

SV SISTEMI DI SICUREZZA

ITALIA



EXFIRE360

EX2GSI – TECHNICAL SPECIFICATION

DATASHEET

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REVISION INDEX

Revision index	Description	Date
Revision 01	Preliminary	27/02/2010
Revision 02	Revised for certification scope	14/06/2010
Revision 03	Revised for certification scope	20/10/2010
Revision 04	Revised for certification scope	27/12/2011

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1 GENERAL INFORMATION

1.1 CODES AND STANDARDS

Design of hardware and software has been developed according to the following reference standards.

Construction Products Directive (CPD) – Directive 89/106/EEC

“Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products.”

EN 54-2:1997 + A1:2006

“Fire detection and fire alarm systems - Part 2: Control and indicating equipment”

EN 54-4:1997 + A1:2002 + A2_2006

“Fire detection and fire alarm systems - Part 4: Power supply equipment”

EN 12094-1:2003

“Fixed firefighting systems - Components for gas extinguishing systems - Part 1: Requirements and test methods for electrical automatic control and delay devices (only for EX6EV-C card)”

1.2 DESIGN REQUIREMENTS

Mechanical requirements

Environmental classification: Class A -5° +40° C.

Standard Eurocard (160x100) with rack mounting kit.

Manual controls

Manual controls are identified for their specific purpose. Master display is equipped with a graphical symbol to provide access to the menu. By pressing “menu” key, the operator will read the electrical parameters of each channel as well as the diagnostics of the modules.

Visible indications

Alarm, fault and other supervisory or monitoring indications are visible on the Master display, light emitting indicators adjacent to the display and on ModLcd displays installed on each module.

Touch-screen operations on Master display give access to the panel functions (at access levels 1/2/3).

Visible indications are clearly identified at access level 1 for their specific function.

Distinct light indications

Mandatory visible indications could be fully tested through “Test LED” function available at level 1 or 2.

Visible indications are clearly identified at access level 1 for their specific function.

Indications shown on alphanumeric displays

EXFIRE360 panel is designed with an alphanumeric display, which shows system information, and a set of light emitting indicators that provide the following conditions: “Power”, “Alarm”, “Fault”, “Isolate”, “Test”, “Supervisory”, “Output activated”, etc.

The same conditions are repeated on the module’s Lcd displays.

2 TECHNICAL SPECIFICATION OF EX2GSI MODULE

2.1 OPERATING DESCRIPTION OF EX2GSI MODULE

Touch screen interface of EX2GSI module shows real-time values of temperature and humidity, line status and gas concentration (programmable).

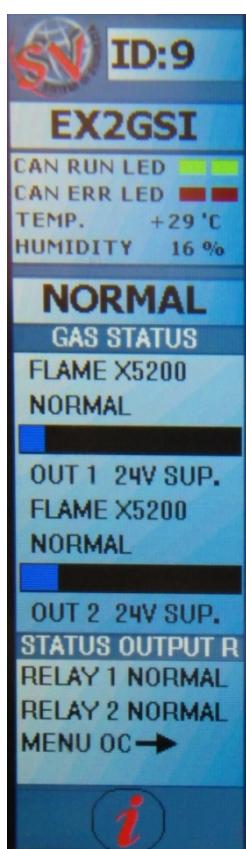
EX2GSI controls two 4-20 mA inputs (redundant) with two programmable alarm thresholds per circuit, seven programmable open collector outputs that can be associated with pre-alarm, alarm and fault conditions, and two relay outputs (2 A rating) for valve shutoff.

EX2GSI module is designed for controlling combustible and toxic gas detectors, temperature sensors and any other sensor with 4-20 mA analogue output.

Analogue circuits are continuously monitored during operation.

When the panel is powered on, EX2GSI module requires 45 seconds for a correct initialization.

2.2 MAIN CHARACTERISTICS



- Self diagnostics of 13 hardware blocks
- Hot plug and hot swap capability (with the panel in operation)
- Automatic addressing of the modules
- Installation on 19" subrack (8 TE) with fixing screws
- Two 4-20 mA analogue inputs
- Two supervised outputs (with open/short circuit monitoring)
- Seven programmable Open Collector outputs
- Monitoring of current draw of each 4-20 mA circuit
- Monitoring of card temperature during operation
- Monitoring of card humidity during operation
- Real time supervision of CAN Bus communication
- Monitoring of 24 Vdc/5 Vdc/3.3 Vdc voltages
- Automatic switchover of 4-20 mA input in case of fault
- Programmable pre-alarm and alarm thresholds
- Power supply voltage: 21-30 Vdc
- Quiescent current draw at 24 Vdc: 100 mA
- Quiescent current draw with energised relay: 70 mA
- Maximum applicable current draw for each supervised output: 2 A
- Maximum applicable current draw for each unsupervised output: 4 A
- Maximum load of O.C. outputs: 500 mA
- Operating temperature: from -5 to +40°C
- Storage temperature: from -10 to +50°C
- Relative humidity: <= 95% (non condensing)

3 VIEW MENU

3.1 QUIESCENT CONDITION

In quiescent condition, the module display shows:

- Card address and identification
- CAN Bus communication status
- Card temperature and humidity
- Status of 4-20 mA inputs
- Status of supervised outputs
- Access to Info menu



3.2 ALARM CONDITION

In fire alarm condition, the module display shows:

- Status of the initiating circuits (pre-alarm, alarm)
- Identification of the initiating device in alarm
- Identification of the activated outputs (supervised/non supervised)
- Identification of the activated open collector outputs
- Card temperature and humidity
- Identification of activated outputs



3.3 DISABLED CONDITION

If a circuit or device is disabled, the card display shows:

- Card temperature and humidity
- Identification of the disabled input(s) or output(s)



3.4 FAULT WARNING CONDITION

In case of fault, the card display shows:

- Card temperature and humidity
- Fault warning indication, which may correspond to:
 - device fault
 - Can Bus error
 - Fault of a supervised circuit (open/short)
 - Abnormal power supply voltage (24vdc, 5vdc, 3.3vdc)
 - Fault of hardware blocks.

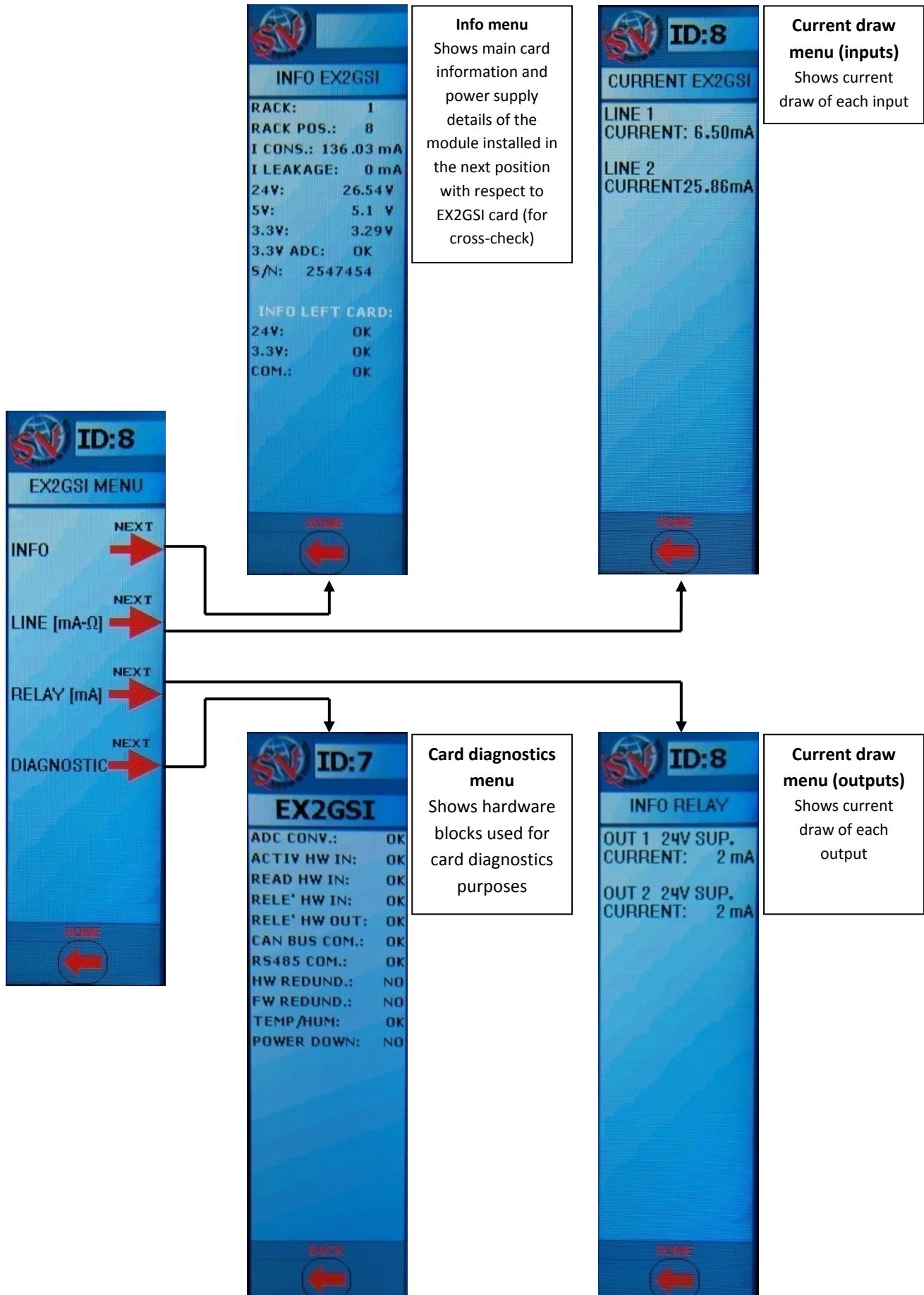


3.5 TEST CONDITION

Test condition is superimposed on other conditions of the module, inhibiting output circuits.
Signal priority in the visualisation of messages is: alarm, disabled, fault and test.



4 CARD MENU



4.1 CARD DIAGNOSTICS OF EX2GSI MODULE

Card diagnostics menu of EX2GSI's front display indicates the following messages:

HARDWARE FAULT OF THE MODULE

ADC 1 CONVERSION	“Analogue to digital conversion (normal status)”
ADC 2 CONVERSION	“Analogue to digital conversion (normal status)”
HW IN STATUS	“Abnormal status of inputs”
HW OUT STATUS	“Abnormal status of outputs”
CAN BUS COM	“Communication status of CAN Bus Rx messages”
RS 485 COM	“Communication status of RS485 link”
HW REDUNDANT	“Status of redundant hardware”
BLOCCO HW TEMP/HUM	“Abnormal operation of temperature/humidity sensor”
POWER	“Power supply of the module combined with EX2GSI card”

5 TECNICAL FEATURES OF I/O SIGNALS

5.1 ANALOGUE INPUTS

Input 01	4-20mA analogue input
Input 02	4-20mA analogue input

5.2 SUPERVISED OUTPUTS

Supervised outputs shall not be used as type "E" and "G" and "J" outputs (EN 54-2), since they are not certified for this purpose.

01 ATT 01	24 Vdc actuator
02 TOA 01	24 Vdc notification appliance

5.3 UNSUPERVISED OUTPUTS

Unsupervised outputs cannot be used as type "C", "E", "J", "G" (EN 54-1 and EN 54-2), therefore notification appliances, fire alarm and fault warning routing equipment and fire protection systems cannot be connected to these outputs (no line supervision is provided).

RELAY 01	N.C./N.O. relay for activation of door holders, fire dampers, shutdowns, etc.
RELAY 02	N.C./N.O. relay for activation of door holders, fire dampers, shutdowns, etc..

5.4 OPEN COLLECTOR OUTPUTS

O.C. outputs cannot be used as type "C", "E", "J", "G" (EN 54-1 and EN 54-2), therefore notification appliances, fire alarm and fault warning routing equipment and fire protection systems cannot be connected to these outputs (no line supervision is provided).

Alarm condition of input 1	Line 01 with max. 500 mA output current
Pre-alarm condition of input 1	Line 02 with max. 500 mA output current
Fault warning of input 1 (open line, over range, short circuit)	Line 03 with max. 500 mA output current
Alarm condition of input 2	Line 04 with max. 500 mA output current
Pre-alarm condition of input 2	Line 05 with max. 500 mA output current
Fault warning of input 2 (open line, over range, short circuit)	Line 06 with max. 500 mA output current
Activation of relay outputs	Line 07 with max. 500 mA output current
Common	

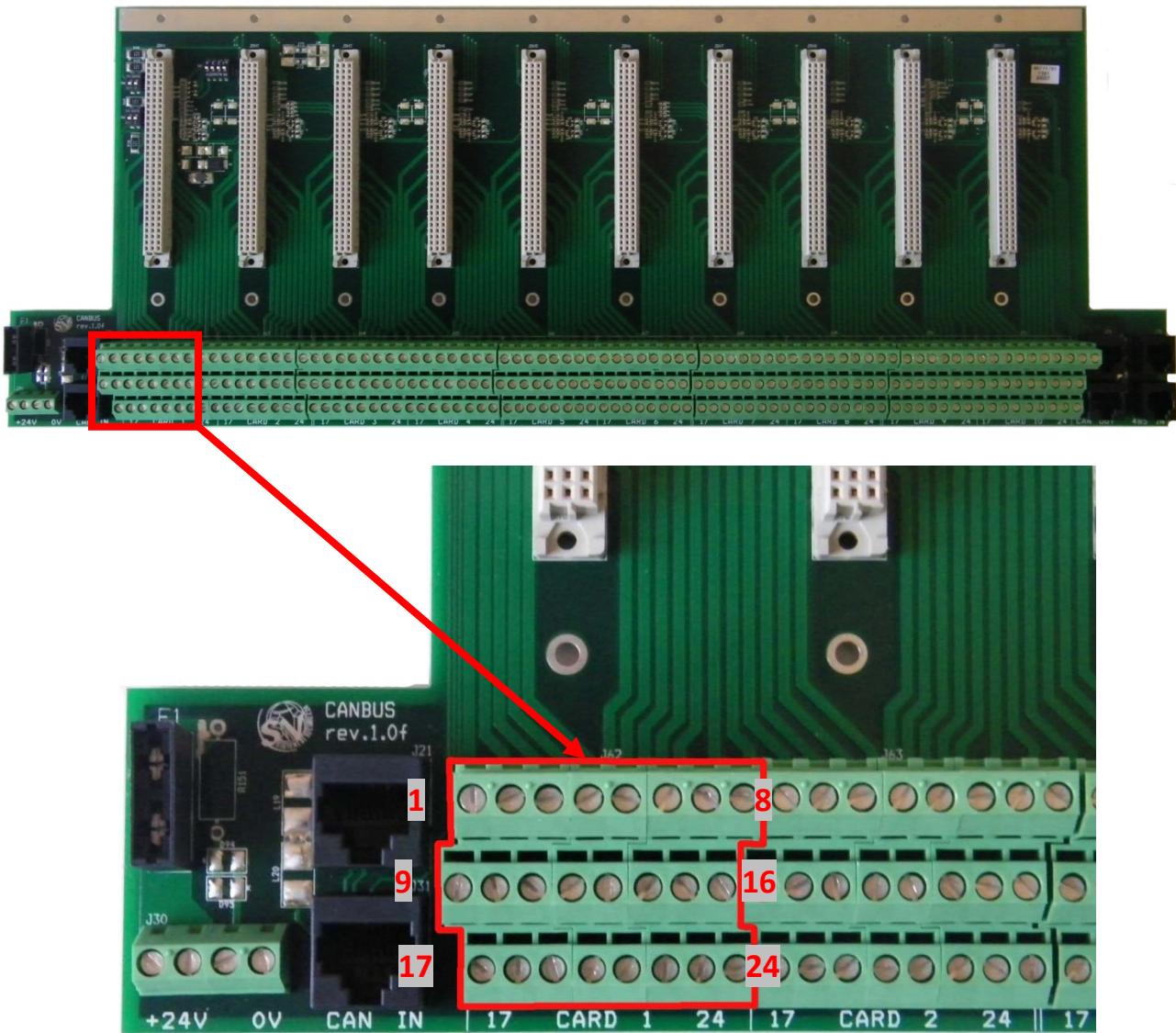
5.5 APPLICATIONS

EX2GSI module can be used to control the following initiating devices:

- Toxic gas detectors (with 4-20mA output).
- Oxygen detectors (with 4-20mA output).
- Temperature transmitters (with 4-20mA output).
- Sensors with 4-20 mA outputs.
- Gas shutoff valves (24 Vdc powered)
- 24 Vdc horns/strobes for gas alarm notification
- 24 Vdc light indicators
- 24 Vdc magnetic switches (e.g. door holders)

6 WIRING EX2GSI MODULE

6.1 CANBUS TERMINAL BOARD



Terminals are power limited to avoid danger in the event of short circuit. Technical specifications of the terminal strip are summarized as follows:

- Wire entry: horizontal
- Maximum operating temperature: 110°C.
- Accepted wire cross sections: AWG 12, 14, 16, 18, 20, 22, 24 – mm² 0.05 - 2.50.
- Maximum current: 17,5A.
- Maximum voltage: 300V.

6.2 WIRING SPECIFICATIONS

The following table shows the connection of inputs and outputs (including open collector outputs) to EX2GSI module.

Module	Terminal	Programmable thresholds (typical values)				Module
		Quiescent	Open circuit	Pre-alarm	Alarm	
EX2GSI	1					24 Vdc positive (max. 1A)
EX2GSI	2	4.0 mA	2.0 mA	14mA	20mA	Input signal 1 (positive)
EX2GSI	3					24 Vdc positive (max. 1A)
EX2GSI	4	4.0 mA	2.0 mA	14mA	20mA	Input signal 2 (positive)
EX2GSI	5					TOA 01 Notification circuit
EX2GSI	6					TOA 02 Notification circuit
EX2GSI	7					Relay (common)
EX2GSI	8					Relay (common)
EX2GSI	9					0V negative
EX2GSI	10					Output signal 1 (positive)
EX2GSI	11					0V negative
EX2GSI	12					Output signal 2 (positive)
EX2GSI	13					TOA 01 Notification circuit
EX2GSI	14					TOA 02 Notification circuit
EX2GSI	15					Relay 01 NO/NC
EX2GSI	16					Relay 02 NO/NC
EX2GSI	17					O.c. output 1 (default setting: alarm of input 1)
EX2GSI	18					O.c. output 2 (default setting: pre-alarm of input 2)
EX2GSI	19					O.c. output 3 (default setting: fault of input circuit 1)
EX2GSI	20					O.c. output 4 (default setting: alarm of input 2)
EX2GSI	21					O.c. output 5 (default setting: pre-alarm of input 2)
EX2GSI	22					O.c. output 6 (default setting: fault of input circuit 2)
EX2GSI	23					O.c. output 1 (default setting: activation of relay output(s))
EX2GSI	24					Common

7 MAINTENANCE

EX2GSI modules can be removed or replaced while the panel is in operation: the panel will show a card fault message to indicate that the module is missing.

Wait at least 30 seconds before reconnecting the module to the panel, in order to avoid electrical damages to electronic components.

When the module is plugged in the CANBus backplane, the panel should identify the module and the fault condition shall be automatically reset.