

SV SISTEMI DI SICUREZZA

ITALIA



EXFIRE360

EXMULTIBUS – TECHNICAL SPECIFICATION

DATASHEET

REVISION 05 DTD. 26/01/2012
TS-0014-EN-REV05

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REVISION INDEX

Revision index	Description	Date
Revision 01	Preliminary	17/01/2010
Revision 02	Revised for certification scope	08/03/2010
Revision 03	Revised for certification scope	20/10/2010
Revision 04	Revised for graphics updated	18/11/2011
Revision 05	Revised for certification scope	26/01/2012

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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 EXMULTIBUS

2.1 OPERATING DESCRIPTION OF EXMULTIBUS

EXMULTIBUS module integrates communication protocols between EXFIRE360 control panel and others devices. It provides two fiber optics ports (TX-RX), two RS232 ports, two RS485 ports and 2 Ethernet ports.

2.2 MAIN CHARACTERISTICS



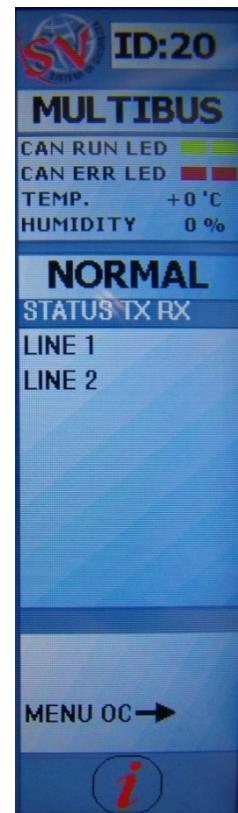
- Self diagnostics
- Hot swap capability (with the panel in operation)
- Automatic addressing of the modules
- Installation on 19" subrack (8 TE) with fixing screws
- Monitoring of fiber optics link
- Control of RS232 and RS485 ports
- Control of 2 Ethernet interfaces
- 7 Open Collector max 500 mA
- 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
- Power supply voltage: 21-30 Vdc
- Quiescent current draw at 24 Vdc: 50 mA
- Operating temperature: from -5 to +40°C
- Storage temperature: from -10 to +50°C
- Relative humidity: <= 95% (non condensing)
- Eurocard dimensions: 160 mm x 100 mm

3 VIEW MENU

3.1 NORMAL CONDITION

In normal condition, the module display shows:

- Card address and identification
- Fiber optics communication status
- RS232 communication status
- RS485 communication status
- TCP/IP communication status
- CAN Bus communication status
- Card temperature and humidity



3.2 FAULT WARNING CONDITION

In case of fault, the card display shows:

- card temperature and humidity
- fault warning indication, which may correspond to:
 - Can Bus trouble
 - F.O. communication trouble
 - RS232 trouble
 - RS485 trouble
 - TCP/IP trouble
 - Abnormal power supply voltage (24vdc, 5vdc, 3.3vdc)
 - Fault of hardware blocks.

4 CARD DIAGNOSTICS OF EXMULTIBUS

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

HARDWARE FAULT OF THE MODULE

ADC 1 CONVERSION	"Analogue to digital conversion (normal status)"
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 EXMULTIBUS card"

5 TECHNICAL FEATURES OF I/O SIGNALS

EXMULTIBUS can perform different tasks: communication with graphical user interfaces, interface with other control panels with Modbus protocol (e.g. DCS), control of security systems (intruder alarm, CCTV, access control) and communication with systems dedicated to the supervision of pumps, HVAC, building management, etc.

EXMULTIBUS is compatible with the following protocols:

5.1 FIRE ALARM PROTOCOLS

Hochiki ESP, CANBus, BacNet, Modbus, Profibus, Duemmegi, SV Enterprise (graphical interface software).

5.2 SECURITY PROTOCOLS

AVS Electronics, Duemmegi.

5.3 ACCESS CONTROL PROTOCOLS

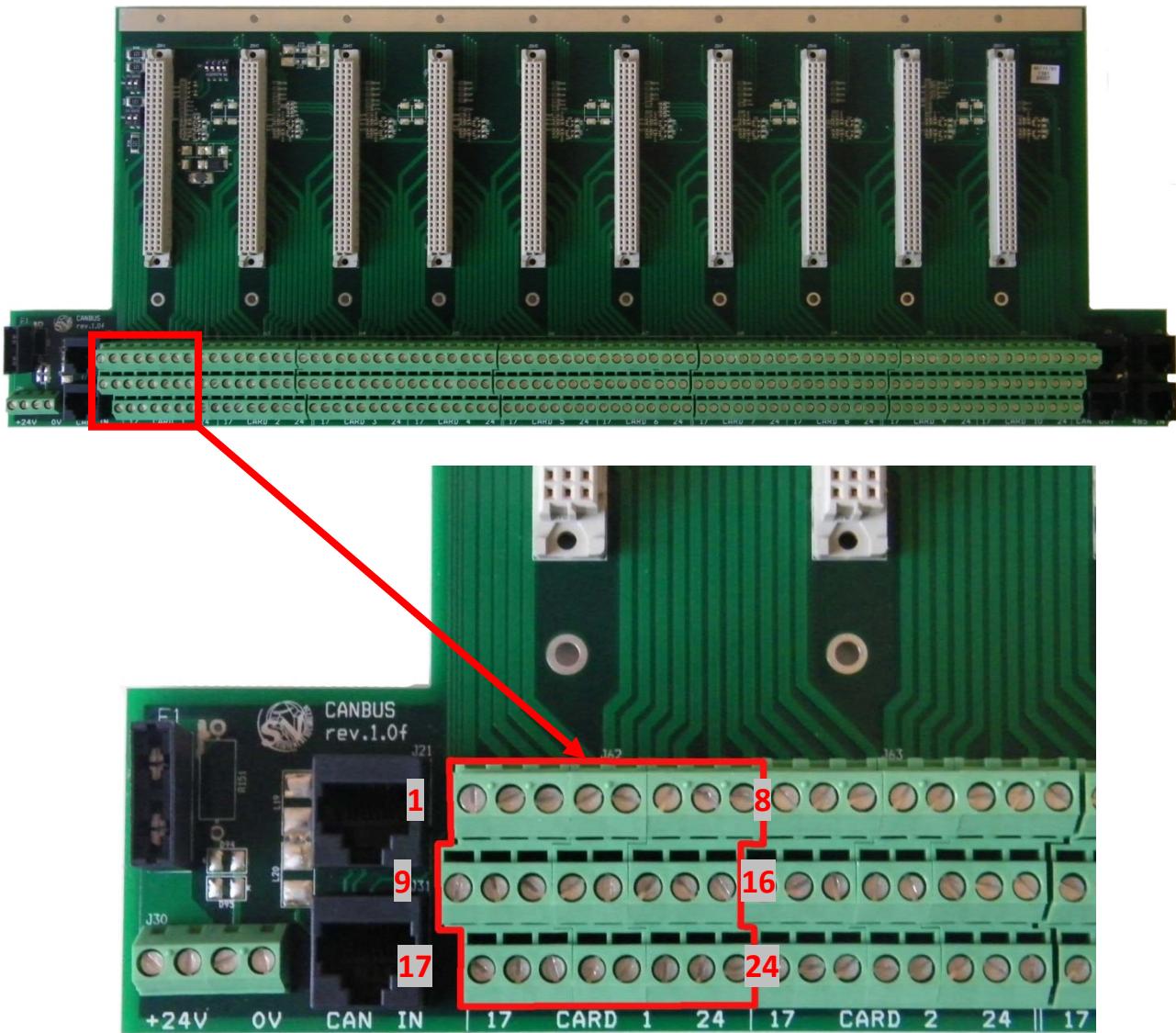
iGUARD, SV Access.

5.4 CCTV PROTOCOLS

PELCO P/D

6 WIRING EXMULTIBUS 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:

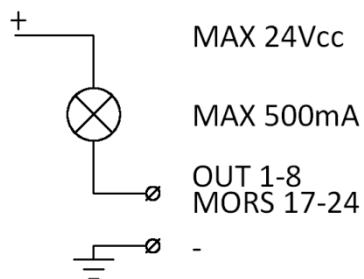
- Wire entry: horizontal
- Maximum operating temperature: 110°C.
- Accepted wire cross sections: AWG 12, 14, 16, 18, 20, 22, 24 – mm² 0.05 - 2.50.
- Maximum current: 17,5A.
- Maximum voltage: 300V.

6.2 WIRING SPECIFICATIONS

Module	Term.	Level values of programmable functions				Signals Input / Output Open Collector
		Normal	Opening	Prealarm	Alarm	
EXMultibus	1					CAN 1 High
EXMultibus	2					CAN 1 Low
EXMultibus	3					RS485 1A
EXMultibus	4					RS485 1B
EXMultibus	5					Shield 1
EXMultibus	6					RS485 2A
EXMultibus	7					RS485 2B
EXMultibus	8					Shield 2
EXMultibus	9					CAN 2 High
EXMultibus	10					CAN 2 Low
EXMultibus	11					RS232 1Tx
EXMultibus	12					RS232 1Rx
EXMultibus	13					Gnd 1
EXMultibus	14					RS232 2Tx
EXMultibus	15					RS232 2Rx
EXMultibus	16					Gnd 2
EXMultibus	17					Out OC 1
EXMultibus	18					Out OC 2
EXMultibus	19					Out OC 3
EXMultibus	20					Out OC 4
EXMultibus	21					Out OC 5
EXMultibus	22					Out OC 6
EXMultibus	23					Out OC 7
EXMultibus	24					Com. Gnd.

6.3 WIRING DETAILS

OUTPUT OPEN COLLECTOR MAX 500mA PER OUTPUT



7 MODBUS OPERATION

7.1 MODBUS OPERATION (MASTER MODE)

This mode ensures that the connection of the slave device is always monitored. When the program is started, the module updates the status of the input variables, then it sets the variable 998 to 1 to indicate that the module is on.

The update of the Modbus variables is periodic, while the frequency is set in the Tempo_Com_Master register.

The module executes read commands with the same frequency, to refresh the input variables and write commands for transferring the status of the output variables to the slave device.

If the slave device is disconnected (for a time interval greater than Tentativi_Com_Master parameter), the module assumes the fault status.

In Master mode, the control panel executes the following Modbus commands:

Modbus Command	Description	Function code
0x01	Read Coils	01
0x02	Read Discrete Inputs	02
0x03	Read Holding Registers	03
0x04	Read Input Register	04
0x05	Write Single Coil	05
0x06	Write Single Register	06
0x0F	Write Multiple Coil	15
0x10	Write Multiple Register	16
0x11	Report Slave ID	17
0x17	Read/Write Multiple Registers	

7.2 MODBUS OPERATION (SLAVE MODE)

This mode can be used when monitoring of the communication with the Master device is not required.

When the program is started, the module resets all the input and output variables, then sets the variable 998 to 1 to indicate that the module is on. After this operation, the module waits for the commands from Modbus port of the Master device.

The module accepts the following Modbus commands:

Modbus Command	Description	Function code
0x01	Read Coils	01
0x02	Read Discrete Inputs	02
0x03	Read Holding Registers	03
0x04	Read Input Register	04
0x05	Write Single Coil	05
0x06	Write Single Register	06
0x0F	Write Multiple Coil	15
0x10	Write Multiple Register	16
0x11	Report Slave ID	17
0x17	Read/Write Multiple Registers	

8 ENTERPRISE 2006 GRAPHICAL USER INTERFACE

ENTERPRISE 2006 is a fully integrated graphical and text user interface for use with EXFIRE360 fire alarm panels. Whether the installation comprises a single panel or networked panels, Enterprise provides an integrated graphical mimic with full alarm management and panel control capability.

The pyramidal conception of the programme, with a simplified user-configurable menu, permits to provide information promptly and display combined text and graphics which can be quickly and easily understood by an operator rather than an engineer. Messages, graphics and controls are displayed at the same time without frequent popping up and down or overlapping, text is shown in large characters with a colour coded background.

Enterprise 2006 has been designed and generated in compliance with EN 54-2 Standard - "Fire Detection and Fire Alarm Systems – Control and indicating equipment"

8.1 MAIN FEATURES

The main features of ENTERPRISE 2006 are the following:

- Supervision of up to 99 control panels
- STAR or local LAN connection to the units
- Windows XP multi-tasking operating system
- Customizable operator message for each event
- Full password protection and multiple operator levels
- Event log with sorting by event type and date
- Real time on line event management and historic information system
- Real time monitoring of control panels' status via integrated remote panel display
- Manual event printout
- Sensor analogue values display
- Modular design for optional combined control of fire detection, fire extinguishing, intrusion detection, video-surveillance and access control systems (with separate menus)
- Encrypted configuration files
- Overview map maintains a view of wider areas whilst selecting the individual graphical maps
- Available in English, Italian and Russian language.

9 MAINTENANCE

EXMULTIBUS 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.

