EC120

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)
- 6 universal inputs with 0-5V, 0-10V, 0-20mA, thermistor or dry contact
- 4 universal outputs with Triac or 0-10V
- 2 digital outputs with Triac
- FLASH Memory
- DIN-rail mounting
- Compact Size for Minimal Panel Space
- Fully programmable
- 2 Year Limited Warranty

DESCRIPTION

The Smart I/O™ EC120 programmable controller incorporates 12 channels of cost effective analog and digital I/O. The I/O is monitored and controlled by a Neuron 3150 chip with Free Topology communication over a LonWorks® network. As an option, the EC120 can be selected with a Super Cap backed-up Real Time Clock, selectable FLASH/SRAM and Serial EEPROM. The EC120 can be utilized in many custom or fixed distributed control applications.

The I/O of the EC120 makes it perfect for a variety of equipment control applications. The wide operating temperature range, -20 to 70 °C, makes the EC120 well suited for many demanding applications.

The six universal inputs (UI) can be configured in a variety of ways. The controller can interface with resistive type sensors for temperature measurements. The UI's can measure voltage from humidity or transducer readings. The UI's can input current for pressure measurements. The UI's can also be used to read digital inputs and dry contacts. With 12 bits of resolution, the universal inputs are field adaptable and accurate for many types of measurements.

The even pins of the universal inputs can be configured to provide regulated 20 Vdc to current transducers for simplified interfacing. The 20 VDC source is protected by an internal auto-resetable fuse.

The four universal outputs (UO) can be configured as Triac or 0-10 VDC outputs. The controller can use Triac outputs to provide on/off or pulsed control for controlling control damper positions, valves, alarms, lights or other loads where he current does not exceed 1A at 24 VAC. The 0-10 VDC output has 10 bits of resolution for accurate control external devices.

The two digital outputs (DO) are Triac outputs for control of additional on/off or pulsed external devices where the current does not exceed 1A at 24 VAC.

The EC120 controller is protected from reverse power supply input wiring, over-voltages, transients, and other common events that can damage unprotected inputs and outputs.

The versatile I/O allows numerous applications to be development and implemented with the EC120. The Real Time Clock and expanded memory allow applications for data logging, scheduling and time stamp monitoring and control.

User defined algorithms and functions can be programmed using VisualControl™, NodeBuilder, LonBuilder or other third party LONWORKS programming tools. The application program can be downloaded over the free topology network and is stored in non-volatile memory so it is retained 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.
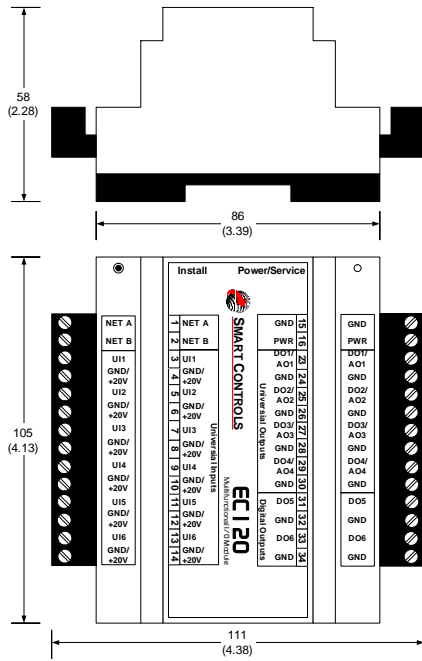
SELECTION GUIDE

S-EC120P-F-☐

B - Standard (56K FLASH)

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)

Install   Power/Service

NET A
NET B
UI1
GND/+20V
UI2
GND/+20V
UI3
GND/+20V
UI4
GND/+20V
UI5
GND/+20V
UI6
GND/+20V

SMART CONTROLS
EC120 Multifunctional I/O Module

Universal Inputs

1 NET A
2 NET B
3 UI1
4 GND/+20V
5 UI2
6 GND/+20V
7 UI3
8 GND/+20V
9 UI4
10 GND/+20V
11 UI5
12 GND/+20V
13 UI6
14 GND/+20V

Universal Outputs / Digital Outputs

15 GND
16 PWR
17 DO1
18 AO1
19 GND
20 DO2/AO2
21 GND
22 DO3/AO3
23 GND
24 DO4/AO4
25 GND
26 DO5
27 GND
28 DO6
29 GND

GND
PWR
DO1
AO1
GND
DO2/AO2
GND
DO3/AO3
GND
DO4/AO4
GND
DO5
GND
DO6
GND

CONTACT

SMART CONTROLS

Pending
Agency Approvals

CE FC

Manufacturing location certified to ISO 9002

SPECIFICATIONS

General
Communication:	LONTALK™ Protocol
Transceiver:	FTT-10, Free Topology
Processor:	Neuron 3150 @ 20 MHz
Memory:	64K bytes FLASH
	2K bytes SRAM (Neuron)
	24K bytes SRAM (External)*
	0.5K bytes EEPROM (Neuron)
	8K bytes EEPROM (External)*
Clock:	Real Time Clock*
	Back up: Super Cap*

Power
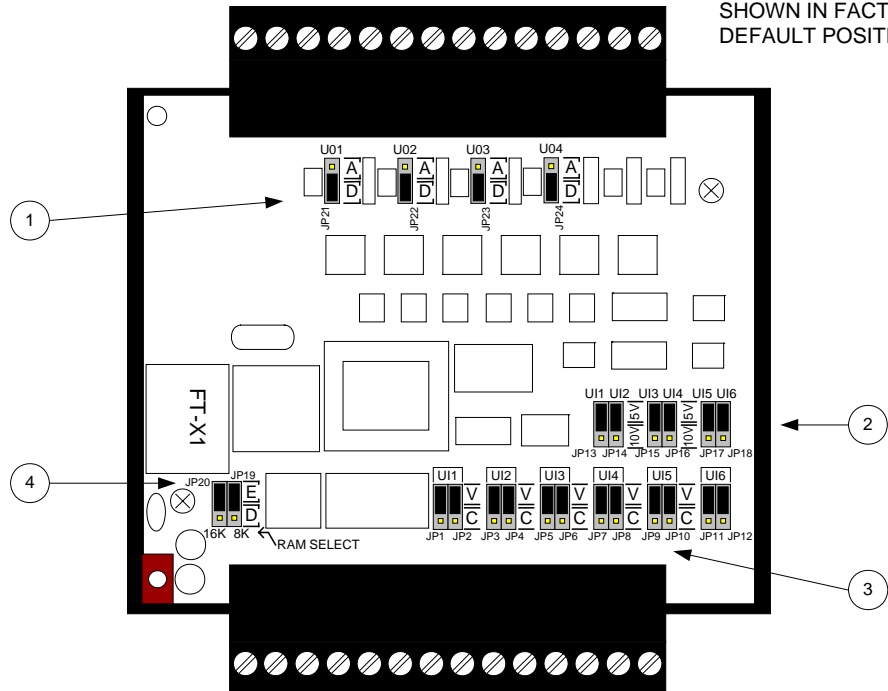|	
Nominal Input Voltage:	24 VAC
Input Voltage Range:	21-28 VAC or 21-39 VDC
Maximum Consumption:	8 VA, does not include Triac loading
On Board DC Power:	+20V Output auto-reset fuse

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)

Inputs
Number:	6
Voltage:	0-5 Volts
	0-10 Volts
Current:	0-20 mA
Thermistor:	Type 2, 3: 10Kohms (25°C,
Digital:	Dry Contact
Resolution:	12 bits
Accuracy:	±1% FS (25°C, 77°F)
Protection Circuitry:	Transient Over voltage, ESD

Outputs
Number:	6
6 - Digital:	Triac 1.0 A @ 24 VAC
	Voltage Sourcing
4 - 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

OPTION JUMPER SELCETIONS

ALL JUMPERS SHOWN IN FACTORY DEFAULT POSITION

U01 U02 U03 U04
A/D A/D A/D A/D
JP21 JP22 JP23 JP24

FT-X1

UI1 UI2 UI3 UI4 UI5 UI6
10V 10V
JP13 JP14 JP15 JP16 JP17 JP18

JP20 JP19
E/D
16K 8K
RAM SELECT

UI1 UI2 UI3 UI4 UI5 UI6
V/C V/C V/C V/C V/C V/C
JP1 JP2 JP3 JP4 JP5 JP6 JP7 JP8 JP9 JP10 JP11 JP12

1- Output Selection
A – Analog Output (Voltage 0-10V)
D – Digital Output (Triac, 24Vac, 1A)

2- 5V/10V Selection
5V – Input Sensing for 5V Signals
10V – Input Sensing for 10V Signals

3- Input Selection
V – Voltage Input (0-5V,0-10V, Dry Contact, Resistive)
C – Current Input (4-20 mA)

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

*Only available on models with "C" option

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FLASH	RAM	16K(JP20)	8K(JP19)
56K	0K	D	D
48K	8K	D	E
40K	16K	E	D
32K	24K	E	E