledgement action

30/06/06 14:55:21

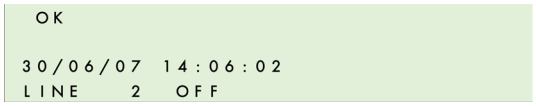
ACKNOWL

State change for Relay 2 (relay shut-down)

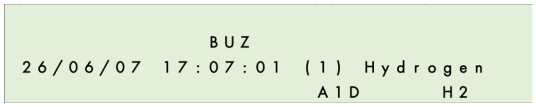
30/06/06 14:55:21 L :8, Mod:29

Relay 2 Normal OFF

(a)



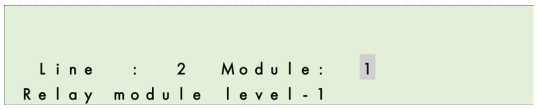
(b)



5.3.4 Relay Status

This menu displays the status of a relay in a given module. Increments for the preceding and following modules in the line are automatically calculated.

Display the status for the selected relay by pressing the [OK] button. This screen will show the module, its mode of operation (Normal, Buzzer, LS, HS,...) and its status (ON, OFF).



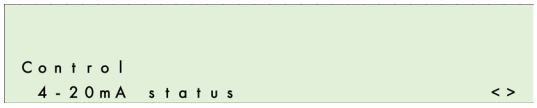
(a) : (LS / HS) - Delays

(a) : (Buzzer Relay) - Acknowledgement time

(b) : (Buzzer Relay) - Min. activation

5.3.5 4-20 mA Output Status

This menu displays the outputs for the selected module. The value is displayed in mA.



Multiple inputs can be linked to one output. In this case, the largest analog value will be recopied onto the analog output.

Activated analog output: the 4-20 mA output signal varies according to the input.

Deactivated analog output: the 4-20 mA output signal will be frozen at 0mA, regardless of the input signal. The output current for each channel will vary between 0 and 24.5 mA.

5.3.6 Printing

"System status" Report

This menu is used to initiate the printing of system status reports. The second part indicates the fault status for all of the modules in each line. Each hexadecimal number corresponds to a module, with Module 1 being on the left, and Module 32 on the right.

0 = OK

1 = Communication error

2 = Module recognition error

4 = Fault triggered by a module fault word

x = (no programmed module)

If the system detects an abnormality in either the name or the range of a gas, the letter N will blink on the screen

"Status for all line modules" Report

Sensor module: the printed reports will contain both the reading and the averages if averages are activated.

Relay module: the printed reports will contain the status of each relay and of each relay's logic inputs.

Logic inputs module: the printed reports will contain the status of all logic inputs.

"Module status" Report

Prints the status of every module in the selected line. See previous paragraph.

"Printer On/Off" Report

Use the [▲] and [▼] keys to activate or deactivate the printer.

When the printer is activated, the COMCPS cannot be used to for reading or configuration. The configuration mini-switch (A) must be placed in the open padlock position to enable communication between the serial port and the *COMCPS* software (cf "Programming mini-switches").

"Event" Report

This feature allows you to print all of the most recent events stored in memory (up to 1,200).

Calibration Report: The calibration data for a sensor is only printed at the end of the calibration process. The record will consist of a title, the line number and module number and 6 readings if a complete calibration has take place:

Calibration 1

Capteur 4 01 CO

Xo1 = 00004 Zero value before starting procedure

Xo2 = 00000 Zero value

Xo3 = 00000 Zero value after procedure

Xf1 = 00095 Value of the concentration of calibration gas

Xf2 = 00100 Value of the response to the gas

Xf3 = 00100 Value of the reading at the end of the procedure

5.4 Acces code

An access code is required to access certain menus. The access code is made up of 4 hexadecimal numbers. If the wrong code is entered three consecutive times, the code will be deactivated until all menus have been exited or until after 10 minutes of inactivity. The *COMCPS* software can be used to modify the access code.

The default access code is : **1 0 0 0**

5.5 System Menu

5.5.1 Line, Module, Relay Action

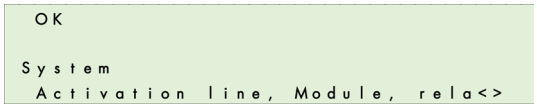
Enter the access code by using the [▲] [▼] and [◀] [▶] keys.

Line activation

The selected line is displayed along with its number and name.

To go to a different line, use the

[▲] [▼]. Change the status by pressing the [**OK**] key, and then pressing the [◀] [▶] keys, followed by [**OK**].



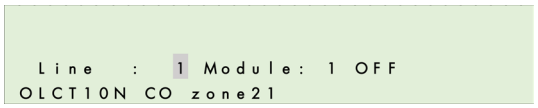
If the line is shut-down, the line number will flash intermittently with a cross sign. If the module does not correspond with the *MX 256* controller *COM256*-created program, its status is reported as faulting.

Notes : If the line is shut down by the COM256 software, it is impossible to turn it on.

A line is fully activated approximately 5 seconds after start-up.

A thermal fuse protects the line's power supply

from short-circuits. Should a short-circuit occur, a fault word will appear in the menu and an error message will be recorded in the event log. After the short-circuit, the line must be reactivated via the menu.



5.5.2 Relay activation

Use the same "Relay Status" menu to select a relay. After pressing [**OK**] to select the relay, you have three options :

< Normal > = Relay functions normally (triggered by alarms)

< ON > = Relay in forced operation (can only be shut-down by a logic input)

< OFF > = Relay in forced shut-down (can only be turned on by a logic input)

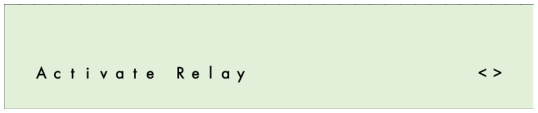
Special case: LS and HS relays

For safety reasons, deactivating a LS or HS relay via the *MX 256* controller shuts down of the two relays and restarts their timing devices.

If a logic input or a command from the *MX 256* controller activates a LS or HS relay, the relay will be activated. The relay's activation time is set to the maximum value. In other words, the forced relay shut down ends when logic inputs no longer command the relay or after the end of an alarm condition which could control the relay.

Similarly, if an alarm triggers a HS relay, a LS relay cannot be activated.

The forced activation of a HS relay takes priority over scheduled HS freezes.



5.5.3 Activating analog outputs

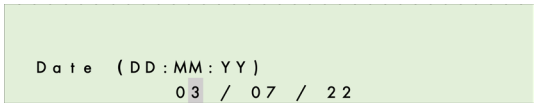
Choose the 4-20 mA output for the selected module. Pressing [**OK**] will force a start-up or shut-down for the 4-20 mA output.

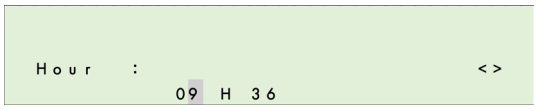
- The shut-down freezes the output at 4 mA
- The start-up freezes the output at 20 mA

5.5.4 Date and Time

△ Changing the time settings will reinitialize LS and HS delays !

Example : If the HS relay is activated and the time is changed, the HS relay will stop so that the LS relay can operate according to the predetermined delays.



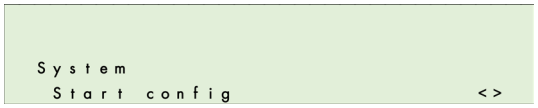


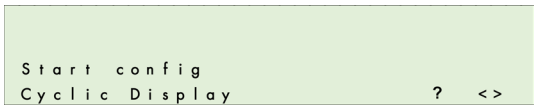
5.5.5 Start-up Configuration

This menu is used to select which menu will display by default upon start-up and after 10 minutes of keyboard inactivity.

The two menu options are:

Cyclical Display and Event Display.





5.6 Maintenance Menu

5.6.1 Simulation

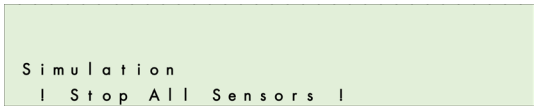
This menu is used to simulate the alarms for a particular sensor module or to temporarily activate one or more relays (or outputs). After exiting the simulation menu, the sensors and relays (excluding LS and HS relays) revert to their prior state.

Enter the access code by using the [▲] [▼] and [◀] [▶] keys.

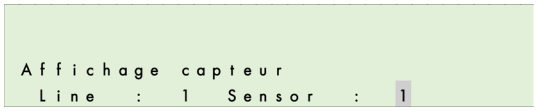
Sensor simulation

Select the sensor module you wish to test. Next, select the delay between each of the alarms to be activated (1-59 sec.). Validate your selections by pressing [OK],

The controller will increase reading levels until they exceed the thresholds for all activated alarms in ascending order +/- hysteresis. During the simulation, the theoretical values are displayed on screen.



During this phase, the other sensors are shut down. However, forced-state lines, modules and relays remain active.



Relay Status Simulation

Select the relay module for the relay you wish to test, then the relay you wish to activate.

Use the same "Relay Status" menu to select a relay. After pressing [OK] to select the relay, you have three options :

< Normal > = Relay functions normally (triggered by alarms)

< ON > = Relay in forced operation (can only be shut down by a logic input)

< OFF > = Relay in forced shut-down

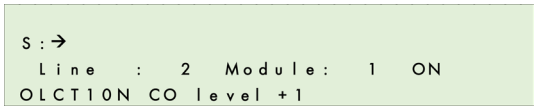
(can only be shut down by a logic input)

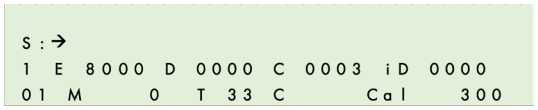
After exiting this menu, the relay will revert to its original state.

Analog Output Simulation

5.6.2 Module Verification

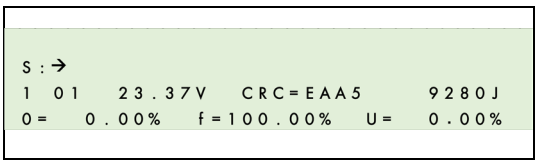
Inspection of all of the parameters relating to a module with a *communication fault*.





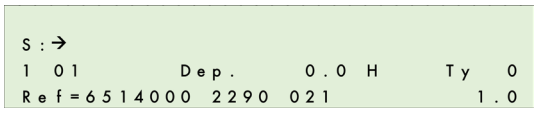
E = Status word
D = Fault word
C = Start-up config. word.
M = Level for sensor modules or State for logic inputs
T = Temperature
Cal (Value) = Concentration of gas used for calibration
ID = Module fault

Displays useful variables and operating time according to the module type :
(Value) = line voltage
R = Relay status (en hexadecimal)
(Valeur) J = Number of days since last calibration.
0 = X0 for sensor modules.
f = Xf for sensor modules.
U = Wear rate for sensor modules.
CRC = (Cyclic Redundancy Check)
Software version for the module program.



Dep. (**valeur**) H = Time (in hours) during which the sensor exceeded the scale.

Ref : (**Valeur**) = Sensor reference.

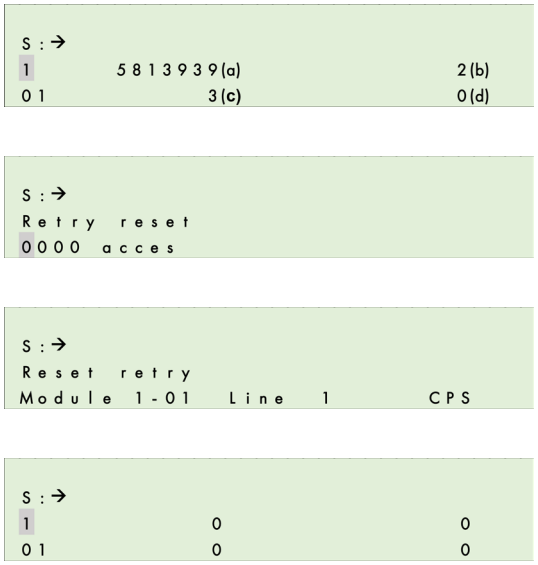


Retry: (plural form, *retries*) – attempt(s) at retransmission. Used to control the quality of communication with the modules.

(a) : represents successful transmission attempts. This number increases continually and should be as large as possible.

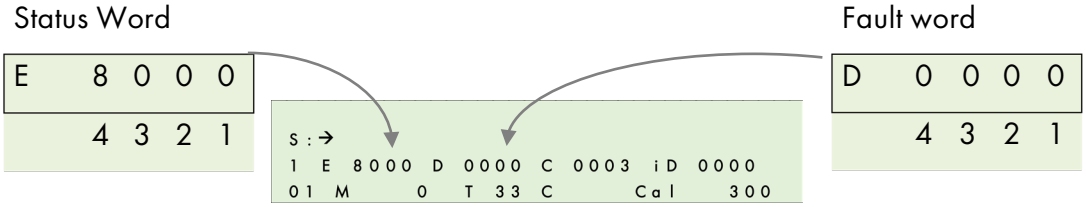
(b), (c), (d) : represents next 3 successive retransmission attempts, if necessary, following a failed attempt. In the event that the 1st attempt (1) fails, a 2nd attempt (b) will occur, then a 3rd (c), and 4th (d). The number and the level of saved attempts is indicative of the transmission quality. A large number, on level 3 or 4 is due to poor transmission.

Reinitialize "retries" by selecting the "Reset retry" menu».



Any module fault generates an event, which is identified by a number (hexadecimal coding) corresponding to the fault type. The number at the end of the second line displays the module error.

The [◀] [▶] keys can be used to change the scroll mode: in **normal** mode, all events saved to memory are displayed; in **default** mode, only the faults saved to memory are displayed.



Fault word

4	3	2	1
1 = Def Flash	1 = Def Temp. Min	1 = Def Zero calibration	1 = Def ROM main memory
2 = Def sensor	2 = Def Temp. Max	2 = Def Sens. calibration	2 = Def RAM
4 = Low line power	4 = Def Meas. Min	4 = Def Zero Sensor replacement	4 = Def Battery
8 = high line power	8 = Def Meas. Max	8 = Def Sensitivity. Sensor replacement	8 = module parameter does not correspond to the module card

Sample fault word: 00A0 = Def Sens. calibration + Déf Sensitivity. Sensor replacement (A = 10 in hexadecimal = 8 + 2)

Status word

4	3	2 *	1
1 = BitEtatLiss	1 = BitEtatChg	1 = BitEtat0	1 = BitMod0
2 = BitJbFill	2 = BitEtatPar	2 = BitEtat1	2 = BitMod1
4 = BitJbDelay	4 = BitJbWait	4 = BitEtat2	4 = BitMod2
8 = BitEtatCell * *	8 = BitJbCar	8 = BitEtat3	8 = BitMod3

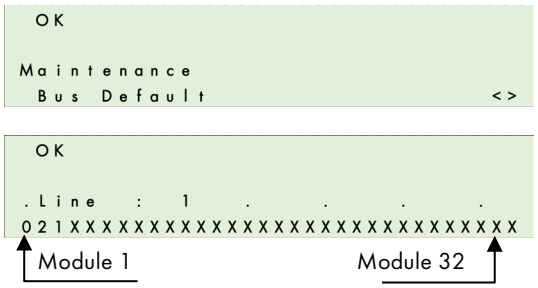
* * : only for sensor module (indicates presence of a sensor)

2 *	status
0 (EtatMes)	Normal measure
BitEtat0 (EtatStab)	Stabilization
BitEtat1 (EtatZInit)	Zero init
BitEtat0 + BitEtat1 (EtatStab)	Zero Stabilization
BitEtat2 (EtatZVal)	Zero validation
BitEtat0 + BitEtat2 (EtatSWait)	Sensitivity waiting
BitEtat1 + BitEtat2 (EtatSInit)	Sensitivity init
BitEtat0 + BitEtat1 + BitEtat3 (EtatSStab)	Sensitivity stabilization
BitEtat3 (EtatSVal)	Sensitivity validation
BitEtat0 + BitEtat3 (EtatChg)	Button replace pushed

Module Designation		Type
1	Sensor CO	0
2	sensorNO	1
3	Sensor NO_2	2
4	Sensor EXPLO	3
5	Sensor O_2	4
6	Free	5
7	Free	6
8	Other	7
9	4 relay mod	8
10	8 relay module	9
11	Free	A
12	Free	B
13	4ana output mod	C
14	16 log input mod	D
15	Analog input mod	E
16	Free	F

5.6.3 Bus Faults

This menu displays the faults from all modules in a line. Each hexadecimal number corresponds to a module, with Module 1 being on the left, and Module 32 on the right.



0 = OK
1 = Communication error
2 = Module recognition error
4 = Fault triggered by a module fault word.
x = module missing or unrecognized due to a conflict with another module

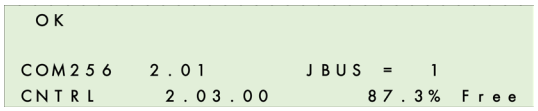
Line : 1 Module : 1 = OK
Line : 1 Module : 2 = module recognition error
Line : 1 Module : 3 = communication error

5.6.4 Reset maintenance

Reserved for TELEDYNE OLDHAM SIMTRONICS - maintenance personnel only.

CPS / COMCPS Version – Available memory level

Displays the *CPS* controller version as well as the *COMCPS* programming software version.



Displays the microcontroller availability (time) rate (in %). This value will vary somewhat in relation to the program but can detect if a microprocessor is being overtaxed.

Enter the access code by using the [▲] [▼] and [◀] [▶] keys.

Next, press the [OK] key to reinitialize all counters to zero and to refresh the date.

CPS Installation

This menu is used to zero the following two settings across all modules: Last zero date

Operating Time

Each module logs its operation time in days. For the sensors, this time is equal to the time since the last calibration or the last zero.

Exceeding the scale

Each sensor logs the amount of time that levels exceed the scale in seconds. Go to the "Module Verification" menu to see this time.

6 Maintenance

6.1 Program transfer

This chapter describes the transfer of data from the *COM*_CPS application to the CPS, and vice versa (see the *COM*_CPS user's guide). After launching the software, you will see a welcome window.

6.1.1 PC → CPS transfer

Once the program has been created, the central controller should receive new settings..

Step 1: establish a physical connection

1) Use either the USB or RS-232 adapter to connect the PC to the CPS central measuring controller.
2) Ensure that the CPS central measuring controller is connected to a power source.
3) **On the central controller**: flip the programming switch to the "MEM" position. The message "Switch open – Program..." will appear on the display screen. Communication with the central controller is authorized during this phase..

Step 2: link configuration

1) In the menu bar, select [Communication > Port].
2) Select the port [COM x] to use on the PC.

communication speed is selected automatically.

Step 3: data transfer

1) In the menu bar, select [Transfer > from PC to CPS].The message "Flip switch to MEM position in order to reprogram the central controller" refers to the <MEM> position on the CPS central controller commutator before starting the transfer procedClick [OK] once verification has ended.
2) During the transfer, a progress bar will indicate transfer progress.
3) Once the transfer is complete, the message "Operation complete" will appear on screen. Click [OK]. The configuration program has been transferred from the PC to the CPS central controller.
4) **On the central controller**: The message "Switch open – Complete" will appear on the display screen. Flip the programming switch to the "Prog" position.
5) The central controller will perform a "Start-up" procedure.

6.1.2 CPS → PC transfer

Step 1: establish a connection

1) Use either the USB or RS-232 adapter to connect the PC to the CPS central controller.
2) Ensure that the CPS central measuring controller is connected to a power source.
3) **On the central controller**: flip the programming switch to the "MEM" position. The message "Switch open – Program..." will appear on the display screen. Communication with the central controller is authorized during this phase. Or, use the "Control" menu to set the printer to "OFF."

Step 2: link configuration

1) In the menu bar, select [Communication > Port].
2) Select the port [COM x] to use on the PC.

Note: communication speed is selected automatically.

Step 3: data transfer

1) In the menu bar, select [Transfer > from CPS to PC].
2) The message, "Do you want to read the CPS central controller configuration?" will appear onscreen. Click [OK]. If the message, "Check port configuration and ensure printer set to OFF position and try again" appears, verify that the CPS printer is in the OFF position.
3) Select the folder where you want to download the file, and create a file name (a default name is suggested).
4) During the transfer, a progress bar will indicate transfer progress.
5) Once the transfer is complete, the message "Operation complete" will appear on screen. Click [OK]. The data has been transferred from the CPS central controller to the PC.
6) **On the central controller**: The message "Switch open – Complete" will appear on the display screen. Flip the programming switch to the "Prog" position.
7) The central controller will perform a "Start-up" procedure.

6.2 Error messages

Error messages will appear in the following scenarios:

ERR 01: Module fault relating to the program.
The test runs systematically on start-up and periodically when a module is activated by the menu if the module does not correspond to the loaded program. The error remains until the problem is corrected or until the module is shut down.

ERR 02: Fault word reading for a module. Name displayed on the 1st line of the screen.

ERR 04: Power line error.

ERR 08: I2C (real-time clock) or EEPROM error.

ERR 10: Module communication error.

ERR 20: Problem originating at printer. Printer shut-down or lack of paper.

6.3 Checksum error

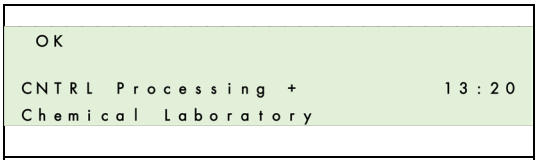
When the central controller starts up, checksum values appear briefly on screen after the display test. The value calculated by the central controller is displayed on the first line, and the checksum calculated by the PC with the *COM*_CPS software is displayed on the 2nd line.

If these two values are different, this screen will remain on the display screen, indicating that there is a problem (example: depleted battery.) The user program protection switch must be flipped, and a new *COM*_CPS program must be transferred.

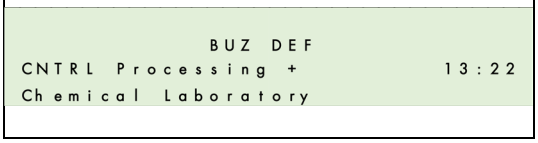
Flip the switch back into the "closed padlock" position before restarting the central controller.

Example of an error

Operation before event



Technical alarm triggered (fault).
buzzer engaged (if activated),
Front panel yellow LED illuminated.
Two pictograms appear: the blinking "maintenance key" and the "siren."



Action on the front panel "acknowl" button.
Audible alarm (buzzer) is off.

"Siren" pictogram disappears.

"Maintenance key" pictogram remains on screen.

Front panel yellow LED illuminated.

Action on the "acknowl" button.

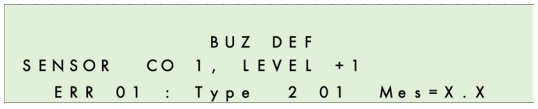
Direct access to the "ERRORS" data page.

ERR 11 = ERR 10 + ERR 1

<u>Communication fault</u> for Module 1, Line 2. Check the line and/or the module. The fault will disappear when the problem is resolved.

If multiple errors occur, all of the error codes will be displayed one after another. The faulting modules for each error will be displayed one at a time by their line number and module number.

For all faults except for communication faults, the gas level will be displayed in order to help the user identify the problem



6.4 Testing and calibration of fixed installations

Warning : The setting of this section are reserved for authorized persons formed because they might call into question the reliability of detection.

The site responsible is required to establish security procedures on its site. TELEDYNE OLDHAM SIMTRONICS may be not responsible for their implementation.

Gas detectors are above all safety instruments. In consideration of this, *TELEDYNE OLDHAM SIMTRONICS* recommends regular planned testing of fixed gas detection installations.

A functional test involves injecting a sufficient concentration of gas at the sensor level to trigger pre-set alarms. This test does not replace a full sensor calibration under any circumstances.

The frequency of gas tests depends on the industrial application in which the detector is in use. Frequent inspections should be made in the months following the commissioning of the installation, and then become more widely spaced provided that no significant deviation is observed.

If a detector should fail to react when in contact with the gas, calibration is essential. The frequency of calibrations is a function of the results of the tests (humidity, temperature, dust, etc.). However, it must not exceed one year. It is also advisable to calibrate the sensor after exposure to high concentrations of gas.

Gas concentration which must be used during manual or semi automatic calibration:

- CPS 10 CH4 = 2,5% CH4/air
- CPS 10 H2 = 2% H2/air
- CPS 10 C4H10 = 0,9% C4H10/air
- CPS 10 CO = 100ppm CO
- CPS 10 NO = 50ppm NO
- CPS 10 NO2 = 10ppm NO2

6.4.1 Sensor replacement

Sensors should be replaced as a part of regular preventative maintenance or following a failed calibration test.

After replacing a sensor, a calibration test must be conducted (see the chapter on semi-automatic calibration).

To replace a sensor:

- Remove the sensor cover.
- Hold down the sensor replacement button (1) for 5 seconds, until the solid green LED (2) is on.
- Release the button.
- Replace the sensor and conduct a calibration test (mandatory) according to the semi-automatic procedure.

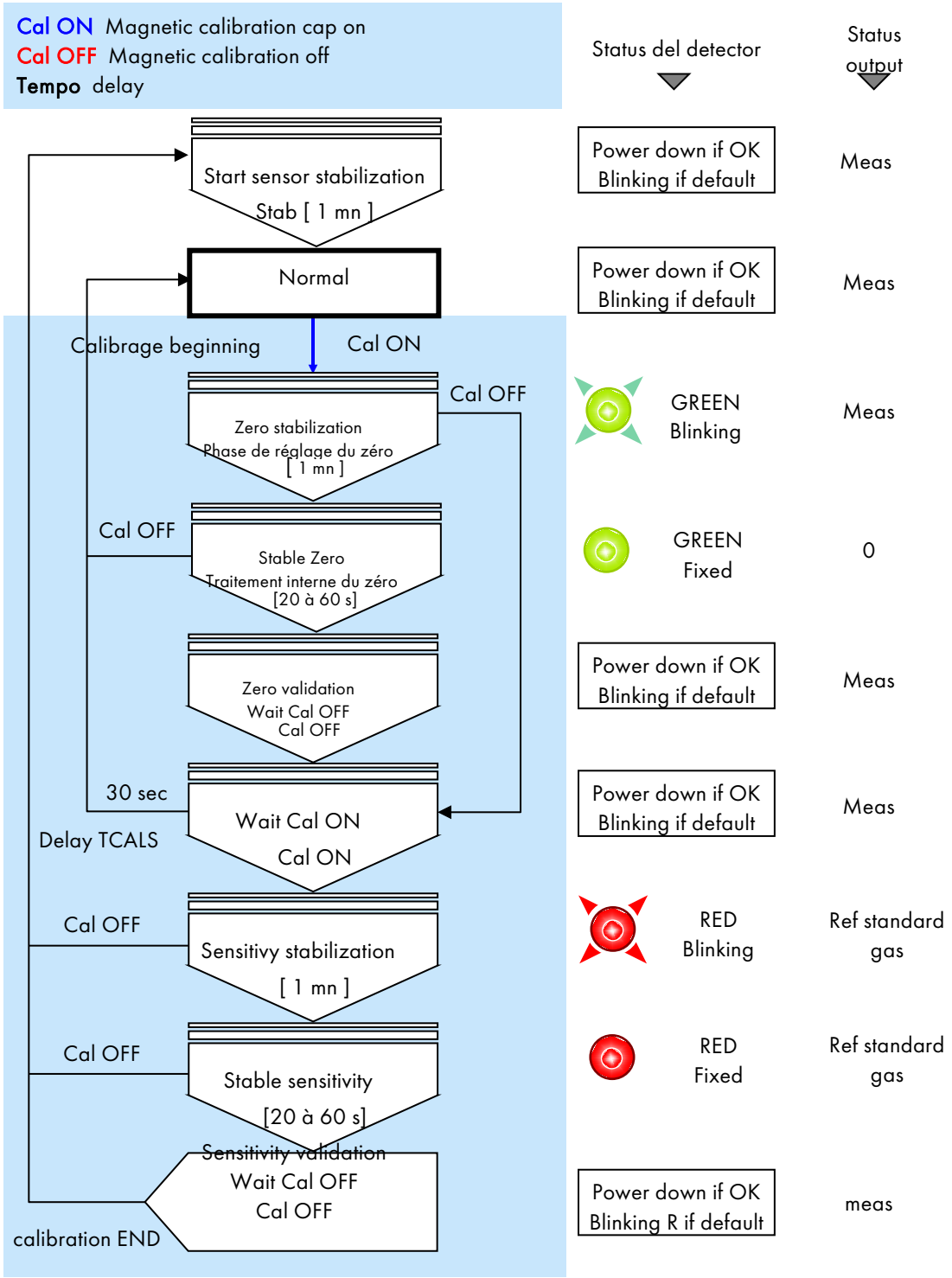
6.4.2 Semi-automatic calibration

During a sensor module calibration, the central controller blocks the alarms from the module in question and displays a maintenance key on the screen. Up to 10 sensors can be calibrated at the same time. The concentration level for the calibration gas is stored in the sensor's memory.

Each calibration start and stop is logged as an event.

The printer records a state after the calibration of each sensor (cf : Printing).

If the calibration is failed, the sensor is listed as faulting and an event is logged with a fault code (0010 – calibration zero fault, 0020 = calibration sensitivity fault).



6.4.3 Manual calibration

The calibration kit provided by TELEDYNE OLDHAM Simtronics must be used (Ref. 6 116 291) female connector / wires / voltmeter connection files).

- Remove the sensor cover.
- Connect the cable (strand) to the circuit's male connector.

Zero adjustment

Ensure that the sensor is in clean air. If not, inject air into the sensor at a flow rate of 60 l/h, then wait for voltmeter levels to stabilize (use the gas injection device: bottle of synthetic air, calibration pipe, tube).

- Adjust the zero with the potentiometer's "**ZERO**" until the voltmeter reads **0 mV**.

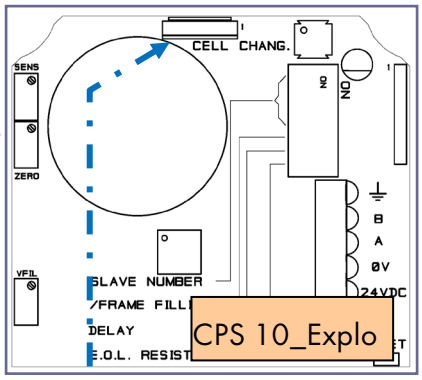
Sensitivity adjustments

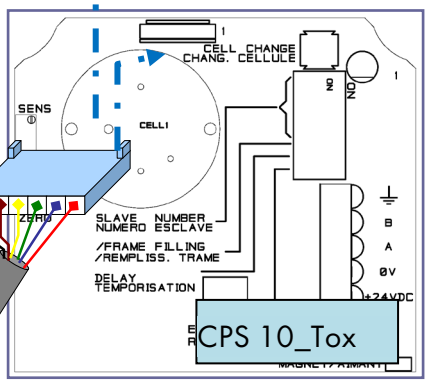
- Now inject the known gas (60 l/h) into the sensor, and wait for the voltmeter signal to stabilize.
- Adjust the sensitivity if necessary with the potentiometer "**SENS**" until the signal value (in mV) corresponds to the amount of reference gas used. **Use the following formula to calculate the correct value for the signal.**
- Stop injecting gas (remove the calibration pipe from the sensor).
- Wait for the voltmeter to "return to zero.

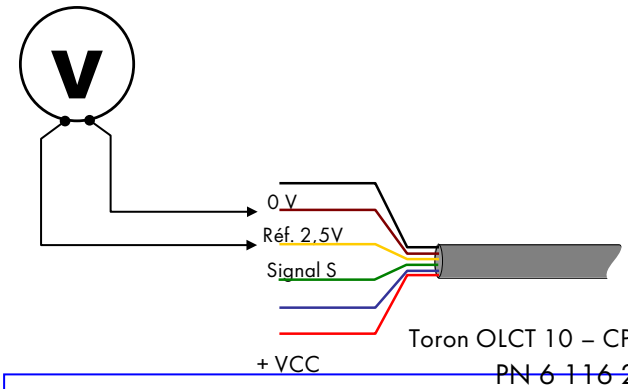
Version CPS 10 for explosive gas

The CPS central controller has a "**verification**" function: if the sensor measures a concentration of gas higher than 100% LEL, the signal will be dismissed by disconnecting its power supply.

$$V(mV) = \frac{1600 \text{ x reference gas value}}{\text{Measuring range}}$$





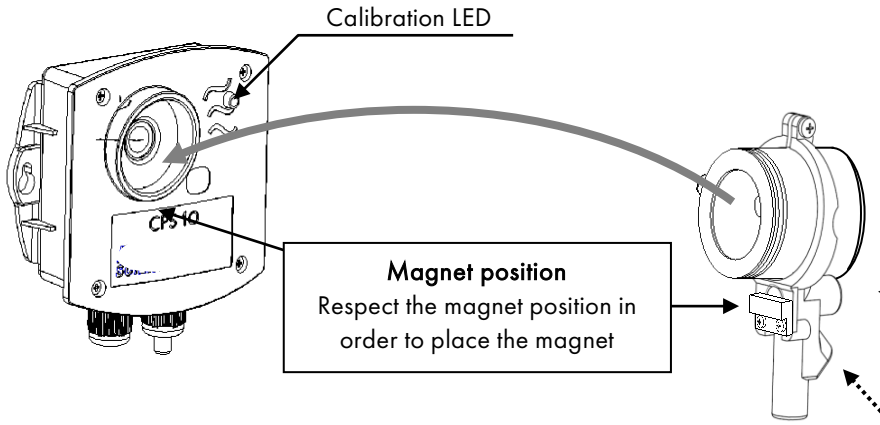


Toron OLCT 10 – CPS 10 6pts / PN 6 116 291

MAINTENANCE WIRES :
+VCC (**red**) = + power supply
Signal S (**yellow**) = signal from 0 mV to 1600 mV for zero and sensitivity measure
Réf 2,5V (**brown**) = zero reference for signal reading from 0 mV to1600 mV
GND (**black**) = electronic circuit ground.

V

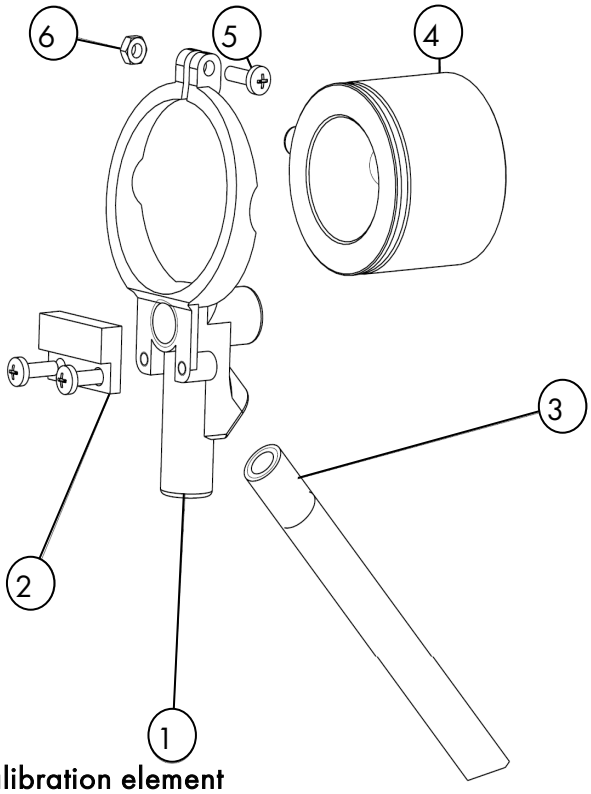
6.4.4 Semi-automatic calibration device



Semi-automatic calibration

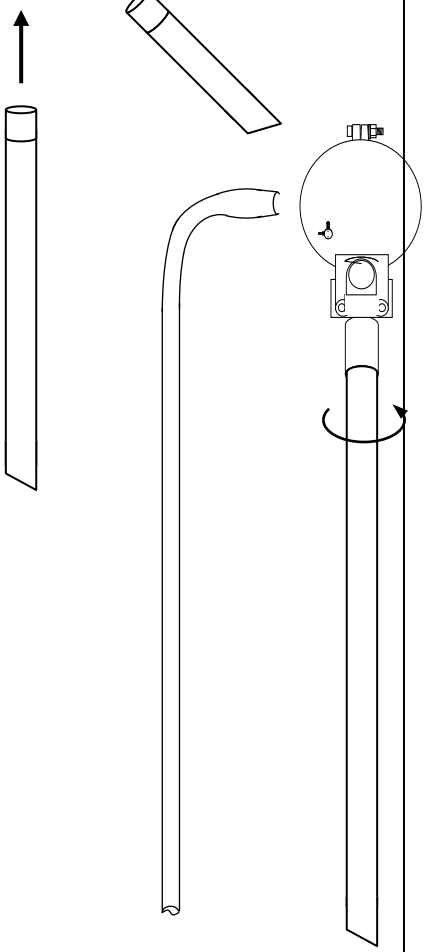
The magnetic calibration allows for one-man and no intrusive calibration to **save considerable time.**

Manual calibration with zero and span potentiometers is possible by opening the CPS 10

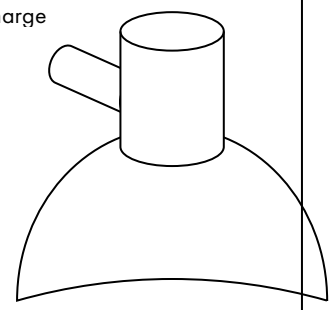


Calibration element

Rep	Part number	Nr	Description
1	6128972	1	SUPPORT
2	6155771	1	MAGNET MEDER CPS
3	6325161	1	HANDLE
4	6331141	1	CALIBRATION CAP
5	6902406	3	SCREW PCL TZ M3*10
6	6903305	1	SWIVEL H M3



Slug the gas with a 60L/H discharge



6.5 Central controller maintenance

Do not use alcohol- or ammonia-based liquids to clean the central controller. If necessary, clean the exterior of the central controller with a damp cloth.

6.5.1 Lithium battery

If the central controller configuration settings are lost, the lithium battery soldered to the display card must be replaced. This operation should be performed by a qualified professional.
Lithium battery characteristics: VARTA CR1/3N or equivalent.

6.5.2 Back-up battery pack

When the back-up battery power drops, the battery should be replaced. This operation should only be performed by a qualified professional.

The battery pack is located underneath the display screen on the wall-mounted version. Take off the display screen to access the battery pack. Unplug the connector linking the battery pack to the motherboard. Remove the 4 mounting screws. Attach the new battery pack. Plug in the connectors before reassembling the display.

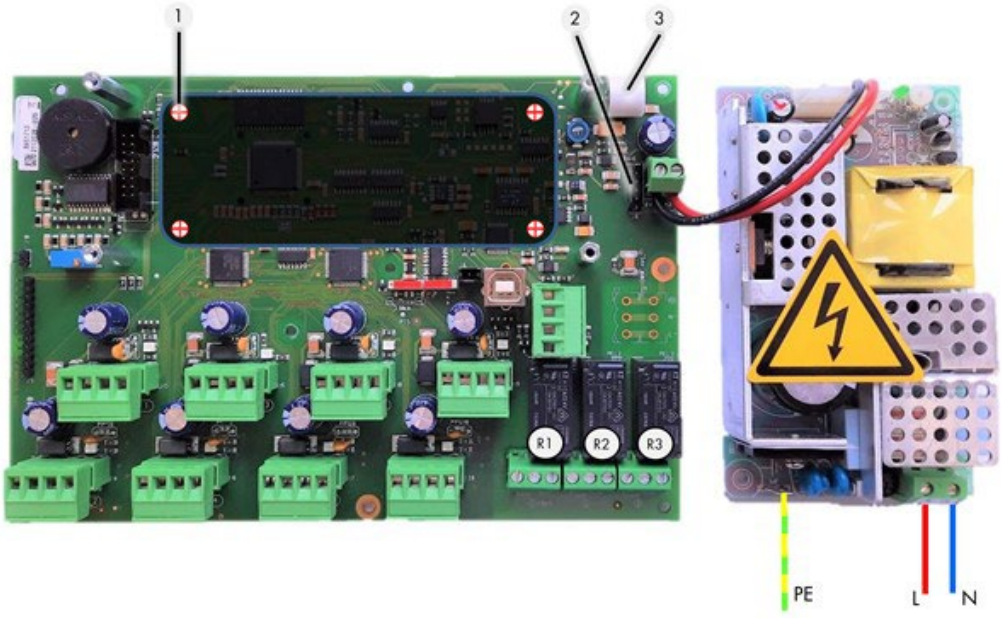


Figure 24

7 Technical Specifications

7.1 CPS Central Controller

CPS w/ metal wall-mounted casing	Dimensions (mm) : 320 * 180 * 95 Degree of protection: IP 54
Cable entries	5 M20 cable glands Diameter 5-12 mm power / local relays. - 9 PG9 1 D-SUB 9 Pin RS-232 cable
CPS rack version	Dimensions: Length: 19" ; Height: 4 U (176 mm) IP class: IP 31
Operating conditions	
Ambient temperature:	-10°C to 40°C
Storage temperature:	-20°C to 85°C
Humidity:	5 to 95% noncondensing
Power supply	
Mains power supply:	Voltage: 110-240VCA
Battery back-up:	Optional – Capacity: 600 mAh
24 V Consumption:	140 mA + 12 mA per measurement line (240 mA max.)
Measuring lines	
Number:	8 RS-485 digital measuring lines
Line capacity:	32 digital CPS modules (CPS 10,CPS RM, CPS DI16, CPS AO4) ModBus Protocol
Cable type:	2 twisted pairs shielded RS-485 4Xawg22 (diameter 0.67mm) cable, 100
Transmission speed:	9600 Bauds (trial with 0.35 mm^2)
Module power supply:	12 to 30 VCC via the CPS central controller and if necessary via a 24VCC external additional power supply
Digital module network:	RS-485 ModBus, addresses 1 to 32, set with mini switches
Isolation:	Power supply / Digital network: 1500 V
Display	Backlit LCD display [2 lines, 32 characters per line - 1 line for pictograms - 3 electroluminescence diodes to indicate operating status: OK, Fault, Alarms]

Keyboard	Membrane keyboard, 7 intuitive keys
Local buzzer	Alarm and fault signaling
Integrated printer	Optional for rack version (no integrated printer option for the metallic wall casing)
Alarms	
Number of alarms:	6 alarms per sensor (AL1, AL2, AL3, AL4, Out of Range, Fault + Validation for Explo gas)
Programmable thresholds:	For instantaneous or averaged values, increasing or decreasing values, or for manual or automatic rearming.
3 Internal local relays	Relay: R1 (alarm/fault) – R2 (alarm) – R3 (alarm). Minimum charge for RCT contacts: 2A / 250 VAC – 30 Vcc (resistive charge) Relays settings are configured with the *COM*_CPS configuration software. Torque : 0.5-0.6 Nm
Centralized supervision system digital output connections.	
RS-485	ModBus Protocol (connection with a centralized supervision device)
RS-232 or USB	USB protocol priority (permanent connection to system configuration)
Approvals	
Low Voltage Directive:	This device is in compliance with the security requirements of Directive 73/23/EEC, modified by Directive 93/68/EEC, based on standard 61010-1 and its second amendment.
Metrology:	Underground parking facilities: according to VDI 2053
EMC Electromagnetic compatibility:	according to EN 50270

7.2 CPS 10 Sensor Module

Dimensions (mm):	118 x 110 x 60
Degree of protection:	IP 65
Cable entries:	2 M16 cable glands 4-8 mm diameter
Consumption:	Toxic gas sensor: 2.5 mA in normal operation Explo gas sensor: 50 mA in normal operation
Status indication after calibration	Red/Green electroluminescent diode

Calibration:	Automatic, no need to open the sensor due to a gas introduction device equipped with a magnetic switch, or with a potentiometer inside of the case.
Sensor replacement:	Sensor replacement switch on the interior of the CPS 10 case. Detection of sensor

7.3 CPS RM4 or RM8 Relay Module

Dimensions (mm):	125 x 165 x 60
Mounting:	Ratchets into DIN rail
Number of relays:	4 relays (CPS RM4); 8 relays (CPS RM8) Contact type: RCT
Minimum charge for contacts:	2 A / 250 V over resistive charge
Connection:	Screw posts (cable: 2.5 mm^2 max.) Torque : 0.5-0.6 Nm
Consumption:	3.5 mA in normal operation

Bistable Relays.

Configuration of positive or negative relay security with mini switches.

Relay modules have 2 logic inputs.

Configuration via the *COM*_CPS configuration software.

7.4 CPS DI16 Logic Inputs Module

Dimensions (mm):	125 x 165 x 60
Mounting:	Ratchets into DIN rail
Number of All or Nothing Inputs:	16
Connection:	Screw posts (cable: 1.5 mm^2 max.) Torque : 0.5-0.6 Nm
Consumption:	2 mA in normal operation

7.5 Module sorties analogiques CPS AO4

Dimensions (mm):	125 x 165 x 60
Mounting:	Ratchets into DIN rail
Number of analog outputs:	4-20 mA output, max. resistance 500 Ω Isolation galvanique individuelle + 2 entrées logiques
Connection:	Screw posts (cable: 1.5 mm^2 max.) Torque : 0.5-0.6 Nm
Consumption under 24V at module input	I< 5 mA if the 4 channels are shut down I< 36 mA if only one channel is activated I<130 mA if all 4 channels are activated

8 Annexes

Warning, for use by authorized personnel

JBUS/MODBUS Protocol (CPS version < to 2.00)

JBUS Transfer Table

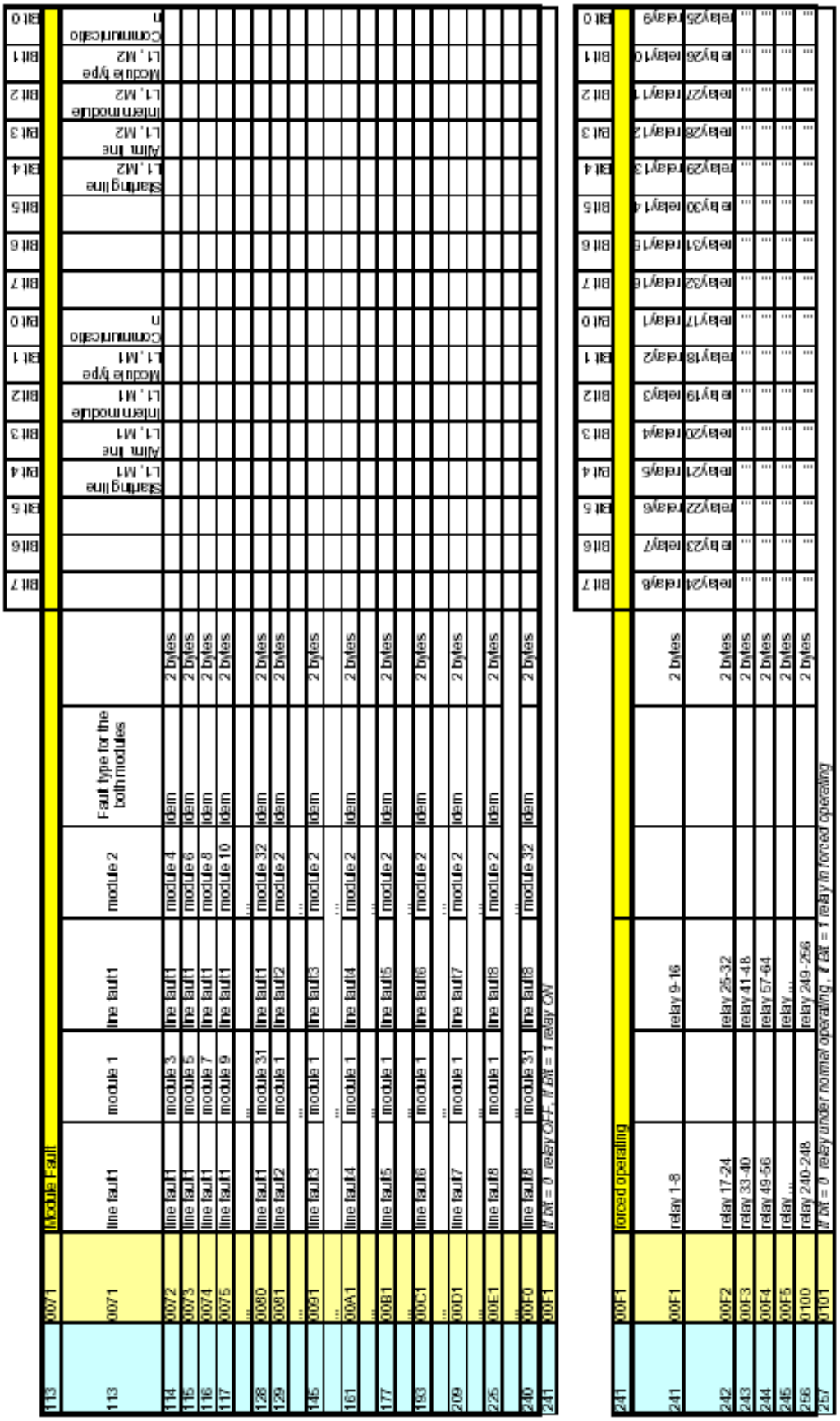
ADDRESS JBUS	HEXA ADDRESS
1	9C40

Classification is automatically made by the COMCPS in the ascending order of the relays then modules then lines.
Idem for logic input

Note : Relays and inputs are numbered from 1 to 256 and from 1 to 64 in order to optimize the occupation memory in the CPS

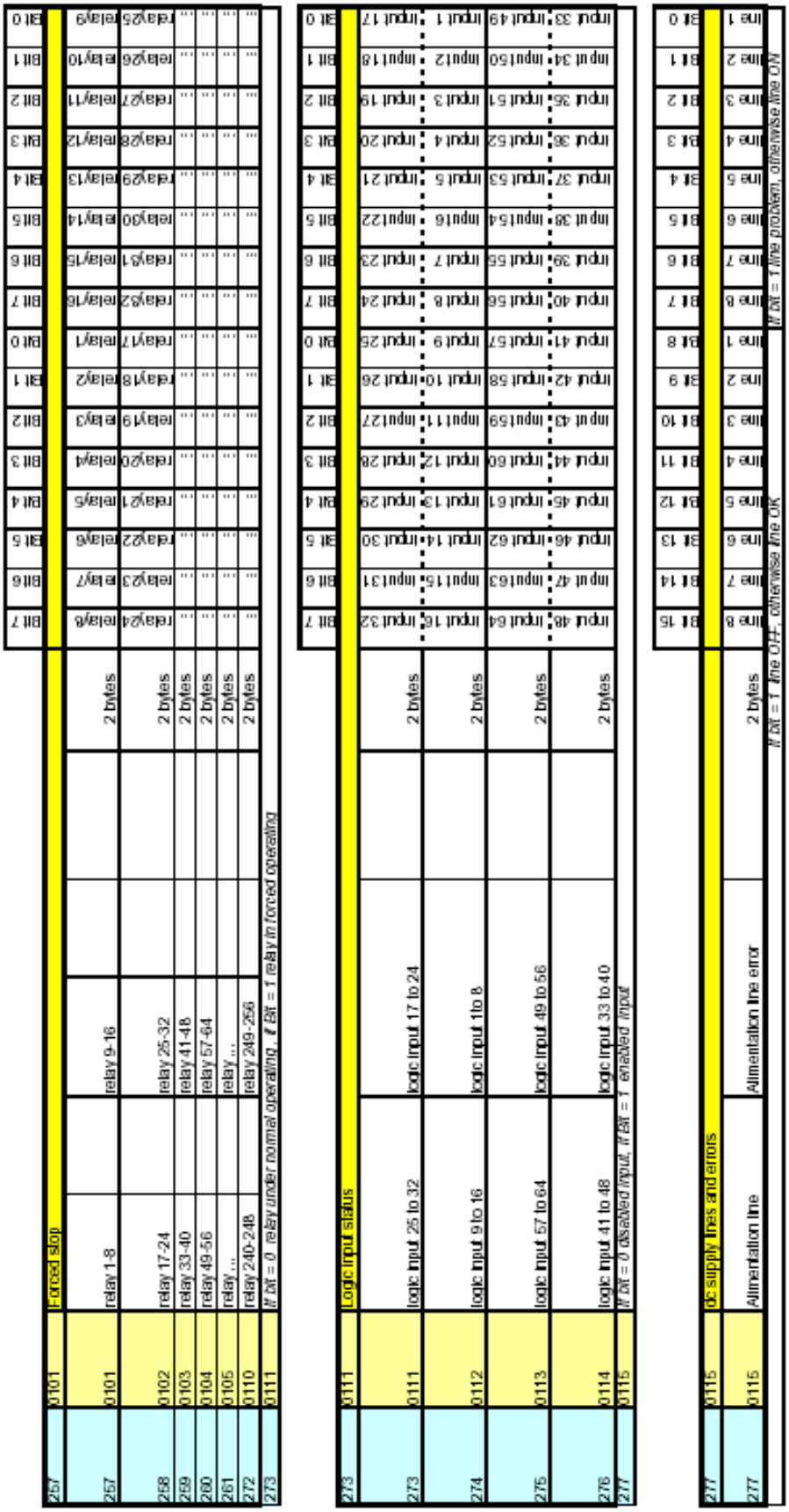
Acces in read only by bit ; Function (1 ; 2)

				Byte1								Byte2							
				Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	0001	Alarm Status of each detector modules																	
1	0001	Alarm 1 Status of each detector module	line, Module	L1, M32	L1, M31	L1, M30	L1, M29	L1, M28	L1, M27	L1, M26	L1, M25	L1, M24	L1, M23	L1, M22	L1, M21	L1, M20	L1, M19	L1, M18	L1, M17
			2 bytes	L1, M16	L1, M15	L1, M14	L1, M13	L1, M12	L1, M11	L1, M10	L1, M9	L1, M8	L1, M7	L1, M6	L1, M5	L1, M4	L1, M3	L1, M2	L1, M1
2	0002		2 bytes	L2, M16	L2, M15	L2, M14	L2, M13	L2, M12	L2, M11	L2, M10	L2, M9	L2, M8	L2, M7	L2, M6	L2, M5	L2, M4	L2, M3	L2, M2	L2, M1
3	0003		2 bytes	L8,M 32	L8,M 31	L8,M 30	L8,M 29	L8,M 28	L8,M 27	L8,M 26	L8,M 25	L8,M 24	L8,M 23	L8,M 22	L8,M 21	L8,M 20	L8,M 19	L8,M 18	L8,M 17
				L2, M32	L2, M31	L2, M30	L2, M29	L2, M28	L2, M27	L2, M26	L2, M25	L2, M24	L2, M23	L2, M22	L2, M21	L2, M20	L2, M19	L2, M18	L2, M17
4	0004		2 bytes	L2, M16	L2, M15	L2, M14	L2, M13	L2, M12	L2, M11	L2, M10	L2, M9	L2, M8	L2, M7	L2, M6	L2, M5	L2, M4	L2, M3	L2, M2	L2, M1
...			2 bytes																
15	000F		2 bytes	L8,M 32	L8,M 31	L8,M 30	L8,M 29	L8,M 28	L8,M 27	L8,M 26	L8,M 25	L8,M 24	L8,M 23	L8,M 22	L8,M 21	L8,M 20	L8,M 19	L8,M 18	L8,M 17
				L8,M 16	L8,M 15	L8,M 14	L8,M 13	L8,M 12	L8,M 11	L8,M 10	L8,M 9	L8,M 8	L8,M 7	L8,M 6	L8,M 5	L8,M 4	L8,M 3	L8,M 2	L8,M 1
16	0010		2 bytes	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
17	0011	Alarm 2 Status of each detector module	line, Module	L1, M32	L1, M31	L1, M30	L1, M29	L1, M28	L1, M27	L1, M26	L1, M25	L1, M24	L1, M23	L1, M22	L1, M21	L1, M20	L1, M19	L1, M18	L1, M17
...																			
33	0021	Alarm 3 Status of each detector module	Idem																
49	0031	Alarm 4 Status of each detector module	Idem																
65	0041	Alarm overscale Status of each detector module	Idem																
81	0051	Alarm fault Status of each detector module	Idem																
96	0060																		
97	0061	Relays Status (delayed one second)																	
97	0061	relays 1-8	relays 9-16	2 bytes	Relay 24	relay 23	relay 22	relay 21	relay 20	relay 19	relay 18	relay 17	relay 16	relay 15	relay 14	relay 13	relay 12	relay 11	relay 10	relay 9
98	0062	relays 17-24	relays 25-32	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
99	0063	relays 33-40	relays 41-48	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
100	0064	relays 49-56	relays 57-64	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
101	0065	relays ...	relays ...	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
112	0070	relays 240-248	relays 249-256	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
113	0071	*If bit = 0 relay OFF, If bit = 1 relay ON*																		



113	0071	Module Fault																	
113	0071	line fault1	module 1	line fault1	module 2	Fault type for the both modules													
114	0072	line fault1	module 3	line fault1	module 4	idem	2 bytes												
115	0073	line fault1	module 5	line fault1	module 6	idem	2 bytes												
116	0074	line fault1	module 7	line fault1	module 8	idem	2 bytes												
117	0075	line fault1	module 9	line fault1	module 10	idem	2 bytes												
...	...	...	...	...	...	...	...												
128	0080	line fault1	module 31	line fault1	module 32	idem	2 bytes												
129	0081	line fault2	module 1	line fault2	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
145	0091	line fault3	module 1	line fault3	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
161	00A1	line fault4	module 1	line fault4	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
177	00B1	line fault5	module 1	line fault5	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
193	00C1	line fault6	module 1	line fault6	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
209	00D1	line fault7	module 1	line fault7	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
225	00E1	line fault8	module 1	line fault8	module 2	idem	2 bytes												
...	...	...	...	...	...	...	...												
240	00F0	line fault8	module 31	line fault8	module 32	idem	2 bytes												
241	00F1	*If Dit = 0 relay OFF, If Bit = 1 relay ON*																	

241	00F1	forced operating																	
241	00F1	relay 1-8	relay 9-16			2 bytes													
242	00F2	relay 17-24	relay 25-32			2 bytes													
243	00F3	relay 33-40	relay 41-48			2 bytes													
244	00F4	relay 49-56	relay 57-64			2 bytes													
245	00F5	relay ...	relay ...			2 bytes													
256	0100	relay 240-248	relay 249-256			2 bytes													
257	0101	*If Dit = 0 relay under normal operating, If Bit = 1 relay in forced operating*																	



257	0101	Forced stop																	
257	0101	relay 1-8			relay 9-16	2 bytes	relay24	relay23	relay22	relay21	relay20	relay9	relay8	relay7	relay6	relay5	relay4	relay3	relay2	relay1	Bit 7
258	0102	relay 17-24			relay 25-32	2 bytes	relay25	relay26	relay27	relay28	relay29	relay30	relay31	relay32	relay10	relay11	relay12	relay13	relay14	relay15	Bit 0
259	0103	relay 33-40			relay 41-48	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bit 1
260	0104	relay 49-56			relay 57-64	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bit 2
261	0105	relay ...			relay ...	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bit 3
272	0110	relay 240-248			relay 249-256	2 bytes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bit 4
273	0111	// bit = 0 relay under normal operating, // bit = 1 relay in forced operating																			Bit 5
273	0111	Logic input status																			Bit 6
273	0111	logic input 25 to 32	logic input 17 to 24			2 bytes	input32	input31	input30	input29	input28	input27	input26	input25	input24	input23	input22	input21	input20	input19	Bit 7
274	0112	logic input 9 to 16	logic input 1 to 8			2 bytes	input16	input15	input14	input13	input12	input11	input10	input9	input8	input7	input6	input5	input4	input3	Bit 0
275	0113	logic input 57 to 64	logic input 49 to 56			2 bytes	input64	input63	input62	input61	input60	input59	input58	input57	input56	input55	input54	input53	input52	input51	Bit 1
276	0114	logic input 41 to 48	logic input 33 to 40			2 bytes	input48	input47	input46	input45	input44	input43	input42	input41	input40	input39	input38	input37	input36	input35	Bit 2
277	0115	// bit = 0 disabled input, // bit = 1 enabled input																			Bit 3
277	0115	ds supply lines and errors																			Bit 4
277	0115	Alimentation line		Alimentation line error		2 bytes	line8	line7	line6	line5	line4	line3	line2	line1							Bit 5
		// bit = 1 line OFF, otherwise line OK																			Bit 6
		// bit = 1 line problem, otherwise line ON																			Bit 7
																					Bit 8
																					Bit 9
																					Bit 10
																					Bit 11
																					Bit 12
																					Bit 13
																					Bit 14
																					Bit 15

				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
278	0116	Fixed icons (if 1 , fixed icon ON)	Word	/	Battery / Alimentation	High Speed	Status signal	Low speed	Alarm 4	Maintenance	Alarm 3	Fault	Alarm 2	Buzzer	Alarm 1	Decrease	Alarm signal	Increase	Ok
279	0117	Blinking Icon (if 1, blinking icon ON)	Word	IDEM															

Acces read only

								Byte1								Byte2								
30001	7531	overscale delay				4 bytes (32 bits not signed)	2 bytes	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30001	7531	overscale delay	line 1	Module 1			2 bytes	16 bits de poids fort du long								16 bits de poids faible du long								
30002	7532						2 bytes	4 bytes (32 bits not signed)																
30003	7533	overscale delay	line 1	Module 2			2 bytes	4 bytes (32 bits not signed)																
30005	7535	overscale delay	line 1	Module 3			2 bytes	4 bytes (32 bits not signed)																
30007	7537	overscale delay	line 1	Module 4			2 bytes	4 bytes (32 bits not signed)																
30009	7539	overscale delay	line 1	Module 5			2 bytes	4 bytes (32 bits not signed)																
...																								
30065	7571	overscale delay	line 2	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30129	7581	overscale delay	line 3	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30193	75F1	overscale delay	line 4	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30257	7631	overscale delay	line 5	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30321	7671	overscale delay	line 6	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30385	76B1	overscale delay	line 7	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30449	76F1	overscale delay	line 8	Module 1			2 bytes	4 bytes (32 bits not signed)																
...																								
30511	772F	overscale delay	line 8	Module 32			2 bytes	4 bytes (32 bits not signed)																
30512	7730																							

30613	7731	Timer since latest calibration															
30613	7731	latest calibration	line 1	Module 1		Word	2 bytes (16 bits not signed)										
30614	7732	latest calibration	line 1	Module 2		Word	2 bytes (16 bits not signed)										
30615	7733	latest calibration	line 1	Module 3		Word	2 bytes (16 bits not signed)										
30616	7734	latest calibration	line 1	Module 4		Word	2 bytes (16 bits not signed)										
30617	7735	latest calibration	line 1	Module 5		Word	2 bytes (16 bits not signed)										
...																	
30640	774C	latest calibration	line 1	Module 28		Word	2 bytes (16 bits not signed)										
30641	774D	latest calibration	line 1	Module 29		Word	2 bytes (16 bits not signed)										
30642	774E	latest calibration	line 1	Module 30		Word	2 bytes (16 bits not signed)										
30643	774F	latest calibration	line 1	Module 31		Word	2 bytes (16 bits not signed)										
30644	7750	latest calibration	line 1	Module 32		Word	2 bytes (16 bits not signed)										
30645	7751	latest calibration	line 2	Module 1		Word	2 bytes (16 bits not signed)										
30646	7752	latest calibration	line 2	Module 2		Word	2 bytes (16 bits not signed)										
...																	
30577	7771	latest calibration	line 3	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30609	7791	latest calibration	line 4	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30641	77B1	latest calibration	line 5	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30673	77D1	latest calibration	line 6	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30705	77F1	latest calibration	line 7	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30737	7811	latest calibration	line 8	Module 1		Word	2 bytes (16 bits not signed)										
...																	
30768	7830	latest calibration	line 8	Module 32		Word	2 bytes (16 bits not signed)										
30769	7831																

30769	7831	Pointer on next event to be recorded (modulo 1200)				Word	2 bytes (16 bits not signed)										
30770	7832	Pointer on the lowest event (-1 if the system doesn't receive its 1200 events)				Word	2 bytes (16 bits not signed)										
30771	7833	Pointer on event to be printed				Word	2 bytes (16 bits not signed)										
30772	7834	EMPTY					Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0			
30809	7859	event															
30809	7859	event N					Day										
30810	785A	event N					Year										
30811	785B	event N					Minute										
30812	785C	event N					Module number										
30813	785D	event N					Extra information										
30814	785E	event N+1					Day										
30815	785F	event N+1					Year										
30816	7860	event N+1					Minute										
30817	7861	event N+1					Module number										
30818	7862	event N+1					Extra information										
...																	
30807	9FC7	event N+1199					Module number										
30808	9FC8	event N+1199					Extra information										
30810	9FCA	Pointer on the last printed text			(Module 4)	Word											
30811	9FCB	Text M	80 byte text														
30890	901B	Text M + 1	80 byte text														
30971	906B	Text M + 2	80 byte text														
31051	90BB	Text M + 3	80 byte text														

JBUS		Detector measures				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Byte1								Byte2							
40001	9C41				Word	2 bytes (16 bits not signed)															
40001	9C41	Instantaneous measure	line 1	Module 1																	
40002	9C42	Instantaneous measure	line 1	Module 2	Word	2 bytes (16 bits not signed)															
40003	9C43	Instantaneous measure	line 1	Module 3	Word	2 bytes (16 bits not signed)															
40004	9C44	Instantaneous measure	line 1	Module 4	Word	2 bytes (16 bits not signed)															
40005	9C45	Instantaneous measure	line 1	Module 5	Word	2 bytes (16 bits not signed)															
...																					
40028	9C5C	Instantaneous measure	line 1	Module 28	Word	2 bytes (16 bits not signed)															
40029	9C5D	Instantaneous measure	line 1	Module 29	Word	2 bytes (16 bits not signed)															
40030	9C5E	Instantaneous measure	line 1	Module 30	Word	2 bytes (16 bits not signed)															
40031	9C5F	Instantaneous measure	line 1	Module 31	Word	2 bytes (16 bits not signed)															
40032	9C60	Instantaneous measure	line 1	Module 32	Word	2 bytes (16 bits not signed)															
40033	9C61	Instantaneous measure	line 2	Module 1	Word	2 bytes (16 bits not signed)															
40034	9C62	Instantaneous measure	line 2	Module 2	Word	2 bytes (16 bits not signed)															
...																					
40065	9C81	Instantaneous measure	line 3	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40097	9CA1	Instantaneous measure	line 4	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40129	9CC1	Instantaneous measure	line 5	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40161	9CE1	Instantaneous measure	line 6	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40193	9D01	Instantaneous measure	line 7	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40225	9D21	Instantaneous measure	line 8	Module 1	Word	2 bytes (16 bits not signed)															
...																					
40256	9D40	Instantaneous measure	line 8	Module 32	Word	2 bytes (16 bits not signed)															
40257	9D41																				

40257	9D41	4-20mA Outputs Value (1000 = 1mA)				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
40257	9D41	Output4-20mA Value	Output1		Word	2 bytes (16 bits not signed)															
40258	9D42	Output4-20mA Value	Output2		Word	2 bytes (16 bits not signed)															
40259	9D43	Output4-20mA Value	output3		Word	2 bytes (16 bits not signed)															
40260	9D44	Output4-20mA Value	output4		Word	2 bytes (16 bits not signed)															
40261	9D45	Output4-20mA Value	output5		Word	2 bytes (16 bits not signed)															
40262	9D46	Output4-20mA Value	output6		Word	2 bytes (16 bits not signed)															
40263	9D47	Output4-20mA Value	output7		Word	2 bytes (16 bits not signed)															
40264	9D48	Output4-20mA Value	output8		Word	2 bytes (16 bits not signed)															
40265	9D49	Output4-20mA Value	output9		Word	2 bytes (16 bits not signed)															
40266	9D4A	Output4-20mA Value	output10		Word	2 bytes (16 bits not signed)															
40267	9D4B	Output4-20mA Value	output11		Word	2 bytes (16 bits not signed)															
40268	9D4C	Output4-20mA Value	output12		Word	2 bytes (16 bits not signed)															
...			...																		
40512	9E40	Output4-20mA Value	output256		Word	2 bytes (16 bits not signed)															
40513	9E41																				

JBUS	Detector measures				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
40513	9E41			Word	2 bytes (16 bits not signed)															
40513	9E41	Averaged measure 1	line 1	Module 1																
40514	9E42	Averaged measure 2	line 1	Module 1	Word	2 bytes (16 bits not signed)														
40515	9E43	Averaged measure 3	line 1	Module 1	Word	2 bytes (16 bits not signed)														
40516	9E44	Averaged measure 4	line 1	Module 1	Word	2 bytes (16 bits not signed)														
40517	9E45	Averaged measure 1	line 1	Module 2	Word	2 bytes (16 bits not signed)														
...																				
40641	9EC1	Averaged measure 1	line 2	Module 1	Word	2 bytes (16 bits not signed)														
40642	9EC2	Averaged measure 2	line 2	Module 1	Word	2 bytes (16 bits not signed)														
...																				
40769	9F41	Averaged measure 1	line 3	Module 1	Word	2 bytes (16 bits not signed)														
...																				
40897	9FC1	Averaged measure 1	line 4	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41025	A041	Averaged measure 1	line 5	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41153	A0C1	Averaged measure 1	line 6	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41281	A141	Averaged measure 1	line 7	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41409	A1C1	Averaged measure 1	line 8	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41536	A240	Averaged measure 1	line 8	Module 32	Word	2 bytes (16 bits not signed)														
41537	A241																			

JBUS	Detector measures				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41537	A241			Word	2 bytes (16 bits not signed)															
41537	A241	Maximum measure	line 1	Module 1																
41538	A242	Maximum measure	line 1	Module 2	Word	2 bytes (16 bits not signed)														
41539	A243	Maximum measure	line 1	Module 3	Word	2 bytes (16 bits not signed)														
41540	A244	Maximum measure	line 1	Module 4	Word	2 bytes (16 bits not signed)														
41541	A245	Maximum measure	line 1	Module 5	Word	2 bytes (16 bits not signed)														
...																				
41564	A25C	Maximum measure	line 1	Module 28	Word	2 bytes (16 bits not signed)														
41565	A25D	Maximum measure	line 1	Module 29	Word	2 bytes (16 bits not signed)														
41566	A25E	Maximum measure	line 1	Module 30	Word	2 bytes (16 bits not signed)														
41567	A25F	Maximum measure	line 1	Module 31	Word	2 bytes (16 bits not signed)														
41568	A260	Maximum measure	line 1	Module 32	Word	2 bytes (16 bits not signed)														
41569	A261	Maximum measure	line 2	Module 1	Word	2 bytes (16 bits not signed)														
41570	A262	Maximum measure	line 2	Module 2	Word	2 bytes (16 bits not signed)														
...																				
41601	A281	Maximum measure	line 3	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41633	A2A1	Maximum measure	line 4	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41665	A2C1	Maximum measure	line 5	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41697	A2E1	Maximum measure	line 6	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41729	A301	Maximum measure	line 7	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41761	A321	Maximum measure	line 8	Module 1	Word	2 bytes (16 bits not signed)														
...																				
41792	A340	Maximum measure	line 8	Module 32	Word	2 bytes (16 bits not signed)														
41793	A341																			

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41793	A341	Detector measures																
41793	A341	Sentence1									Byte2							
41794	A342	Sentence1									Byte4							
41795	A343	Sentence1									Byte6							
41796	A344	Sentence1									Byte8							
41797	A345	Sentence1									Byte10							
41797	A345	Sentence1									Byte12							
41798	A346	Sentence1									Byte14							
41799	A347	Sentence1									Byte16							
41800	A348	Sentence1									Byte18							
41801	A349	Sentence1									Byte20							
41801	A349	Sentence1									Byte22							
41802	A34A	Sentence1									Byte24							
41803	A34B	Sentence1									Byte26							
41804	A34C	Sentence1									Byte28							
41805	A34D	Sentence1									Byte30							
41806	A34E	Sentence1									Byte32							
41807	A34F	Sentence1									Byte33 / term at the end of the sentence							
41808	A350										Byte34 / empty							

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41808	A350	Detector measures																
41808	A350	Sentence2									Byte2							
41809	A351	Sentence2									Byte4							
41810	A352	Sentence2									Byte6							
41811	A353	Sentence2									Byte8							
41812	A354	Sentence2									Byte10							
41812	A354	Sentence2									Byte12							
41813	A355	Sentence2									Byte14							
41814	A356	Sentence2									Byte16							
41815	A357	Sentence2									Byte18							
41816	A358	Sentence2									Byte20							
41816	A358	Sentence2									Byte22							
41817	A359	Sentence2									Byte24							
41818	A35A	Sentence2									Byte26							
41819	A35B	Sentence2									Byte28							
41820	A35C	Sentence2									Byte30							
41821	A35D	Sentence2									Byte32							
41822	A35E	Sentence2									Byte33 / term at the end of the sentence							
41823	A35F										Byte34 / empty							

			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41823	A35F	Remoded keyboard									Word							
41824	A360	Blank 32bytes																
41855	A37F																	

SETTINGS VIA COMCPS

JBUS			Byte1														Byte2							
			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0							
50001	C351	Module list																							
50001	C351	Module 1 Name (32byte)																	Byte 1 Name						Byte 2 Name
		...																							
50017	C361	Module type (1 byte)																	Module type (1 byte)						Indice relay (1 byte)
50018	C362	Input (1 byte)																	Input Position (1 byte)						Config by fault (1 byte)
50019	C363	Module 2 Name (32byte)																	Byte 1 name						Byte 2 name
	0000	...																							
50035	C373	Module type (1 byte)																	Module type (1 byte)						Relay position (1 byte)
50036	C374	Input Position (1 byte)																	Input position (1 byte)						Config by fault (1 byte)
	0000	...																							
54591	D63F	Module name 256 (32byte)																	Byte 1 name						Byte 2 name
	0000	...																							
54607	D64F	Module type (1 byte)																	Module type (1 byte)						Relay position (1 byte)
54608	D650	Input position (1 byte)																	Input position (1 byte)						Config by fault (1 byte)
54609	D651																								

JBUS			Byte1														Byte2							
			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0							
54609	D651	Relay list																							
54609	D651	Module number (1byte) and relay function and position (1b)																	Module number (0-255)						Relay function number | Relay number on the module
54610	D652	Relay Name /output 1 (20byte)																	Byte1 name						Byte 2 name
		...																							
54620	D65C	HS position /function output4-20mA (1byte) empty Byte																	HS position						
54621	D660	Module number (1byte) and Relay function and position (1b)																	Module number (0-255)						Relay function number | Relay number on the
54622	D65E	Relay Name /output 2 (20byte)																	Byte 1 name						Byte 2 name
		...																							
54632	D688	HS Position /function output4-20mA (1byte) empty Byte																	HS Position						
		...																							
57669	E145	Module number (1byte) and relay position and function (1b)																	Module number (0-255)						Relay function number | Relay number on the
		Relay Name /output256 (20byte)																	Byte 1 name						Byte 2 name
		...																							
		HS position /function output4-20mA (1byte) Empty Byte																	HS position						
57681	E151																								

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
57681	E151	Input list																
57681	E151	Module number (1 byte) and input number (1b)				2 bytes	Module number (0-255)				Relay function number				Relay number on the			
57682	E152	Input 1 name (20 byte)				2 bytes	Byte1 Name				Byte 2 Name							
57692	E15C	Module number (1byte) and relay function and position (1b)				2 bytes	Module number (0-255)				Relay function number				Relay number on the			
57693	E15D	Input 2 name (20byte)				2 bytes	Byte1 Name				Byte 2 Name							
...																		
60431	E0JF	Module number (1 byte) and input number (1b)				2 bytes	Byte1 Name				Byte2 Name							
		Input 1 name (20 byte) relay position (1 byte)				2 bytes	Module type (1 byte)				Relay position (1 byte)							
60442	EC1A																	

DETAILS AND PARAMETERS OF THE 10 TYPES OF POSSIBLE SENSORS (RESERVE COMOPS)

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60462	EC2E	List units of the modules																
60462	EC2E	gaz name for type 1 (6 bytes)									Byte1 Name							
...																		
60465	EC31	gaz name for type 2 (6 bytes)									Byte1 Name							
...																		
60489	EC49	gaz name for type 10 (6 bytes)									Byte1 Name							
...																		
60492	EC4C																	

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60492	EC4C	Code of detector gas type																
60492	EC4C	Gas code for type 1 and 2 (2 bytes)									Code type 1				Code type 2			
60493	EC4C	Gas code for type 3 and 4 (2 bytes)									Code type 3				Code type 4			
...																		
60496	EC51	Gas code for type 9 and 10 (2 bytes)									Code type 9				Code type 10			
60497	EC51																	

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60497	EC51	Instantaneous alarm threshold																
60497	EC51	Instantaneous alarm 1 threshold	Type 1			Word	2 bytes (16 bits not signed)											
60498	EC52	Instantaneous alarm 1 threshold	Type 2			Word	2 bytes (16 bits not signed)											
60499	EC53	Instantaneous alarm 1 threshold	Type 3			Word	2 bytes (16 bits not signed)											
...																		
60506	EC5A	Instantaneous alarm 1 threshold	Type 10			Word	2 bytes (16 bits not signed)											
60507	EC5B	Instantaneous alarm 2 threshold	Type 1			Word	2 bytes (16 bits not signed)											
60508	EC5C	Instantaneous alarm 2 threshold	Type 2			Word	2 bytes (16 bits not signed)											
60509	EC5D	Instantaneous alarm 2 threshold	Type 3			Word	2 bytes (16 bits not signed)											
...																		
60516	EC64	Instantaneous alarm 2 threshold	Type 10			Word	2 bytes (16 bits not signed)											
...																		
60536	EC78	Instantaneous alarm 4 threshold	Type 10			Word	2 bytes (16 bits not signed)											

JBUS					Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30637	EC78	Averaged alarm threshold																		
30637	EC79	Averaged alarm 1 threshold	Type 1	Word	2 bytes (16 bits not signed)															
30638	EC7A	Averaged alarm 1 threshold	Type 2	Word	2 bytes (16 bits not signed)															
30639	EC7B	Averaged alarm 1 threshold	Type 3	Word	2 bytes (16 bits not signed)															
		...	...																	
30646	EC82	Averaged alarm 1 threshold	Type 10	Word	2 bytes (16 bits not signed)															
30647	EC83	Averaged alarm 2 threshold	Type 1	Word	2 bytes (16 bits not signed)															
30648	EC84	Averaged alarm 2 threshold	Type 2	Word	2 bytes (16 bits not signed)															
30649	EC85	Averaged alarm 2 threshold	Type 3	Word	2 bytes (16 bits not signed)															
		...	...																	
30656	EC8C	Averaged alarm 2 threshold	Type 10	Word	2 bytes (16 bits not signed)															
		...	...																	
30676	ECA0	Averaged alarm 4 threshold	Type 10	Word	2 bytes (16 bits not signed)															

JBUS					Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30677	ECA1	Fault Alarm Threshold																		
30677	ECA1	Alarm threshold	Type 1	Word	2 bytes (16 bits not signed)															
30678	ECA2	Alarm threshold	Type 2	Word	2 bytes (16 bits not signed)															
30679	ECA3	Alarm threshold	Type 3	Word	2 bytes (16 bits not signed)															
		...	...																	
30686	ECAA	Alarm threshold	Type 10	Word	2 bytes (16 bits not signed)															

JBUS					Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30687	ECAB	Overscale Alarm threshold																		
30687	ECAB	alarm value	Type 1	Word	2 bytes (16 bits not signed)															
30688	ECAC	alarm value	Type 2	Word	2 bytes (16 bits not signed)															
30689	ECAD	alarm value	Type 3	Word	2 bytes (16 bits not signed)															
		...	...																	
30696	ECB4	alarm value	Type 10	Word	2 bytes (16 bits not signed)															

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60597	ECB5	Averaged alarm delay																
60597	ECB5	averaged alarm 1 Delay				Type 1			Word	2 bytes (16 bits not signed)								
60598	ECB6	averaged alarm 1 Delay				Type 2			Word	2 bytes (16 bits not signed)								
60599	ECB7	averaged alarm 1 Delay				Type 3			Word	2 bytes (16 bits not signed)								
		...																
60606	ECBE	averaged alarm 1 Delay				Type 10			Word	2 bytes (16 bits not signed)								
60607	ECBF	averaged alarm 2 Delay				Type 1			Word	2 bytes (16 bits not signed)								
60608	ECC0	averaged alarm 2 Delay				Type 2			Word	2 bytes (16 bits not signed)								
60609	ECC1	averaged alarm 2 Delay				Type 3			Word	2 bytes (16 bits not signed)								
		...																
60616	ECC8	averaged alarm 2 Delay				Type 10			Word	2 bytes (16 bits not signed)								
		...																
60636	ECDC	averaged alarm 4 Delay				Type 10			Word	2 bytes (16 bits not signed)								

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60637	ECD0	Hysteresis Value																
60637	ECD0	Hysteresis				Type 1			Word	2 bytes (16 bits not signed)								
60638	ECDE	Hysteresis				Type 2			Word	2 bytes (16 bits not signed)								
60639	ECDF	Hysteresis				Type 3			Word	2 bytes (16 bits not signed)								
		...																
60646	ECE6	Hysteresis				Type 10			Word	2 bytes (16 bits not signed)								

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60647	ECE7	RESERVE COMOPS																
60647	ECE7					Type 1			Word	2 bytes (16 bits not signed)								
60648	ECE8					Type 2			Word	2 bytes (16 bits not signed)								
60649	ECE9					Type 3			Word	2 bytes (16 bits not signed)								
		...																
60656	ECF0					Type 10			Word	2 bytes (16 bits not signed)								

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60657	ECF1	Enable or disable Alarms																
60657	ECF1	Type 1 (1 byte)	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On
		Type 2 (1 byte)	A4 aver On	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On
		2 bytes																
60658	ECF2	Type 3 (1 byte)	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On
		Type 4 (1 byte)	A4 aver On	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On
		2 bytes																
		...																
60661	ECF5	Type 9 (1 byte)	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On
		Type 10 (1 byte)	A4 aver On	A3 aver On	A2 aver On	A1 aver On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On	A4 insl On	A3 insl On	A2 insl On	A1 insl On
		2 bytes																

Bit= 1 enable alarm

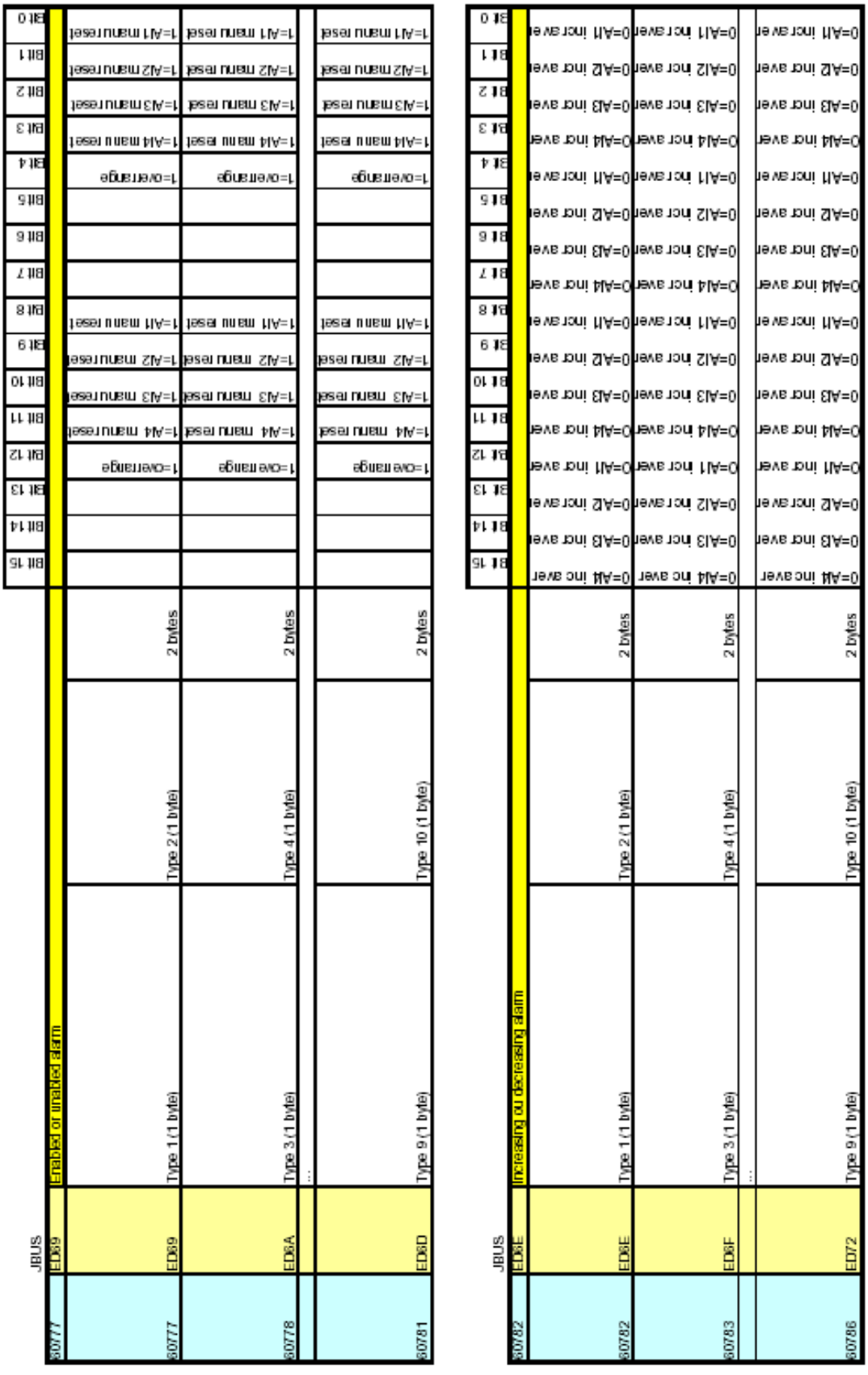
JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30662	ECF6	Checking of the type of connected detector																
30062	ECF6	Type 1 (1 byte)	Type 2 (1 byte)				2 bytes	Code detector type 1					Code detector type 2					
30063	ECF7	Type 3 (1 byte)	Type 4 (1 byte)				2 bytes	Code detector type 3					Code detector type 4					
		...																
30066	ECFA	Type 9 (1 byte)	Type 10 (1 byte)				2 bytes	Code detector type 9					Code detector type 10					

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30067	ECFB	Gas name																
30067	ECFB	Gas name for type 1 (5 bytes)					Name 1 Byte 1				Nom 1 Byte 2							
		...																
30069	ECFD	Gas name for type 1 and 2 (5 bytes)					Nom 1 Byte 5				name 2 Byte 1							
30070	ECFE	Gas name for type 2 (5 bytes)					name 2 Byte 2				name 2 Byte 3							
30071	ECFF	Gas name for type 2 (5 bytes)					name 2 Byte 4				name 2 Byte 5							
		...																
30091	ED13	Gas name for type 10 (5 bytes)					name 10 Byte 4				Name 10 Byte 5							

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30092	ED14	Gas shortened name																
30092	ED14	Gas name for type 1 (16 bytes)					name 1 Byte 1				Name 1 Byte 2							
		...																
30099	ED1B	Gas name for type 2 (16 bytes)					Name 2 Byte 1				Name 2 Byte 2							
		...																
30771	ED83	Gas name for type 10 (16 bytes)					Name 10 Byte 15				Name 10 Byte 16							

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30772	ED84	Display format																
30772	ED84	Type 1 (1 byte)	Type 2 (1 byte)				2 bytes	Display format code type 1					Display format code type 2					
30773	ED85	Type 3 (1 byte)	Type 4 (1 byte)				2 bytes	Display format code type 3					Display format code type 4					
		...																
30776	ED88	Type 9 (1 byte)	Type 10 (1 byte)				2 bytes	Display format code type 9					Display format code type 10					

0 = integer ; 1 = 1 digit after the point (0.0) ; 2 = 2 digits after the point (0.00)


JBUS
Enabled or unabled alarm
60777
ED69
Type 1 (1 byte)
2 bytes
1=overrange
1=A4 manu reset
1=A3 manu reset
1=A2 manu reset
1=A1 manu reset
60778
ED6A
Type 3 (1 byte)
60781
ED6D
Type 9 (1 byte)
JBUS
Increasing ou decreasing alarm
60782
ED6E
Type 1 (1 byte)
0=A4 incr alarm
0=A3 incr alarm
0=A2 incr alarm
0=A1 incr alarm
60783
ED6F
Type 3 (1 byte)
60786
ED72
Type 9 (1 byte)

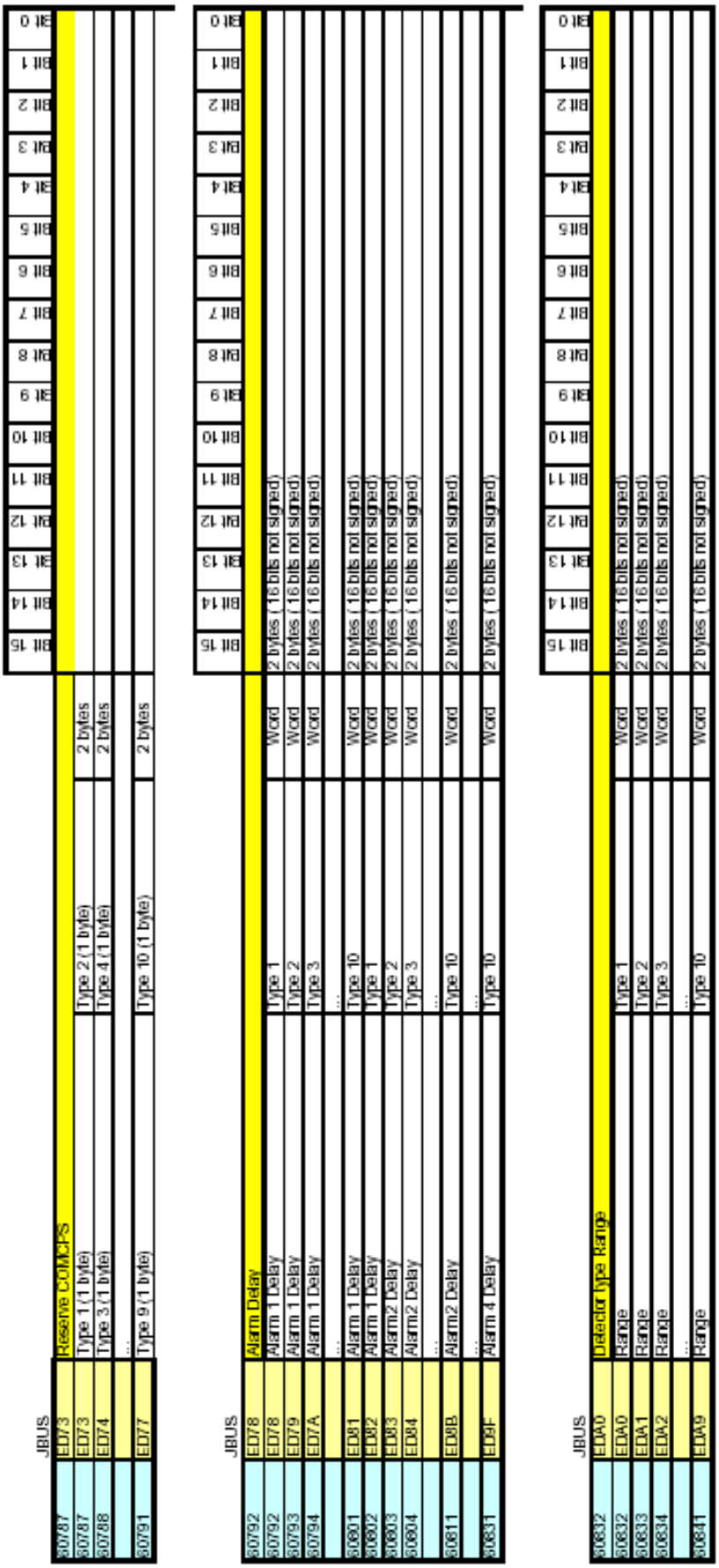

JBUS
60787 ED73 Reserve COMCPS
60787 ED73 Type 1 (1 byte) Type 2 (1 byte) 2 bytes
60788 ED74 Type 3 (1 byte) Type 4 (1 byte) 2 bytes
60791 ED77 Type 9 (1 byte) Type 10 (1 byte) 2 bytes
JBUS
60792 ED78 Alarm Delay Word 2 bytes (16 bits not signed)
60792 ED78 Alarm 1 Delay Type 1 Word 2 bytes (16 bits not signed)
60793 ED79 Alarm 1 Delay Type 2 Word 2 bytes (16 bits not signed)
60794 ED7A Alarm 1 Delay Type 3 Word 2 bytes (16 bits not signed)
60801 ED81 Alarm 1 Delay Type 10 Word 2 bytes (16 bits not signed)
60802 ED82 Alarm 1 Delay Type 1 Word 2 bytes (16 bits not signed)
60803 ED83 Alarm2 Delay Type 2 Word 2 bytes (16 bits not signed)
60804 ED84 Alarm2 Delay Type 3 Word 2 bytes (16 bits not signed)
60811 ED8B Alarm2 Delay Type 10 Word 2 bytes (16 bits not signed)
60831 ED9F Alarm 4 Delay Type 10 Word 2 bytes (16 bits not signed)
JBUS
60832 EDA0 Detector type Range Word 2 bytes (16 bits not signed)
60832 EDA0 Range Type 1 Word 2 bytes (16 bits not signed)
60833 EDA1 Range Type 2 Word 2 bytes (16 bits not signed)
60834 EDA2 Range Type 3 Word 2 bytes (16 bits not signed)
60841 EDA9 Range Type 10 Word 2 bytes (16 bits not signed)

Table de transfert pour les versions de CPS 2.00 et sup.

Warning, for use by authorized personnel

Table de transfert JBUS pour la CPS

Note : Les relais et les entrées sont numérotés de 1 à 256 et de 1 à 224 afin d'optimiser l'occupation mémoire dans la CPS

La numérotation se fait automatiquement par le COMCPS dans l'ordre croissant des relais puis des modules puis des lignes.
De même pour les entrées logiques

ADRESSE JBUS	ADRESSE EN HEXA
1	1

ACCES LECTURE SEUL PAR BIT FONCTION (1 ; 2)

			OCTET 1								OCTET 2							
			Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	0001	Etat d'alarme de tout les modules capteurs																
1	0001	Etat d'alarme 1 de chaques modules capteurs	L1, M32	L1, M31	L1, M30	L1, M29	L1, M28	L1, M27	L1, M26	L1, M25	L1, M24	L1, M23	L1, M22	L1, M21	L1, M20	L1, M19	L1, M18	L1, M17
			L1, M16	L1, M15	L1, M14	L1, M13	L1, M12	L1, M11	L1, M10	L1, M9	L1, M8	L1, M7	L1, M6	L1, M5	L1, M4	L1, M3	L1, M2	L1, M1
2	0002																	
3	0003		L2, M32	L2, M31	L2, M30	L2, M29	L2, M28	L2, M27	L2, M26	L2, M25	L2, M24	L2, M23	L2, M22	L2, M21	L2, M20	L2, M19	L2, M18	L2, M17
			L2, M16	L2, M15	L2, M14	L2, M13	L2, M12	L2, M11	L2, M10	L2, M9	L2, M8	L2, M7	L2, M6	L2, M5	L2, M4	L2, M3	L2, M2	L2, M1
4	0004																	
	...																	
15	000F		L8, M32	L8, M31	L8, M30	L8, M29	L8, M28	L8, M27	L8, M26	L8, M25	L8, M24	L8, M23	L8, M22	L8, M21	L8, M20	L8, M19	L8, M18	L8, M17
			L8, M16	L8, M15	L8, M14	L8, M13	L8, M12	L8, M11	L8, M10	L8, M9	L8, M8	L8, M7	L8, M6	L8, M5	L8, M4	L8, M3	L8, M2	L8, M1
16	0010																	
17	0011	Etat d'alarme 2 de chaques modules capteurs	L1, M32	L1, M31	L1, M30	L1, M29	L1, M28	L1, M27	L1, M26	L1, M25	L1, M24	L1, M23	L1, M22	L1, M21	L1, M20	L1, M19	L1, M18	L1, M17
	...																	
33	0021	Etat d'alarme 3 de chaques modules capteurs	idem															
49	0031	Etat d'alarme 4 de chaques modules capteurs	idem															
65	0041	Etat d'alarme overscale de chaques modules capteurs	idem															
81	0051	Etat d'alarme défaut de chaques modules capteurs	idem															
96	0060																	

97	0061	Etat des relais (retardé d'une seconde)																
97	0061	Relais 1-8	Relais 9-16															
			2 octets															
98	0062	Relais 17-24	Relais 25-32															
99	0063	Relais 33-40	Relais 41-48															
100	0064	Relais 49-56	Relais 57-64															
101	0065	Relais ...	Relais ...															
112	0070	Relais 240-248	Relais 249-256															
113	0071	*Si bit = 0 alors relais arrêté, si bit = 1 relais en marche*																

Chaque bit représente 1 alarme pour 1 capteur d'une ligne

Les alarmes sont regroupées par niveau(6alarmes: 1,2,3,4,Sup,Inf ou efaut)
Puis par ligne : noté L1àL8
Puis par capteur : noté M1 àM32

Note : La gestion interne de la CPS pour les alarme se fait sur 32bits. Donc le 1er bit indiquant l'alarme 1 du capteur 1 de la ligne 1 se trouve dans le 2eme mot Modbus

Chaque bit représente 1 relais ou sortie 4-20mA

Les relais sont regroupées dans l'odre des modules en partant de la ligne1 module1 relais1 jusqu'a la ligne8 module 32. Cette liste est continue comptant N relais. N étant le nombre de relais de l'installation. Au déla les bit reste à 0

Un 1 indique que le relais est commandé, sinon il est relaché

Note : La gestion interne de la CPS pour les alarme se fait sur 8bits. Donc le 1er bit indiquant l'état du 1er relais se trouve dans le 1er mot Modbus(poid fort)

								Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
113	0071	Defaut de tous les modules																					
113	0071	Defaut ligne1	module 1	Defaut ligne1	module 2	Type de defaut pour les 2 modules					Demarrage ligne L1, M1	Alim. Ligne L1, M1	Interne module L1, M1	Type de module L1, M1	Communication L1, M1				Demarrage ligne L1, M2	Alim. Ligne L1, M2	Interne module L1, M2	Type de module L1, M2	Communication L1, M2
114	0072	Defaut ligne1	module 3	Defaut ligne1	module 4	idem	2 octets																
115	0073	Defaut ligne1	module 5	Defaut ligne1	module 6	idem	2 octets																
116	0074	Defaut ligne1	module 7	Defaut ligne1	module 8	idem	2 octets																
117	0075	Defaut ligne1	module 9	Defaut ligne1	module 10	idem	2 octets																
	...		...		...																		
128	0080	Defaut ligne1	module 31	Defaut ligne1	module 32	idem	2 octets																
129	0081	Defaut ligne2	module 1	Defaut ligne2	module 2	idem	2 octets																
	...		...		...																		
145	0091	Defaut ligne3	module 1	Defaut ligne3	module 2	idem	2 octets																
	...		...		...																		
161	00A1	Defaut ligne4	module 1	Defaut ligne4	module 2	idem	2 octets																
	...		...		...																		
177	00B1	Defaut ligne5	module 1	Defaut ligne5	module 2	idem	2 octets																
	...		...		...																		
193	00C1	Defaut ligne6	module 1	Defaut ligne6	module 2	idem	2 octets																
	...		...		...																		
209	00D1	Defaut ligne7	module 1	Defaut ligne7	module 2	idem	2 octets																
	...		...		...																		
225	00E1	Defaut ligne8	module 1	Defaut ligne8	module 2	idem	2 octets																
	...		...		...																		
240	00F0	Defaut ligne8	module 31	Defaut ligne8	module 32	idem	2 octets																
241	00F1	*Si Bit = 0 alors pas de défaut, si Bit = 1 alors défaut*																					

Chaque octet représente les defauts d'un module

Ces octets sont rangés suivant le numéro de ligne puis de module

Si l'octet est différent de 0, il y a présence de défaut.

						Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
241	00F1	Forcage des relais, par la centrale, à la marche forcée																			
241	00F1	Relais 1-8	Relais 9-16		2 octets	Relais8	Relais7	Relais6	Relais5	Relais4	Relais3	Relais2	Relais1	Relais16	Relais15	Relais14	Relais13	Relais12	Relais11	Relais10	Relais9
242	00F2	Relais 17-24	Relais 25-32		2 octets	Relais24	Relais23	Relais22	Relais21	Relais20	Relais19	Relais18	Relais17	Relais32	Relais31	Relais30	Relais29	Relais28	Relais27	Relais26	Relais25
243	00F3	Relais 33-40	Relais 41-48		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
244	00F4	Relais 49-56	Relais 57-64		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
245	00F5	Relais ...	Relais ...		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
256	0100	Relais 240-248	Relais 249-256		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
257	0101	*Si bit = 0 alors relais en fonctionnement normal, si Bit = 1 relais en marche forcé*																			

						Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
257	0101	Forcage des relais, par la centrale, à l'arret forcée																			
257	0101	Relais 1-8	Relais 9-16		2 octets	Relais8	Relais7	Relais6	Relais5	Relais4	Relais3	Relais2	Relais1	Relais16	Relais15	Relais14	Relais13	Relais12	Relais11	Relais10	Relais9
258	0102	Relais 17-24	Relais 25-32		2 octets	Relais24	Relais23	Relais22	Relais21	Relais20	Relais19	Relais18	Relais17	Relais32	Relais31	Relais30	Relais29	Relais28	Relais27	Relais26	Relais25
259	0103	Relais 33-40	Relais 41-48		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
260	0104	Relais 49-56	Relais 57-64		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
261	0105	Relais ...	Relais ...		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
272	0110	Relais 240-248	Relais 249-256		2 octets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
273	0111	*Si bit = 0 alors relais en fonctionnement normal, si Bit = 1 relais en arret forcé*																			

Chaque bit représente la commande via la CPS d'1 relais ou sortie 4-20mA

Les relais sont regroupées dans l'odre des modules en partant de la ligne1 module1 relais1 jusqu'à la ligne8 module 32. Cette liste est continue comptant N relais, N étant le nombre de relais de l'installation. Au dela les bit reste à 0

Dans la table marche forcée, un 1 indique que l'on veut commander le relais ou 20mA sur une sortie.
Dans la table arret forcée, un 1 indique que l'on veut relacher le relais ou 4mA sur une sortie.
Les deux ne peuvent être à 1 en même temps

Note : La gestion interne de la CPS pour les alarmes se fait sur 8bits. Donc le 1er bit indiquant l'état du 1er relais se trouve dans le 1er mot Modbus(poid fort)

						Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
273	0111	Etat des Entrees logiques																			
273	0111	Entrées logiques 25 à 32	Entrées logiques 17 à 24		1/2 LONG	Entrée 32	Entrée 31	Entrée 30	Entrée 29	Entrée 28	Entrée 27	Entrée 26	Entrée 25	Entrée 24	Entrée 23	Entrée 22	Entrée 21	Entrée 20	Entrée 19	Entrée 18	Entrée 17
274	0112	Entrées logiques 9 à 16	Entrées logiques 1 à 8		1/2 LONG	Entrée 16	Entrée 15	Entrée 14	Entrée 13	Entrée 12	Entrée 11	Entrée 10	Entrée 9	Entrée 8	Entrée 7	Entrée 6	Entrée 5	Entrée 4	Entrée 3	Entrée 2	Entrée 1
275	0113	Entrées logiques 57 à 64	Entrées logiques 49 à 56		1/2 LONG	Entrée 64	Entrée 63	Entrée 62	Entrée 61	Entrée 60	Entrée 59	Entrée 58	Entrée 57	Entrée 56	Entrée 55	Entrée 54	Entrée 53	Entrée 52	Entrée 51	Entrée 50	Entrée 49
276	0114	Entrées logiques 41 à 48	Entrées logiques 33 à 40		1/2 LONG	Entrée 48	Entrée 47	Entrée 46	Entrée 45	Entrée 44	Entrée 43	Entrée 42	Entrée 41	Entrée 40	Entrée 39	Entrée 38	Entrée 37	Entrée 36	Entrée 35	Entrée 34	Entrée 33
277	0115	Entrées logiques 89 à 96	Entrées logiques 81 à 88		1/2 LONG	Entrée 96															
278	0116	Entrées logiques 73 à 80	Entrées logiques 65 à 72		1/2 LONG																
279	0117	128			1/2 LONG	Entrée 12															
280	0118				1/2 LONG																
281	0119	160			1/2 LONG	Entrée 16															
282	011A				1/2 LONG																
283	011B	192			1/2 LONG	Entrée 19															
284	011C				1/2 LONG																
285	011D	224			1/2 LONG	Entrée 22															
286	011E				1/2 LONG																

Chaque bit représente la lecture de l'état d'une entrée logique

Les entrées sont regroupées dans l'odre des modules en partant de la ligne1 module1 entrée1 jusqu'a la ligne8 module 32. Cette liste est continue comptant N entrée. N étant le nombre d'entrée activée de l'installation. Au dela les bit reste à 0

Note : La gestion interne de la CPS pour les entrées se fait sur 32bits. Donc le 1er bit indiquant l'entrée 1 du module 1 de la ligne 1 se trouve dans le 2eme mot Modbus

						Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
287	011F	Alimentation ligne																				Le premier octet indique la commande d'alimentation d'une ligne Le 2eme octet indique la l'état de la ligne. (si elle a été coupée à cause d'un CC)
287	011F	Alimentation ligne	Erreur d'alimentation ligne		2 octets	Ligne 8	Ligne 7	Ligne 6	Ligne 5	Ligne 4	Ligne 3	Ligne 2	Ligne 1	Ligne 8	Ligne 7	Ligne 6	Ligne 5	Ligne 4	Ligne 3	Ligne 2	Ligne 1	

Si bit = 1 alors ligne arretée, sinon ligne en marche — *Si bit = 1 alors problème ligne, sinon ligne en marche*

				Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
288	0120	Icône fixe (1 = icône allumer fixe)	Word	/	Batterie / Alimentation	Grande vitesse	Signal stable	Petite vitesse	Alarme 4	Maintenance	Alarme 3	Defaut	Alarme 2	Buzzer	Alarme 1	Decroissant	Alarme Moyennée	Croissant	Ok	Chaque bit est l'image d'une icône affichée sur l'ecran. Le premier mot est pour les icones fixe, le deuxième pour les icones clignotantes
289	0121	Icône clignotante (1 = icône allumer clignotante)	Word	IDEM																

							Bit 15 … Bit 0	
30001	7531	Compteur de temps de dépassement d'échelle						Compteurs de temps ou le capteur est en dépassement d'échelle. Pour la garantie. Note : Mot sur 32 bits en seconde
30001	7531	Tps de d'overscale	Ligne 1	Module 1	Valeur long (32 bits non signés)	1/2 LONG	16 bits de poids fort du long	
30002	7532					1/2 LONG	16 bits de poids faible du long	
30003	7533	Tps de d'overscale	Ligne 1	Module 2		1/2 LONG	Valeur long (32 bits non signés)	
30005	7535	Tps de d'overscale	Ligne 1	Module 3		1/2 LONG	Valeur long (32 bits non signés)	
30007	7537	Tps de d'overscale	Ligne 1	Module 4		1/2 LONG	Valeur long (32 bits non signés)	
30009	7539	Tps de d'overscale	Ligne 1	Module 5		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30065	7571	Tps de d'overscale	Ligne 2	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30129	75B1	Tps de d'overscale	Ligne 3	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30193	75F1	Tps de d'overscale	Ligne 4	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30257	7631	Tps de d'overscale	Ligne 5	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30321	7671	Tps de d'overscale	Ligne 6	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30385	76B1	Tps de d'overscale	Ligne 7	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30449	76F1	Tps de d'overscale	Ligne 8	Module 1		1/2 LONG	Valeur long (32 bits non signés)	
	...							
30511	772F	Tps de d'overscale	Ligne 8	Module 32		1/2 LONG	Valeur long (32 bits non signés)	
30512	7730							

							Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
30513	7731	Compteur de jour depuis le dernier calibage																				
30513	7731	Dernier calibrage	Ligne 1	Module 1		Word	Valeur int (16 bits signés)															
30514	7732	Dernier calibrage	Ligne 1	Module 2		Word	Valeur int (16 bits signés)															
30515	7733	Dernier calibrage	Ligne 1	Module 3		Word	Valeur int (16 bits signés)															
30516	7734	Dernier calibrage	Ligne 1	Module 4		Word	Valeur int (16 bits signés)															
30517	7735	Dernier calibrage	Ligne 1	Module 5		Word	Valeur int (16 bits signés)															
	...																					
30540	774C	Dernier calibrage	Ligne 1	Module 28		Word	Valeur int (16 bits signés)															
30541	774D	Dernier calibrage	Ligne 1	Module 29		Word	Valeur int (16 bits signés)															
30542	774E	Dernier calibrage	Ligne 1	Module 30		Word	Valeur int (16 bits signés)															
30543	774F	Dernier calibrage	Ligne 1	Module 31		Word	Valeur int (16 bits signés)															
30544	7750	Dernier calibrage	Ligne 1	Module 32		Word	Valeur int (16 bits signés)															
30545	7751	Dernier calibrage	Ligne 2	Module 1		Word	Valeur int (16 bits signés)															
30546	7752	Dernier calibrage	Ligne 2	Module 2		Word	Valeur int (16 bits signés)															
	...																					
30577	7771	Dernier calibrage	Ligne 3	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30609	7791	Dernier calibrage	Ligne 4	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30641	77B1	Dernier calibrage	Ligne 5	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30673	77D1	Dernier calibrage	Ligne 6	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30705	77F1	Dernier calibrage	Ligne 7	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30737	7811	Dernier calibrage	Ligne 8	Module 1		Word	Valeur int (16 bits signés)															
	...																					
30768	7830	Dernier calibrage	Ligne 8	Module 32		Word	Valeur int (16 bits signés)															
30769	7831																					

Compteurs de temps de fonctionnement depuis la dernière calibration

Note : Mot sur 16 bits en jour

				Bit 15 Bit 14 Bit 13 Bit 12 Bit 11 Bit 10 Bit 9 Bit 8	Bit 7 Bit 6 Bit 5 Bit 4 Bit 3 Bit 2 Bit 1 Bit 0	
30769	7831	Pointeur sur prochain evenement à enregistrer (Modulo 1200)	Word	Valeur int (16 bits signés)		Enregistreur d'événement (1200) Permet de recomposer la liste des événements affichée dans le menu Contrôle-evenements. Le codage ne sera pas expliqué dans ce fichier
30770	7832	Pointeur sur l'evenement le plus ancien (-1 si le système n'a pas encore reçu ses 1200 événements	Word	Valeur int (16 bits signés)		
30771	7833	Pointeur sur l'evenement à imprimer	Word	Valeur int (16 bits signés)		
30772	7834	VIDE		Bit 7 Bit 6 Bit 5 Bit 4 Bit 3 Bit 2 Bit 1 Bit 0	Bit 7 Bit 6 Bit 5 Bit 4 Bit 3 Bit 2 Bit 1 Bit 0	
30809	7859	Evenement				
30809	7859	Evenement N		Jour	Mois	
30810	785A	Evenement N		Année	Heure	
30811	785B	Evenement N		Minute	seconde	
30812	785C	Evenement N		No de module	No d'evenement	
30813	785D	Evenement N		Information suplémentaire	Information suplémentaire	
30814	785E	Evenement N+1		Jour	Mois	
30815	785F	Evenement N+1		Année	Heure	
30816	7860	Evenement N+1		Minute	seconde	
30817	7861	Evenement N+1		No de module	No d'evenement	
30818	7862	Evenement N+1		Information suplémentaire	Information suplémentaire	
...		...				
36807	8FC7	Evenement N+1199		No de module	No d'evenement	
36808	8FC8	Evenement N+1199		Information suplémentaire	Information suplémentaire	
36809	8FC9	Pointeur sur le dernier texte imprimé (Modulo 4)	Word	0,1,2,3		Ici, on stock les 4 deniers événements envoyés à l'imprimante en ASCII avec un pointeur pour connaître le denier evenement(buffer tournant).
36810	8FCA	Texte M texte de 80 octets				
36850	8FF2	Texte M + 1 texte de 80 octets				
36890	901A	Texte M + 2 texte de 80 octets				
36930	9042	Texte M + 3 texte de 80 octets				

OCTET 1 OCTET 2

JBUS																		
40001	9C41	Mesure de chaques capteurs																
40001	9C41	Mesure instantannée	Ligne 1	Module 1		Word	(16 bits signés)											
40002	9C42	Mesure instantannée	Ligne 1	Module 2		Word	(16 bits signés)											
40003	9C43	Mesure instantannée	Ligne 1	Module 3		Word	(16 bits signés)											
40004	9C44	Mesure instantannée	Ligne 1	Module 4		Word	(16 bits signés)											
40005	9C45	Mesure instantannée	Ligne 1	Module 5		Word	(16 bits signés)											
	...																	
40028	9C5C	Mesure instantannée	Ligne 1	Module 28		Word	(16 bits signés)											
40029	9C5D	Mesure instantannée	Ligne 1	Module 29		Word	(16 bits signés)											
40030	9C5E	Mesure instantannée	Ligne 1	Module 30		Word	(16 bits signés)											
40031	9C5F	Mesure instantannée	Ligne 1	Module 31		Word	(16 bits signés)											
40032	9C60	Mesure instantannée	Ligne 1	Module 32		Word	(16 bits signés)											
40033	9C61	Mesure instantannée	Ligne 2	Module 1		Word	(16 bits signés)											
40034	9C62	Mesure instantannée	Ligne 2	Module 2		Word	(16 bits signés)											
	...																	
40065	9C81	Mesure instantannée	Ligne 3	Module 1		Word	(16 bits signés)											
	...																	
40097	9CA1	Mesure instantannée	Ligne 4	Module 1		Word	(16 bits signés)											
	...																	
40129	9CC1	Mesure instantannée	Ligne 5	Module 1		Word	(16 bits signés)											
	...																	
40161	9CE1	Mesure instantannée	Ligne 6	Module 1		Word	(16 bits signés)											
	...																	
40193	9D01	Mesure instantannée	Ligne 7	Module 1		Word	(16 bits signés)											
	...																	
40225	9D21	Mesure instantannée	Ligne 8	Module 1		Word	(16 bits signés)											
	...																	
40256	9D40	Mesure instantannée	Ligne 8	Module 32		Word	(16 bits signés)											
40257	9D41																	

Mesure de chaque capteur.

Valeur rangée par numéro de ligne puis de module

Note : Mot sur 16 bits. Il faut aller relire le coefficient multiplicateur table 60772 (format d'affichage) pour avoir la vrai valeur

40257	9D41	Mot de commande des Sorties 4-20mA (1000= 1mA)																
40257	9D41	Valeur Sortie 4-20mA	Sortie1			Word	Valeur int (16 bits non signés)											
40258	9D42	Valeur Sortie 4-20mA	Sortie2			Word	Valeur int (16 bits non signés)											
40259	9D43	Valeur Sortie 4-20mA	Sortie3			Word	Valeur int (16 bits non signés)											
40260	9D44	Valeur Sortie 4-20mA	Sortie4			Word	Valeur int (16 bits non signés)											
40261	9D45	Valeur Sortie 4-20mA	Sortie5			Word	Valeur int (16 bits non signés)											
40262	9D46	Valeur Sortie 4-20mA	Sortie6			Word	Valeur int (16 bits non signés)											
40263	9D47	Valeur Sortie 4-20mA	Sortie7			Word	Valeur int (16 bits non signés)											
40264	9D48	Valeur Sortie 4-20mA	Sortie8			Word	Valeur int (16 bits non signés)											
40265	9D49	Valeur Sortie 4-20mA	Sortie9			Word	Valeur int (16 bits non signés)											
40266	9D4A	Valeur Sortie 4-20mA	Sortie10			Word	Valeur int (16 bits non signés)											
40267	9D4B	Valeur Sortie 4-20mA	Sortie11			Word	Valeur int (16 bits non signés)											
40268	9D4C	Valeur Sortie 4-20mA	Sortie12			Word	Valeur int (16 bits non signés)											
	...																	
40512	9E40	Valeur Sortie 4-20mA	Sortie256			Word	Valeur int (16 bits non signés)											
40513	9E41																	

Valeur envoyée à chaque sortie 4-20mA

Valeur rangée par numéro de ligne puis de module

Note : Mot sur 16 bits.
4000 = 4mA
20000 = 20mA

Valeur des 4 moyennes de chaque capteur.

Valeur rangée par numéro de ligne puis de capteur puis de moyenne pour les alarmes 1,2,3,4

Note : Mot sur 16 bits. Il faut aller relire le coefficient multiplicateur table 60772 (format d'affichage) pour avoir la vrai valeur

JBUS	Mesure de chaques capteurs						0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
40513	9E41	Mesure moyennée 1	Ligne 1	Module 1		Word	(16 bits signés)
40513	9E41	Mesure moyennée 1	Ligne 1	Module 1		Word	(16 bits signés)
40514	9E42	Mesure moyennée 2	Ligne 1	Module 1		Word	(16 bits signés)
40515	9E43	Mesure moyennée 3	Ligne 1	Module 1		Word	(16 bits signés)
40516	9E44	Mesure moyennée 4	Ligne 1	Module 1		Word	(16 bits signés)
40517	9E45	Mesure moyennée 1	Ligne 1	Module 2		Word	(16 bits signés)
	...						
40641	9EC1	Mesure moyennée 1	Ligne 2	Module 1		Word	(16 bits signés)
40642	9EC2	Mesure moyennée 2	Ligne 2	Module 1		Word	(16 bits signés)
	...						
40769	9F41	Mesure moyennée 1	Ligne 3	Module 1		Word	(16 bits signés)
	...						
40897	9FC1	Mesure moyennée 1	Ligne 4	Module 1		Word	(16 bits signés)
	...						
41025	A041	Mesure moyennée 1	Ligne 5	Module 1		Word	(16 bits signés)
	...						
41153	A0C1	Mesure moyennée 1	Ligne 6	Module 1		Word	(16 bits signés)
	...						
41281	A141	Mesure moyennée 1	Ligne 7	Module 1		Word	(16 bits signés)
	...						
41409	A1C1	Mesure moyennée 1	Ligne 8	Module 1		Word	(16 bits signés)
	...						
41536	A240	Mesure moyennée 1	Ligne 8	Module 32		Word	(16 bits signés)
41537	A241						

JBUS	Mesure de chaques capteurs					Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41537	A241				Word	(16 bits signés)															
41537	A241	Mesure maximum	Ligne 1	Module 1		Word	(16 bits signés)														
41538	A242	Mesure maximum	Ligne 1	Module 2		Word	(16 bits signés)														
41539	A243	Mesure maximum	Ligne 1	Module 3		Word	(16 bits signés)														
41540	A244	Mesure maximum	Ligne 1	Module 4		Word	(16 bits signés)														
41541	A245	Mesure maximum	Ligne 1	Module 5		Word	(16 bits signés)														
	...																				
41564	A25C	Mesure maximum	Ligne 1	Module 28		Word	(16 bits signés)														
41565	A25D	Mesure maximum	Ligne 1	Module 29		Word	(16 bits signés)														
41566	A25E	Mesure maximum	Ligne 1	Module 30		Word	(16 bits signés)														
41567	A25F	Mesure maximum	Ligne 1	Module 31		Word	(16 bits signés)														
41568	A260	Mesure maximum	Ligne 1	Module 32		Word	(16 bits signés)														
41569	A261	Mesure maximum	Ligne 2	Module 1		Word	(16 bits signés)														
41570	A262	Mesure maximum	Ligne 2	Module 2		Word	(16 bits signés)														
	...																				
41601	A281	Mesure maximum	Ligne 3	Module 1		Word	(16 bits signés)														
	...																				
41633	A2A1	Mesure maximum	Ligne 4	Module 1		Word	(16 bits signés)														
	...																				
41665	A2C1	Mesure maximum	Ligne 5	Module 1		Word	(16 bits signés)														
	...																				
41697	A2E1	Mesure maximum	Ligne 6	Module 1		Word	(16 bits signés)														
	...																				
41729	A301	Mesure maximum	Ligne 7	Module 1		Word	(16 bits signés)														
	...																				
41761	A321	Mesure maximum	Ligne 8	Module 1		Word	(16 bits signés)														
	...																				
41792	A340	Mesure maximum	Ligne 8	Module 32		Word	(16 bits signés)														
41793	A341																				

Valeur du maximum de mesure de chaque capteur.

Valeur rangée par numéro de ligne puis de capteur

Note : Mot sur 16 bits. Il faut aller relire le coefficient multiplicateur table 60772 (format d'affichage) pour avoir la vrai valeur. La valeur est RAZ à chaque impression programmée

JBUS	Mesure de chaques capteurs					Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41793	A341	Phrase1				OCTET 1								OCTET 2							
41793	A341	Phrase1				OCTET 3								OCTET 4							
41794	A342	Phrase1				OCTET 5								OCTET 6							
41795	A343	Phrase1				OCTET 7								OCTET 8							
41796	A344	Phrase1				OCTET 9								OCTET 10							
41797	A345	Phrase1				OCTET 11								OCTET 12							
41797	A345	Phrase1				OCTET 13								OCTET 14							
41798	A346	Phrase1				OCTET 15								OCTET 16							
41799	A347	Phrase1				OCTET 17								OCTET 18							
41800	A348	Phrase1				OCTET 19								OCTET 20							
41801	A349	Phrase1				OCTET 21								OCTET 22							
41801	A349	Phrase1				OCTET 23								OCTET 24							
41802	A34A	Phrase1				OCTET 25								OCTET 26							
41803	A34B	Phrase1				OCTET 27								OCTET 28							
41804	A34C	Phrase1				OCTET 29								OCTET 30							
41805	A34D	Phrase1				OCTET 31								OCTET 32							
41806	A34E	Phrase1				OCTET 33 / caractere fin de phrase								OCTET 34 / vide							
41807	A34F	Phrase1																			
41808	A350																				

Phrase de la première ligne de texte de l'afficheur

JBUS		Mesure de chaques capteurs	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41808	A350																	
41810	A352	Phrase2	OCTET 1														OCTET 2	
41811	A353	Phrase2	OCTET 3														OCTET 4	
41812	A354	Phrase2	OCTET 5														OCTET 6	
41813	A355	Phrase2	OCTET 7														OCTET 8	
41814	A356	Phrase2	OCTET 9														OCTET 10	
41814	A356	Phrase2	OCTET 11														OCTET 12	
41815	A357	Phrase2	OCTET 13														OCTET 14	
41816	A358	Phrase2	OCTET 15														OCTET 16	
41817	A359	Phrase2	OCTET 17														OCTET 18	
41818	A35A	Phrase2	OCTET 19														OCTET 20	
41818	A35A	Phrase2	OCTET 21														OCTET 22	
41819	A35B	Phrase2	OCTET 23														OCTET 24	
41820	A35C	Phrase2	OCTET 25														OCTET 26	
41821	A35D	Phrase2	OCTET 27														OCTET 28	
41822	A35E	Phrase2	OCTET 29														OCTET 30	
41823	A35F	Phrase2	OCTET 31														OCTET 32	
41824	A360	Phrase2	OCTET 33 / caractere fin de phrase														OCTET 34 / vide	
41825	A361																	

Phrase de la deuxième ligne de texte de l'afficheur

			Word	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	ACCES EN ECRITURE
41827	A363	Clavier déporté(faire une ecriture)											Menu	ACQUIT	Vertical moins	Hori_plus	entrer	Hori moins	Vertical plus	
41828	A364	Trou 32octets																		
41859	A383	Fin trou																		
41860	A384	forçage supervision activé																		
41861	A385																			

Pour activer les entrées pompiers ecrire code 0xABCD

Attention ! Ne jamais commander des relais inexistant dans le programme!

41861	A385	Forçage des relais, par un ecran deporté, en marche forcée																			
41861	A385	Relais 1-8	Relais 9-16	2 octets	Relais 9	Relais 10	Relais 11	Relais 12	Relais 13	Relais 14	Relais 15	Relais 16	Relais 17	Relais 18	Relais 19	Relais 20	Relais 21	Relais 22	Relais 23	Relais 24	
41862	A386	Relais 17-24	Relais 25-32	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41863	A387	Relais 33-40	Relais 41-48	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41864	A388	Relais 49-56	Relais 57-64	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41865	A389	Relais ...	Relais ...	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41876	A394	Relais 240-248	Relais 249-256	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41877	A395	Forçage des relais, par un ecran deporté, à l'arret forcée (inutile, la commande pompier met à l'arret toutes les commandes)																			
41877	A395	Relais 1-8	Relais 9-16	2 octets	Relais 9	Relais 10	Relais 11	Relais 12	Relais 13	Relais 14	Relais 15	Relais 16	Relais 17	Relais 18	Relais 19	Relais 20	Relais 21	Relais 22	Relais 23	Relais 24	
41878	A396	Relais 17-24	Relais 25-32	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41879	A397	Relais 33-40	Relais 41-48	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41880	A398	Relais 49-56	Relais 57-64	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
	0000	Relais ...	Relais ...	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41892	A3A4	Relais 240-248	Relais 249-256	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

Si bit = 0 alors relais en fonctionnement normal, si Bit = 1 relais en arret forcé

41893	A3A5	Forçage des relais, par la centrale ou supervision, à la marche forcée																			
41893	A3A5	Relais 1-8	Relais 9-16	2 octets	Relais 9	Relais 10	Relais 11	Relais 12	Relais 13	Relais 14	Relais 15	Relais 16	Relais 17	Relais 18	Relais 19	Relais 20	Relais 21	Relais 22	Relais 23	Relais 24	
41894	A3A6	Relais 17-24	Relais 25-32	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41895	A3A7	Relais 33-40	Relais 41-48	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41896	A3A8	Relais 49-56	Relais 57-64	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41897	A3A9	Relais ...	Relais ...	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41908	A3B4	Relais 240-248	Relais 249-256	2 octets	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
41909	A3B5	*Si bit = 0 alors relais en fonctionnement normal, si Bit = 1 relais en marche forcé*																			

Attention ! Ne jamais commander des relais inexistant dans le programme!

Une écriture d'un bit = une action clavier
Note: Le traitement peut prendre 1s

Action Pompier: (priorité maximum)

Pour activer la commande pompier à distance et pouvoir forcer les relais en marche, il faut ecrire 0xABCD à l'adresse indiqué.

Dans ce cas, par défaut, toutes commandes de relais sont coupées, Ensuite on active la marche forcée à l'aide de la table 41861

Commande CPS/déporté

Ne fonctionne pas comme la fonction pompier ci-dessus, on envoie pour chaque relais l'état souhaité en forçant le mise en marche ou à l'arret des relais.

Les entrées logiques sont prioritaires sur cette commande.

							Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
41909	A3B5	Forcage des relais, par la centrale ou supervision, à l'arret forcée					Attention ! Ne jamais commander des relais inexistant dans le programme!															
41909	A3B5	Relais 1-8	Relais 9-16			2 octets	Relais8	Relais7	Relais6	Relais5	Relais4	Relais3	Relais2	Relais1	Relais16	Relais15	Relais14	Relais13	Relais12	Relais11	Relais10	Relais9
41910	A3B6	Relais 17-24	Relais 25-32			2 octets	Relais24	Relais23	Relais22	Relais21	Relais20	Relais19	Relais18	Relais17	Relais32	Relais31	Relais30	Relais29	Relais28	Relais27	Relais26	Relais25
41911	A3B7	Relais 33-40	Relais 41-48			2 octets																
41912	A3B8	Relais 49-56	Relais 57-64			2 octets																
41913	A3B9	Relais ...	Relais ...			2 octets																
41924	A3C4	Relais 240-248	Relais 249-256			2 octets																
		Si bit = 0 alors relais en fonctionnement normal, si Bit = 1 relais en arret forcé																				
41925	A3C5	Par défaut tous les mots à 0xFFFFFFFF			Ligne, Module	1/2 LONG	L1, M32	L1, M31	L1, M30	L1, M29	L1, M28	L1, M27	L1, M26	L1, M25	L1, M24	L1, M23	L1, M22	L1, M21	L1, M20	L1, M19	L1, M18	L1, M17
41926	A3C6	Pour activer un module relais virtuel faire tomber le bit correspondant				1/2 LONG	L1, M16	L1, M15	L1, M14	L1, M13	L1, M12	L1, M11	L1, M10	L1, M9	L1, M8	L1, M7	L1, M6	L1, M5	L1, M4	L1, M3	L1, M2	L1, M1
41927	A3C7					1/2 LONG	L2, M32	L2, M31	L2, M30	L2, M29	L2, M28	L2, M27	L2, M26	L2, M25	L2, M24	L2, M23	L2, M22	L2, M21	L2, M20	L2, M19	L2, M18	L2, M17
41928	A3C8					1/2 LONG	L2, M16	L2, M15	L2, M14	L2, M13	L2, M12	L2, M11	L2, M10	L2, M9	L2, M8	L2, M7	L2, M6	L2, M5	L2, M4	L2, M3	L2, M2	L2, M1
	...					1/2 LONG																
41939	A3D3					1/2 LONG	L8, M32	L8, M31	L8, M30	L8, M29	L8, M28	L8, M27	L8, M26	L8, M25	L8, M24	L8, M23	L8, M22	L8, M21	L8, M20	L8, M19	L8, M18	L8, M17
41940	A3D4					1/2 LONG	L8, M16	L8, M15	L8, M14	L8, M13	L8, M12	L8, M11	L8, M10	L8, M9	L8, M8	L8, M7	L8, M6	L8, M5	L8, M4	L8, M3	L8, M2	L8, M1

Chaque bit représente 1 module d'une ligne

Par défaut tous les bits sont à 1.

Mettre à 0 les bits des modules relais fictifs pour inhiber les défauts liés à la communication

Note : La gestion interne de la CPS pour les alarme se fait sur 32bits.

CONFIG VIA COMCPS — OCTET 1 — OCTET 2

JBUS		Liste des modules	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
50001	C351	Nom du module 1 (32octet)							Nom octet 1						Nom octet 2			
50001	C351																	
		...																
50017	C361	Type de module (1 octet) Indice relais (1 octet)							Type de module (1 octet)						Indice relais (1 octet)			
50018	C362	Indice entrée (1 octet) Config par défaut (1 octet)							Indice entrée (1 octet)						Config par défaut (1 octet)			
50019	C363	Nom du module 2 (32octet)							Nom octet 1						Nom octet 2			
		...																
50035	C373	Type de module (1 octet) Indice relais (1 octet)							Type de module (1 octet)						Indice relais (1 octet)			
50036	C374	Indice entrée (1 octet) Config par défaut (1 octet)							Indice entrée (1 octet)						Config par défaut (1 octet)			
		...																
54591	D53F	Nom du module 256 (32octet)							Nom octet 1						Nom octet 2			
		...																
54607	D54F	Type de module (1 octet) Indice relais (1 octet)							Type de module (1 octet)						Indice relais (1 octet)			
54608	D550	Indice entrée (1 octet) Config par défaut (1 octet)							Indice entrée (1 octet)						Config par défaut (1 octet)			
54609	D551																	

JBUS		Liste de relais	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
54609	D551	Numero de module (1octet) et Numero de fonction et de position du relais (1o)	2 Octets						No de module (0-255)						No de fonction du relais			No du relais sur le module
54610	D552	Nom relais /sortie 1 (20octet)	2 Octets						Nom octet 1						Nom octet 2			
		...																
54620	D55C	Indice GV / fonction sortie 4-20mA (1octet) octet vide	2 Octets						Indice GV									
54621	D55D	Numero de module (1octet) et Numero de fonction et de position du relais (1o)	2 Octets						No de module (0-255)						No de fonction du			No du relais sur le
54622	D55E	Nom relais /sortie 2 (20octet)	2 Octets						Nom octet 1						Nom octet 2			
		...																
54632	D568	Indice GV / fonction sortie 4-20mA (1octet) octet vide	2 Octets						Indice GV									
		...																
57669	E145	Numero de module (1octet) et Numero de fonction et de position du relais (1o)	2 Octets						No de module (0-255)						No de fonction du			No du relais sur le
		Nom relais /sortie 256 (20octet)	2 Octets						Nom octet 1						Nom octet 2			
		...																
		Indice GV / fonction sortie 4-20mA (1octet) octet vide	2 Octets						Indice GV									
57681	E151																	

JBUS		Liste des entrees	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
57681	E151	Numero de module (1octet) et Numero de d'entrée (1o)	2 Octets						No de module (0-255)						No de fonction du			No du relais sur le
57682	E152	Nom entree 1 (20octet)	2 Octets						Nom octet 1						Nom octet 2			
57692	E15C	Numero de module (1octet) et Numero de fonction et de position du relais (1o)	2 Octets						No de module (0-255)						No de fonction du			No du relais sur le
57693	E15D	Nom entree 2 (20octet)	2 Octets						Nom octet 1						Nom octet 2			
		...																
60431	EC0F	Numero de module (1octet) et Numero de d'entrée (1o)	2 Octets						Nom octet 1						Nom octet 2			
		Nom entree 1 (20octet) Indice relais (1 octet)	2 Octets						Type de module (1 octet)						Indice relais (1 octet)			
60442	EC1A																	

DETAILS ET PARAMETRES DES 10 TYPES DE CAPTEURS POSSIBLES (RESERVE COMCPS)

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60462	EC2E	Liste des unitées du modules																
60462	EC2E	Nom du gaz pour le type 1 (6 octets)								Nom octet 1							Nom octet 2	
		...																
60465	EC31	Nom du gaz pour le type 2 (6 octets)								Nom octet 1							Nom octet 2	
		...																
60489	EC49	Nom du gaz pour le type 10 (6 octets)								Nom octet 1							Nom octet 2	
		...																
60492	EC4C																	

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60492	EC4C	Code du type de gaz du capteur																
60492	EC4C	Code du gaz pour le type 1 et 2 (2 octets)								Code type 1							Code Type 2	
60493		Code du gaz pour le type 3 et 4 (2 octets)								Code type 3							Code Type 4	
		...																
60496		Code du gaz pour le type 9 et 10 (2 octets)								Code type 9							Code Type 10	
60497	EC51																	

JBUS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60497	EC51	Seuils des alarmes instantannées																
60497	EC51	Seuil alarme 1 instantanné	Type 1	Word	Valeur int (16 bits signés)													
60498	EC52	Seuil alarme 1 instantanné	Type 2	Word	Valeur int (16 bits signés)													
60499	EC53	Seuil alarme 1 instantanné	Type 3	Word	Valeur int (16 bits signés)													
		...	...															
60506	EC5A	Seuil alarme 1 instantanné	Type 10	Word	Valeur int (16 bits signés)													
60507	EC5B	Seuil alarme 2 instantanné	Type 1	Word	Valeur int (16 bits signés)													
60508	EC5C	Seuil alarme 2 instantanné	Type 2	Word	Valeur int (16 bits signés)													
60509	EC5D	Seuil alarme 2 instantanné	Type 3	Word	Valeur int (16 bits signés)													
		...	...															
60516	EC64	Seuil alarme 2 instantanné	Type 10	Word	Valeur int (16 bits signés)													
		...	...															
60536	EC78	Seuil alarme 4 instantanné	Type 10	Word	Valeur int (16 bits signés)													

JBUS	EC79	Seuils des alarmes moyennées			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60537	EC79	Seuil alarme 1 Moyenné	Type 1	Word	Valeur int (16 bits signés)															
60537	EC79	Seuil alarme 1 Moyenné	Type 1	Word	Valeur int (16 bits signés)															
60538	EC7A	Seuil alarme 1 Moyenné	Type 2	Word	Valeur int (16 bits signés)															
60539	EC7B	Seuil alarme 1 Moyenné	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60546	EC82	Seuil alarme 1 Moyenné	Type 10	Word	Valeur int (16 bits signés)															
60547	EC83	Seuil alarme 2 Moyenné	Type 1	Word	Valeur int (16 bits signés)															
60548	EC84	Seuil alarme 2 Moyenné	Type 2	Word	Valeur int (16 bits signés)															
60549	EC85	Seuil alarme 2 Moyenné	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60556	EC8C	Seuil alarme 2 Moyenné	Type 10	Word	Valeur int (16 bits signés)															
		...	...																	
60576	ECA0	Seuil alarme 4 Moyenné	Type 10	Word	Valeur int (16 bits signés)															

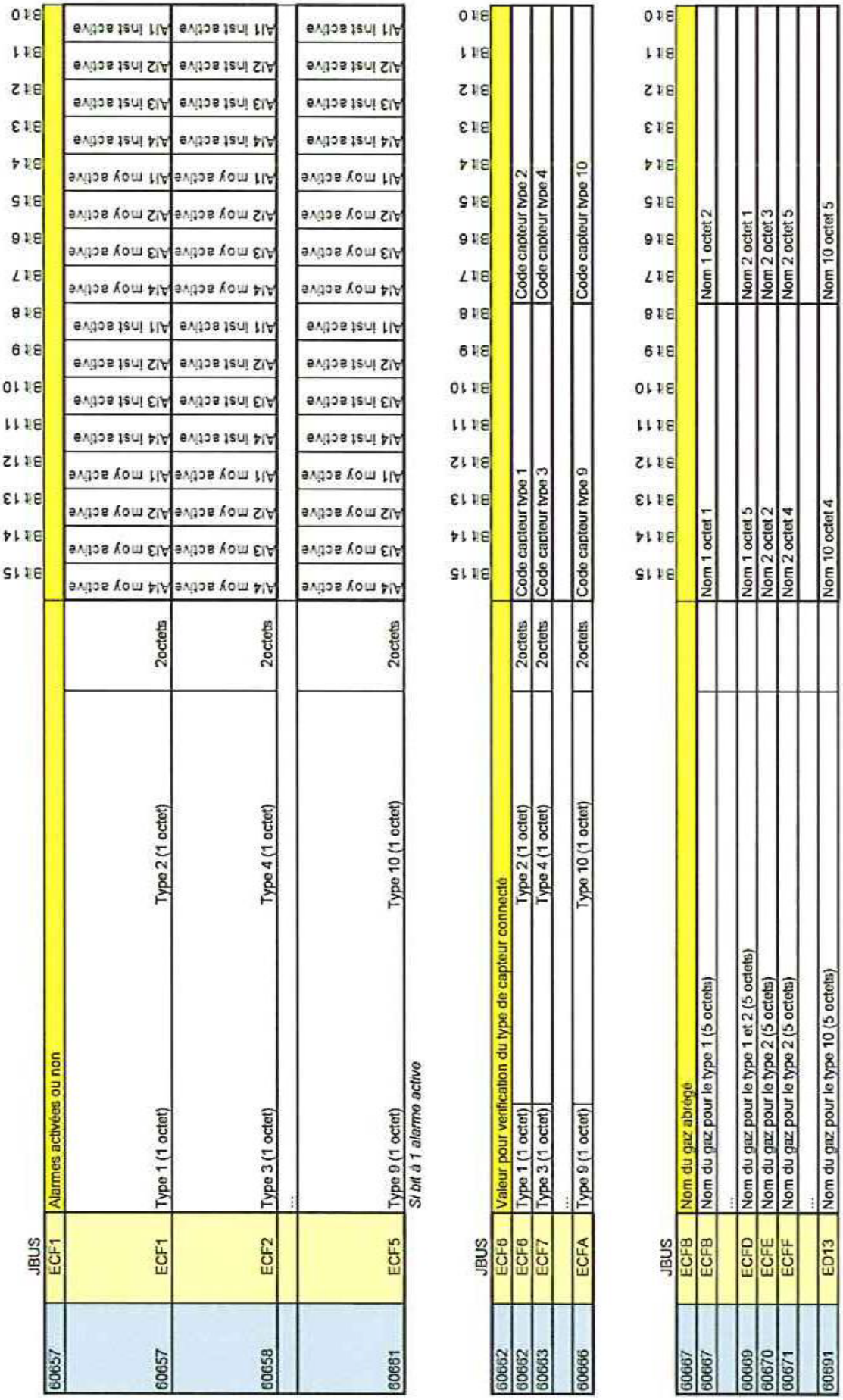
JBUS	ECA1	Seuils des alarmes de défauts			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60577	ECA1	Seuil alarme	Type 1	Word	Valeur int (16 bits signés)															
60577	ECA1	Seuil alarme	Type 1	Word	Valeur int (16 bits signés)															
60578	ECA2	Seuil alarme	Type 2	Word	Valeur int (16 bits signés)															
60579	ECA3	Seuil alarme	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60586	ECAA	Seuil alarme	Type 10	Word	Valeur int (16 bits signés)															

JBUS	ECAB	Seuils des alarmes de dépassement d'échelle			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60587	ECAB	Seuil alarme	Type 1	Word	Valeur int (16 bits signés)															
60587	ECAB	Seuil alarme	Type 1	Word	Valeur int (16 bits signés)															
60588	ECAC	Seuil alarme	Type 2	Word	Valeur int (16 bits signés)															
60589	ECAD	Seuil alarme	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60596	ECB4	Seuil alarme	Type 10	Word	Valeur int (16 bits signés)															

JBUS		Temps de calcul de chaque moyenne			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60597	ECB5			Word	(16 bits signés)															
60597	ECB5	Temps alarme moyennée 1	Type 1	Word	(16 bits signés)															
60598	ECB6	Temps alarme moyennée 1	Type 2	Word	(16 bits signés)															
60599	ECB7	Temps alarme moyennée 1	Type 3	Word	(16 bits signés)															
		...	...																	
60606	ECBE	Temps alarme moyennée 1	Type 10	Word	Valeur int (16 bits signés)															
60607	ECBF	Temps alarme moyennée 2	Type 1	Word	Valeur int (16 bits signés)															
60608	ECC0	Temps alarme moyennée 2	Type 2	Word	Valeur int (16 bits signés)															
60609	ECC1	Temps alarme moyennée 2	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60616	ECC8	Temps alarme moyennée 2	Type 10	Word	Valeur int (16 bits signés)															
		...	...																	
60636	ECDC	Temps alarme moyennée 4	Type 10	Word	Valeur int (16 bits signés)															

JBUS		Valeurs des hysteresis			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60637	ECDD			Word	Valeur int (16 bits signés)															
60637	ECDD	Hysteresis	Type 1	Word	Valeur int (16 bits signés)															
60638	ECDE	Hysteresis	Type 2	Word	Valeur int (16 bits signés)															
60639	ECDF	Hysteresis	Type 3	Word	Valeur int (16 bits signés)															
		...	...																	
60646	ECE6	Hysteresis	Type 10	Word	Valeur int (16 bits signés)															

JBUS		RESERVE COMCPS			Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60647	ECE7			Word	Valeur int (16 bits signés)															
60647	ECE7		Type 1	Word	Valeur int (16 bits signés)															
60648	ECE8		Type 2	Word	Valeur int (16 bits signés)															
60649	ECE9		Type 3	Word	Valeur int (16 bits signés)															
			...																	
60656	ECF0		Type 10	Word	Valeur int (16 bits signés)															


JBUS
60657
ECF1
Alarmes activées ou non
60657
ECF1
Type 1 (1 octet)
Type 2 (1 octet)
2octets
60658
ECF2
Type 3 (1 octet)
Type 4 (1 octet)
2octets
...
60661
ECF5
Type 9 (1 octet)
Type 10 (1 octet)
2octets
A14 moy active
A13 moy active
A12 moy active
A11 moy active
A14 inst active
A13 inst active
A12 inst active
A11 inst active
Si bit à 1 alarme active
JBUS
60662
ECF6
Valeur pour verification du type de capteur connecté
60662
ECF6
Type 1 (1 octet)
Type 2 (1 octet)
2octets
Code capteur type 1
Code capteur type 2
60663
ECF7
Type 3 (1 octet)
Type 4 (1 octet)
2octets
Code capteur type 3
Code capteur type 4
...
60666
ECFA
Type 9 (1 octet)
Type 10 (1 octet)
2octets
Code capteur type 9
Code capteur type 10
JBUS
60667
ECFB
Nom du gaz abrégé
60667
ECFB
Nom du gaz pour le type 1 (5 octets)
Nom 1 octet 1
Nom 1 octet 2
...
60669
ECFD
Nom du gaz pour le type 1 et 2 (5 octets)
Nom 1 octet 5
Nom 2 octet 1
60670
ECFE
Nom du gaz pour le type 2 (5 octets)
Nom 2 octet 2
Nom 2 octet 3
60671
ECFF
Nom du gaz pour le type 2 (5 octets)
Nom 2 octet 4
Nom 2 octet 5
...
60691
ED13
Nom du gaz pour le type 10 (5 octets)
Nom 10 octet 4
Nom 10 octet 5
Bit 0
Bit 1
Bit 2
Bit 3
Bit 4
Bit 5
Bit 6
Bit 7
Bit 8
Bit 9
Bit 10
Bit 11
Bit 12
Bit 13
Bit 14
Bit 15

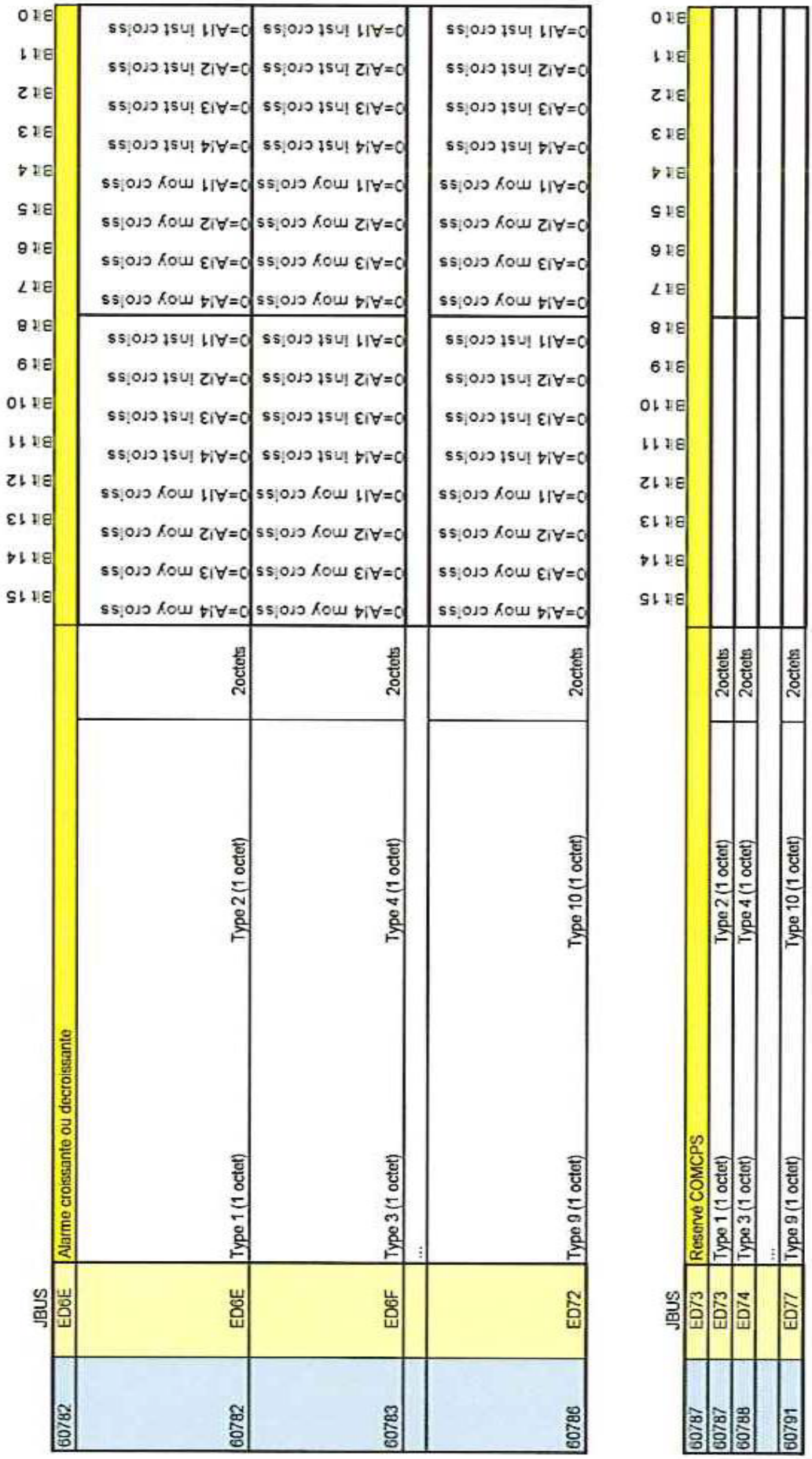
JBUS		Long nom du gaz	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60692	ED14	Nom du gaz pour le type 1 (16 octets)								Nom 1 octet 1								Nom 1 octet 2
60699	ED1B	Nom du gaz pour le type 2 (16 octets)								Nom 2 octet 1								Nom 2 octet 2
60771	ED63	Nom du gaz pour le type 10 (16 octets)								Nom 10 octet 15								Nom 10 octet 16

JBUS		Format d'affichage		Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60772	ED64	Type 1 (1 octet)	2octets								Code format d'affichage type 1							Code format d'affichage type 2	
60773	ED65	Type 3 (1 octet)	2octets								Code format d'affichage type 3							Code format d'affichage type 4	
60776	ED68	Type 9 (1 octet)	2octets								Code format d'affichage type 9							Code format d'affichage type 10	

Code: 0 = 0 chiffre après la virgule, 1 = 1 chiffre après la virgule, etc...

Coef diviseur:
0: valeur entière
1: valeur entière / 10
2: valeur entière / 100
3: valeur entière / 1000

JBUS		Alarmes activées ou non		Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
60777	ED69	Type 1 (1 octet)	2octets				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu
60778	ED6A	Type 3 (1 octet)	2octets				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu
...																			
60781	ED6D	Type 9 (1 octet)	2octets				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu				1=levier de doute	1=AI4 acq manu	1=AI3 acq manu	1=AI2 acq manu	1=AI1 acq manu


JBUS
ED6E
Alarme croissante ou decroissante
60782
ED6E
Type 1 (1 octet)
2octets
0=AI1 moy croiss
0=AI2 moy croiss
0=AI3 moy croiss
0=AI4 moy croiss
0=AI1 inst croiss
0=AI2 inst croiss
0=AI3 inst croiss
0=AI4 inst croiss
60782
ED6F
Type 3 (1 octet)
2octets
60783
...
60786
ED72
Type 9 (1 octet)
2octets
JBUS
ED73
Reservé COMCPS
60787
ED73
Type 1 (1 octet)
2octets
60787
ED74
Type 3 (1 octet)
2octets
60788
...
60791
ED77
Type 9 (1 octet)
2octets
Type 2 (1 octet)
Type 4 (1 octet)
Type 10 (1 octet)

JBUS		Temps de retard de chaque alarme			31 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
60792	ED78	Temps alarme 1	Type 1	Word	(16 bits signés)
60792	ED78	Temps alarme 1	Type 2	Word	(16 bits signés)
60793	ED79	Temps alarme 1	Type 3	Word	(16 bits signés)
60794	ED7A	Temps alarme 1	...		
			Type 10	Word	(16 bits signés)
60801	ED81	Temps alarme 1	Type 1	Word	(16 bits signés)
60802	ED82	Temps alarme 2	Type 2	Word	(16 bits signés)
60803	ED83	Temps alarme 2	Type 3	Word	(16 bits signés)
60804	ED84	Temps alarme 2	...		
			Type 10	Word	(16 bits signés)
60811	ED8B	Temps alarme 2	...		
			Type 10	Word	(16 bits signés)
60831	ED9F	Temps alarme 4			

JBUS		Echelles des dix types de capteurs			31 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
60832	EDA0	Echelle	Type 1	Word	(16 bits signés)
60832	EDA0	Echelle	Type 2	Word	(16 bits signés)
60833	EDA1	Echelle	Type 3	Word	(16 bits signés)
60834	EDA2	Echelle	...		
			Type 10	Word	(16 bits signés)
60841	EDA9	Echelle			

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