EC230

SMART I/O™

APPLICATIONS

- Air Handling Units

- Fan Coil Units

- Roof Top Units

- Heat Pumps

- VAVs

- Chillers

- Boilers

- Lighting

- Energy Management

- Refrigeration

- Custom Applications

FEATURES

- **LonTalk Protocol**

- **Free Topology Communication (FTT-10)**

- **5 analog inputs for 0-5V, 0-10V, 0-20mA, thermistor, open-collector & dry contact**

- **4 analog outputs for 0-10V**

- **7 digital inputs for open-collector or dry contact**

- **7 digital relay outputs**

- **FLASH Memory**

- **DIN-rail mounting**

- **Compact Size for Mininal Panel Space**

- **Fully programmable**

- **2 Year Limited Warranty**

DESCRIPTION

The Smart I/O™ EC230 programmable controller incorporates 23 channels of cost effective analog and digital I/O with a real time clock. The I/O is monitored and controlled by a Neuron 3150 chip with Free Topology communication over a LonWorks® network. The EC230 has expanded data storage with additional FLASH, SRAM and EEPROM memory. The EC230 can be utilized in many custom or fixed distributed control applications.

The I/O of the EC230 makes it perfect for a variety of equipment control applications. The wide operating temperature range, -20 to 70 °C, makes the EC230 well suited for many demanding applications.

The seven digital inputs (DI) can be used to monitor open collector or dry contacts providing responsive notification of changes in status and conditions important to local application and system operation.

Five analog inputs (AI) can be configured in a variety of ways. The analog inputs can interface with resistive type sensors for temperature measurements or measure voltage from humidity or other transducer readings. The analog inputs can also be set-up to measure a 4-20mA current from sensors like a pressure measurements. With 12 bits of resolution, the analog inputs are field adaptable and accurate for many types of sophisticated measurements.

The analog inputs can also provide regulated +20 VDC power to current transducers for simplified interfacing. An internal auto-resetable fuse protects the +20 VDC source.

The seven digital outputs (DO) are relays that provide on/off contact closures to control damper positions, valves, alarms, lights or other loads where the current does not exceed 1A at 24 VAC for each output.

The four analog outputs (AO) provide a 0-10 VDC output with a resolution of 10 bits for accurate control of external devices.

The EC230 controller is protected from reverse power supply input wiring, over-voltages, transients, and other common events that can damage unprotected inputs and outputs.

The cost effective I/O allows numerous applications to be development and implemented with the EC230. The Real Time Clock and expanded memory allow applications for data logging, scheduling and time stamp monitoring and control.

A factory default application is provided with each EC230 to monitor inputs and control outputs. User defined algorithms and functions can be programmed using VisualControl™, NodeBuilder, LonBuilder or other third party LONWORKS programming tools. The custom application programs can be downloaded over the free topology network and is stored in non-volatile memory to retain applications and data even after loss of power.

The enclosure snaps right onto a 35mm DIN-rail for quick and easy mounting. Its spring-loaded latching mechanism makes it easy to remove.
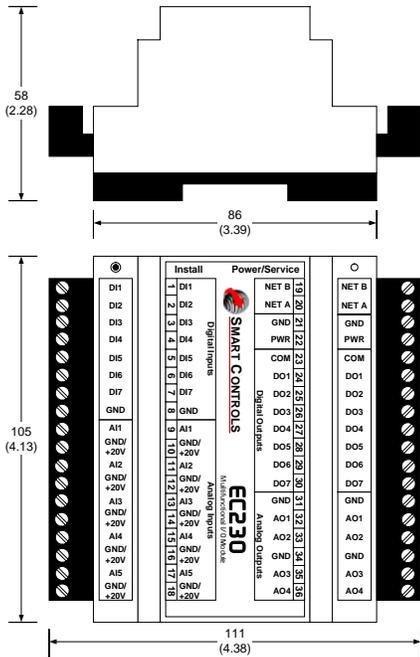
SELECTION GUIDE

S-EC230P-F-☐

B - 56K Flash Memory Only
M- STANDARD OPTION: Selectable Memory (FLASH, SRAM)
C - Real Time Clock with Super Cap Back-up, Selectable Memory (Flash, SRAM) and 8K Serial EEPROM

DIMENSIONS

58 (2.28)

86 (3.39)

105 (4.13)

111 (4.38)

SPECIFICATIONS

General
Communication:	*LONTALK™ Protocol*
Transceiver:	*FTT-10, Free Topology*
Processor:	*Neuron 3150 @ 10 MHz*
Memory:	*64K bytes FLASH*
	2K bytes RAM (Neuron)
	24K bytes SRAM (External)*
	0.5K bytes EEPROM (Neuron)
	8K bytes EEPROM (External)*
Clock:	*Real Time Clock (Option C)*
	Super Cap Back-up
Application:	*Fixed, non-programmable*

Power
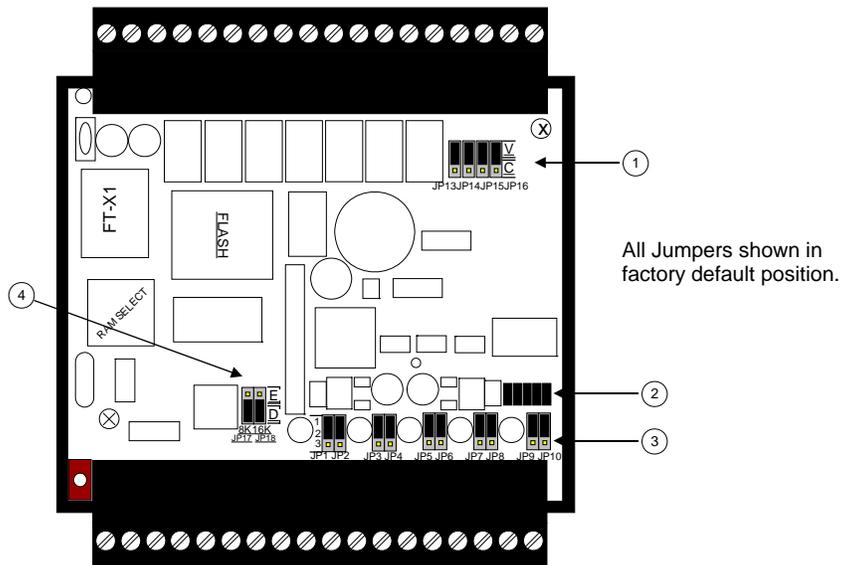|	
Nominal Input Voltage:	*24 VAC/VDC*
Input Voltage Range:	*21-28 VAC or 21-39 VDC*
Maximum Consumption:	*6 VA, does not include Relay loading*
On Board DC Power:	*+20V Output auto-reset fuse*

Environmental
Operating Temperature:	*-20 °C to +70 °C, -4 °F to 158°F*
Storage Temperature:	*40 °C to +70 °C, -40 °F to 158 °F*
Relative Humidity:	*5% to 95% (non- condensing)*

Warranty
Period:	*2 Years (Limited)*

Digital Inputs
Number:	*7*
Type:	*Dry Contact*

Analog Inputs
Number:	5
Type:	Jumper selectable
	Voltage; *0-5 Volts, 0-10 Volts*
	Current; *0-20 mA*
	Thermistor; *Type 2,3 10Kohms (25°C, 77°F)*
Resolution:	*12 bits*
Accuracy:	*±1% FS (25°C, 77°F)*
Protection Circuitry:	*Transient Over-voltage, ESD*

Digital Outputs
Number:	*7*
Type:	*Relay (N.O.) 1.0 A @ 24 VAC Voltage Sourcing*

Analog Outputs
Number:	*4*
Type:	Voltage; 0-10 Volts
Analog Resolution:	10 bit
Accuracy:	±1% FS (25°C, 77°F)
Protection Circuitry:	ESD

Enclosure
Dimensions:	L 105 x W 86 x H 58 mm (4.13" x 3.39" x 2.28")
Cover:	Lexan 940, UL94-V0 rated
Base:	Noryl VO1550, UL94-V0 rated

CONTACT

SMART CONTROLS

Office:
10000 St. Clair Avenue
Fairview Heights, IL 62208
U.S.A.
Phone: 618-394-0300
Fax: 618-394-1575

E-mail:
sales@smartcontrols.com

Web site:
www.smartcontrols.com

Echelon, LONWORKS, 3150, and NEURON are registered trademarks of Echelon Corporation.

SMART CONTROLS, LLC reserves the right to make changes without further notice to this product for improvements in design and reliability. SMART CONTROLS, LLC does not assume any liability arising out of the application or use of this product; neither does it convey any license under its patent rights of others.

OPTION JUMPER SELECTIONS

All Jumpers shown in factory default position.

AGENCY

1- Output Selection
V – Voltage 0-10V
C – Current 0-20mA
(Current output only available on EC231)

2- 5V/10V Selection
Open – 0-5V Input
Closed – 0-10V Input

Document Number: 37-0182, ver.2.0.0

3- Input Selection
Even Numbered Jumpers
Open – Voltage Input (0-5V, 0-10V)
1&2 – Resistance, Dry Contact
2&3 – Current
Odd Numbered Jumpers
1&2 – Voltage, Resistance, Dry Contact
2&3 - Current

4- RAM Memory Selection*
E – Enable
D – Disable
*Optional – Only available on models with "M" and "C" option.

FLASH	RAM	16K(JP18)	8K(JP17)
56K	0K	D	D
48K	8K	D	E
40K	16K	E	D
32K	24K	E	E