ELC Controllers and Modules

41.1 ELC Programmable Logic Controllers

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Drawings Online

ELC Programmable Logic Controllers

Contents

Product Overview

The Eaton Logic Controller (ELC) is a small-sized PLC (programmable logic controller), with its abundant module selection, provides all of the big PLC features you need at a micro PLC price.

- **Size**—Large PLC features with controllers as small as 1-inch in width; half the size of competitive offerings. ELC can fit more I/O in the same space and allow cost savings through cabinet size reduction
- **Flexibility**—ELC controllers expand to hundreds of I/O points
  - Add only the amount of I/O you need. Choose I/O counts as small as 2 points and as large as 16 points per module
  - DIN rail mounting lets you add up to 16 (maximum of 8 analog/specialty modules) modules as needed by snapping them into mating connectors
- **Large PLC Features**—Multiple communications ports, distributed I/O capability, high-speed counters, high-speed pulse outputs, interrupts, timer resolution to 1 ms, PIDs, plus much more
- **Software**—ELCSoft programs in standard ladder or sequential function chart programming
  - Display registers "in use" and modules attached to the ELC
  - Monitor runtime applications and enter/modify register values
  - Wizards aid programming of ELC Link for distributed I/O, standard communications, high-speed counters, pulse outputs, positioning, interrupts, PIDs and extension module setup
- **Communications**—Connecting to networks is easy on Modbus® Serial, Modbus TCP, DeviceNet™, and PROFIBUS®. Modbus TCP Master and DeviceNet Master capability using ELC-PV controllers

Using these technologies, the ELC can connect to communicating MCCs where the ELC is a master on DeviceNet or Modbus TCP. ELC also communicates to PowerNet™ products over Modbus and Modbus TCP, providing connectivity to switchgear and PowerNet applications.

Of course, the ELC communicates seamlessly to Eaton's operator interface products.

Standards and Certifications

Electrical/EMC

- ESD Immunity
  - 8 kV air discharge
- EFT Immunity
  - Power Line: 2 kV
  - Digital I/O: 1 kV
  - Analog and Communication I/O: 250V
- Damped-Oscillatory Wave
  - Power Line: 1 kV
  - Digital I/O: 1 kV
- RS Immunity
  - 26 MHz–1 GHz, 10 V/m

Other Approvals

- Agency Certifications
  - CE; C-Tick; cULus; Class I Div 2 Group A, B, C, D

CE c UL us Listed

Catalog Number Selection

ELC Controllers and Modules

ELC - PA 10 A A D R

Device Type	I/O Count	Analog Inputs	Analog Outputs	Digital Inputs	Digital Outputs
PB = Base model	**xx** = Total Number of I/O	**A** = Analog	**A** = Analog	**A** = AC	**T** = Transistor
PC = Clock/calendar model		**N** = None	**N** = None	**D** = DC	**R** = Relay
PH = High-speed model				**S** = Switch	**I** = High current relay
PA = Analog model				**N** = None	**N** = None
PV = Advanced model					
AN = Analog expansion module					
EX = Digital expansion module					
PT = Platinum RTD expansion module					
TC = Thermocouple expansion module					

ELC Communications

ELC - CO ENETM

Device Type	Module Type
CO = Communication interface module	**DNET** = DeviceNet slave module ①
	DNETM = DeviceNet master module ②
	ENETM = Ethernet module ②
	PBDP = PROFIBUS-DP slave module ①

Technical Data and Specifications

Environmental Ratings

Description	Specification
Transportation and Storage	
Temperature	–13° to +158°F (–25° to +70°C)
Humidity	5–95%
Operating	
Temperature	32° to 131°F (0° to 55°C)
Humidity	50–95%
Power supply voltage	ELC: 24 Vdc (–15%–20%) (with DC input reverse polarity protection), expansion unit: supplied by the ELC
Power consumption	3–6W
Insulation resistance	>5M ohms at 500 Vdc (between all inputs/outputs and earth)
Grounding	The diameter of grounding wire cannot be smaller than the wire diameter of terminals L and N (All ELC units should be grounded directly to the ground pole)
Vibration / shock resistance	IEC1131-2, IEC 68-2-6 (TEST Fc)/IEC1131-2 and IEC 68-2-27 (TEST Ea)

Notes

① Right side communications module.
② Left side communications module.

DC Input Point Electrical Specifications

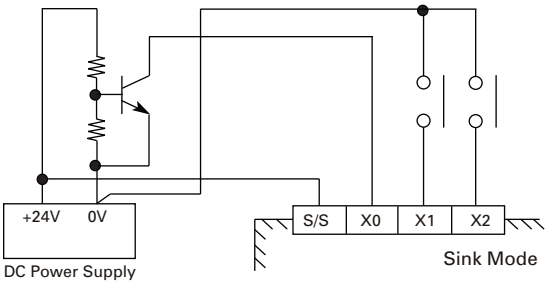
Description	Specification
Input type	DC (SINK or SOURCE)
Input current	24 Vdc 5 mA
Active level	OFF ➔ ON, above 16 Vdc
	ON ➔ OFF, below 14.4 Vdc
Response time	About 10 ms (an adjustment range of 0–10,000 ms could be selected through D1020 and D1021)

Output Point Electrical Specifications

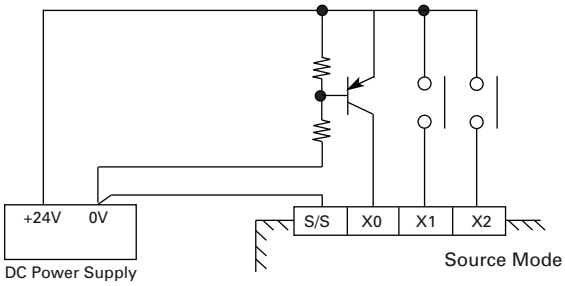
Output Type	Relay–R	Transistor–T
Current specification	1.5A/1 point (5A/COM)	0.3A/1 point @ 40°C; When the output of Y0 and Y1 is high-speed pulse, Y0 and Y1 = 30 mA
Voltage specification	Below 250 Vac, 30 Vdc	30 Vdc
Maximum loading	75 VA (inductive)	9W/1 point When the output of Y0 and Y1 is high-speed pulse, Y0 and Y1 = 0.9W (Y0 = 32 kHz, Y1 = 10 kHz), Y0 can be 50 kHz using D registers
	90W (resistive)	
Response time	Adjustable 0–15 ms, default is 10 ms	OFF ➔ ON 20 µs. Y0 and Y1 are specified points for high-speed pulse
		ON ➔ OFF 30 µs. Y0 and Y1 are specified points for high-speed pulse

Circuit Diagrams

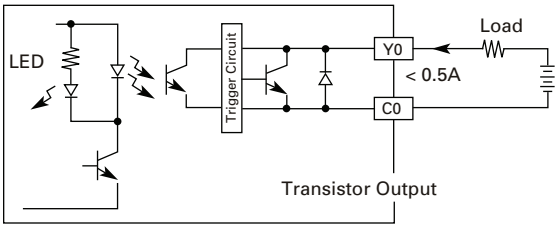
DC Input Sink Mode



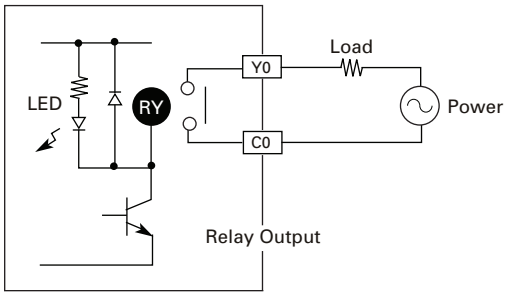
DC Input Source Mode



DC Transistor Sinking Output



Relay Outputs



ELC Controllers

Contents

Controllers

Product Description

The ELC family offers five styles of controllers. These controllers offer combinations of the following features:

- High-speed pulse capture and high-speed pulse output, up to 200 kHz
- Up to 22 interrupts
- Large selection of discrete I/O modules including AC/DC in, relay/transistor out, and high current relay out
- Large selection of specialty modules, including analog (in, out, combined) thermocouple, Platinum RTD
- Over 200 instructions to choose from: Floating point math, communications, 16- and 32-bit math, logical, block move, block compare, retentive data storage, conversion, time base from clock/calendar
- Two Modbus (ASCII or RTU) serial ports: one slave only, one master/slave
- Network communications on Modbus TCP, DeviceNet and PROFIBUS
- ELC controller can be wired for shared remote I/O communications (except the PB base model)

Features

There are five controller styles:

- **PB Base Model**—14 I/O (8i/6o). Over 130 instructions. Add expansion modules to the right side of the model to create applications with over 200 I/O points. Two Modbus (ASCII/RTU) serial ports for master/slave communications. The master port is RS-485 with the ability to communicate to 31 other devices. The master port can also be configured to communicate to devices such as ASCII, bar code readers, etc. The program is stored in EEPROM for retention in the event of power loss. This model does not provide a real-time clock
- **PC Clock/Calendar Model**—12 I/O (8i/4o). Same features as the basic model plus clock/calendar, distributed I/O capability with up to 16 devices, and file area for data storage and retrieval. The program is stored in RAM with battery backup. The replaceable battery has greater than a 5-year life. This model also has two digital potentiometers that vary the data in internal registers
- **PH High-Speed Model**—12 I/O (8i/4o). All the features of the PC model with the added ability to capture or output pulses up to 100 kHz and includes single-axis motion control
- **PA Analog Model**—10 I/O (6i/4o). Same features as PC model with a different I/O mix. This model has a total I/O mix of four digital inputs, two digital outputs, two analog inputs, and two analog outputs. The analog channels can be set up for either voltage or current. This unit has (two) 7-segment LEDs that can be used to display unit ID, error codes, process steps, etc.
- **PV Advanced Model**—28 I/O (16i/12o). The PV model has the most extensive feature set of the ELC controllers. It allows for maximum I/O expansion and is compatible with the same expansion modules, specialty modules and software. Programs written for the other controllers can be migrated to a PV model controller where greater speed or more I/O is required. Compared to the other ELC controllers, the PV model provides 10 times increase in processing speed for about 0.24µ seconds/step. The program is stored in RAM and backed using a rechargeable lithium-ion battery that charges with normal use. Controller also includes 2-axis motion control

  The PV model controller adds an additional expansion bus to the left of the controller. While the PV model is compatible with today's current expansion modules, which extend to the right of the controller, you can add high-speed and specialty modules to the left. Left side Ethernet master and DeviceNet master modules are available for use with the PV model controller

Product Selection

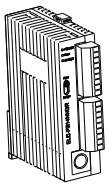
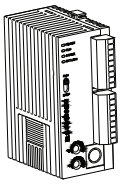
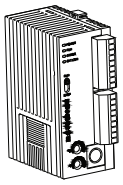
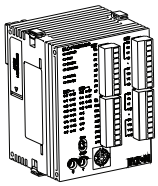
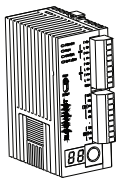
ELC-PV_

Controllers (PB, PC, PH, PV, PA)

Description	Inputs			Outputs			Maximum Current Consumption (at 24 Vdc)	Catalog Number
	120 Vac	24 Vdc	Analog	Relay	24V Transistor	Analog		
14 I/O PB Model	—	8	—	6	—	—	150 mA	**ELC-PB14NNDR**
	—	8	—	—	6	—	150 mA	**ELC-PB14NNDT**
12 I/O PC Model	8	—	—	4	—	—	150 mA	**ELC-PC12NNAR**
	—	8	—	4	—	—	150 mA	**ELC-PC12NNDR**
	—	8	—	—	4	—	150 mA	**ELC-PC12NNDT**
12 I/O PH Model	—	8	—	—	4	—	170 mA	**ELC-PH12NNDT**
28 I/O PV Model	—	16	—	12	—	—	220 mA	**ELC-PV28NNDR**
	—	16	—	—	12	—	220 mA	**ELC-PV28NNDT**
10 I/O PA Model	—	4	2	2	—	2	210 mA	**ELC-PA10AADR**
	—	4	2	—	2	2	210 mA	**ELC-PA10AADT**

Technical Data and Specifications

Controllers

Controller	ELC-PB14NNDR/DT	ELC-PC12NNAR/DR/DT	ELC-PH12NNDT	ELC-PV28NNDR/DT	ELC-PA10AADR/DT
Dimensions W x H x D (mm)	25.2 x 90 x 60	37.4 x 90 x 60	37.4 x 90 x 60	70 x 90 x 60	37.4 x 90 x 60
I/O type—embedded	14 (8DI/6DO)	12 (8DI/4DO)	12 (8DI/4DO)	28 (16DI/12DO)	10 (4DI/2DO/2AI/2AO)
Maximum additional I/O points	Up to 14 expansion modules (maximum of 8 analog/ specialty modules)	Up to 14 expansion modules (maximum of 8 analog/ specialty modules)	Up to 14 expansion modules (maximum of 8 analog/ specialty modules)	Up to 14 expansion modules (maximum of 8 analog/ specialty modules)	Up to 14 expansion modules (maximum of 8 analog/ specialty modules)
DC in sink/source	Yes	Yes	Yes	Yes	Yes
Execution speed	Basic Instructions— 2 µs minimum	Basic Instructions— 2 µs minimum	Basic Instructions— 2 µs minimum	0.24 µs minimum	Basic Instructions— 2 µs minimum
Program language	Instructions + Ladder Logic + Sequential Function Chart				
Program capacity (steps)	3792	7920	7920	15,872	7920
Data memory capacity (bits)	1280	4096	4096	4096	4096
Data memory capacity (words)	744	5000	5000	10,000	5000
Index registers	2	8	8	16	8
File memory capacity (words)	None	1600 words	1600 words	10,000 words	1600 words
Retentive storage	Yes	Yes	Yes	Yes	Yes
Commands basic/advanced	32/107	32/168	32/168	32/193	32/168
Floating point	Yes	Yes	Yes	Yes	Yes
SFC commands (steps)	128	1024	1024	1024	1024
Timers qty.	128	244 Standard with additional timers for subroutine and retentive applications			
Timers resolution	1–100 ms	1–100 ms	1–100 ms	1–100 ms	1–100 ms
Counters qty.	128	250	250	253	250
High-speed counters (see note)	Up to 4	Up to 6	Up to 8	Up to 8	Up to 6
Max. high-speed counting (see note)	2 at 20 kHz	1 at 30 kHz	1 at 100 kHz	2 at 200 kHz	1 at 30 kHz
Pulse output	2 channels, 10 kHz max.	2 channels, 50 kHz max.	100 kHz	200 kHz	2 channels, 50 kHz max.
PID	Yes	Yes	Yes	Yes	Yes
Master control loop	8 loops	8 loops	8 loops	8 loops	8 loops
Subroutines	64 subroutines	256 subroutines	256 subroutines	256 subroutines	256 subroutines
For/next loops	Yes	Yes	Yes	Yes	Yes
Interrupts	6	15	15	22	15
Real-time clock/calendar	No	Built-in	Built-in	Built-in	Built-in
Password security	Yes	Yes	Yes	Yes	Yes
Diagnostic relays	Yes	Yes	Yes	Yes	Yes
Diagnostic word registers	Yes	Yes	Yes	Yes	Yes
Specialty expansion modules	Up to a maximum of 8 (Analog In/Analog Out/TC/RTD/PT) Modules				
Serial ports	2 Modbus (ASCII/RTU) 1 = Slave (RS-232)/11 = Master-Slave (RS-485)				
Remote I/O	No	With 16 other devices	With 16 other devices	With 32 other devices	With 16 other devices
Runtime editing	No	Yes	Yes	Yes	Yes
Run/stop switch	Yes	Yes	Yes	Yes	Yes
Removable terminal strips	Yes	Yes	Yes	Yes	Yes
Special features	—	2 potentiometers	2 potentiometers	2 potentiometers high-speed, left side bus	2, 7-segment displays

Note: High-speed counter inputs can be used for different types of 32-bit counting, such as single-ended, single-phase two input and quadrature. Therefore, all high-speed counters may not be used at the same time. Please refer to the ELC Systems Manual, MN05003003E, for details.

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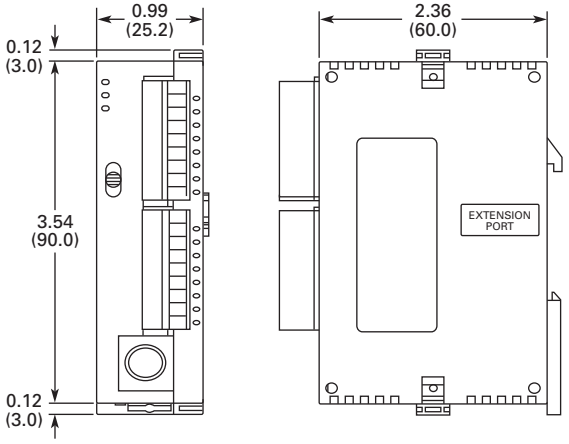
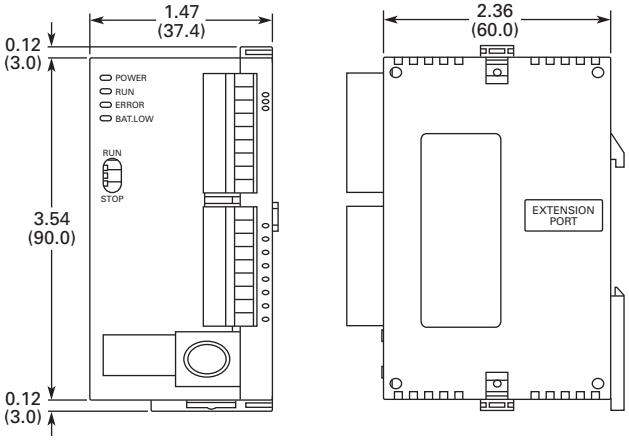
Dimensions

Approximate Dimensions in Inches (mm)

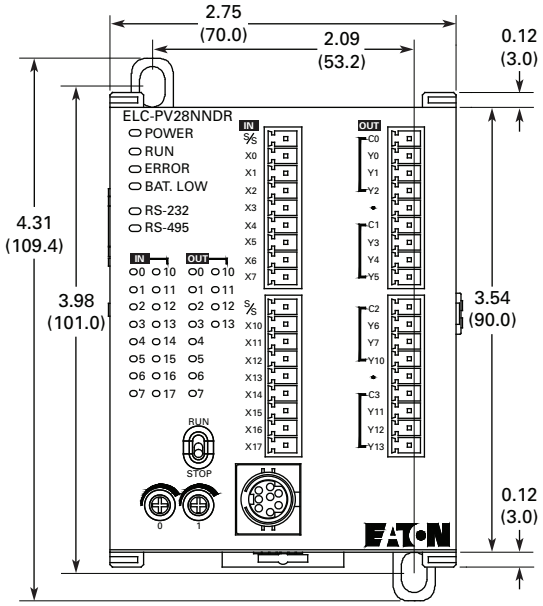
ELC-PB14 Controllers

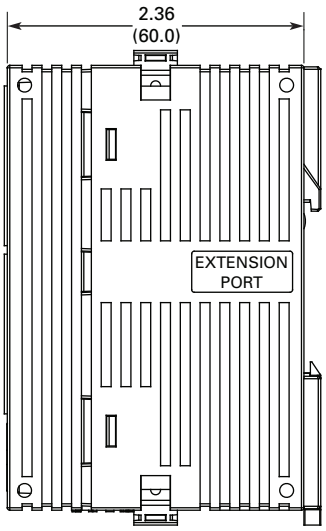


ELC-PC12, ELC-PH12 and ELC-PA10 Controllers



ELC-PV Controller





Expansion and Specialty Modules

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Expansion and Specialty Modules

Product Overview

ELC Expansion Modules

ELC expansion modules provide the correct amount of I/O for application solutions. Choose from a wide selection of 4-, 6-, 8- and 16-point I/O modules to create a system with up to hundreds of I/O points.

ELC Specialty Modules

In addition to discrete expansion I/O, specialty modules like analog input, analog output, platinum temperature, thermocouple, and switch modules are available.

ELC Right Side Digital Expansion Modules

Contents

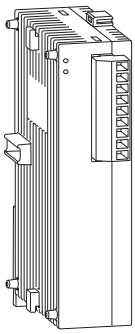
Right Side Digital Expansion Modules

Product Description

Digital right side expansion modules can be used with any ELC controller. They simply snap together to allow the ELC backplane to pass through each connected module. Add only the amount of I/O you need. Choose I/O counts as small as 6 points and as large as 16 points per module.

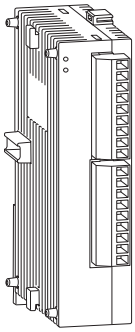
I/O modules are available in a broad selection of AC/DC inputs, relay/transistor and high current outputs that may be used together in any combination up to 16 modules per controller.

Features



Right Side Digital Expansion Module—Style 1

Model	Inputs Points	Type	Outputs Points	Type
ELC-EX08NNAN—AC in	8	120 Vac	0	—
ELC-EX08NNDN—DC in	8	DC sink or source	0	—
ELC-EX08NNNR—Relay out	0	—	8	Relay
ELC-EX08NNNT—Transistor out	0	—	8	DC sink (NPN)



Right Side Digital Expansion Module—Style 2

Model	Inputs Points	Type	Outputs Points	Type
ELC-EX06NNNI—High current relay out	0	—	6	Relay (6 amps)
ELC-EX08NNDR—IN/OUT combo	4	DC sink or source	4	Relay
ELC-EX16NNDR—IN/OUT combo	8	DC sink or source	8	Relay
ELC-EX08NNDT—IN/OUT combo	4	DC sink or source	4	DC sink (NPN)
ELC-EX16NNDT—IN/OUT combo	8	DC sink or source	8	DC sink (NPN)
ELC-EX16NNDN—DC IN	16	DC sink or source	0	—
ELC-EX16NNDP—IN/OUT combo	8	DC sink or source	8	DC source (PNP)

Product Selection

Right Side Digital Expansion Modules

Description	Inputs 120 Vac	Inputs 24 Vdc Sink/Source	Outputs Relay	Outputs 24V Transistor	Maximum Current Consumption (at 24 Vdc)	Catalog Number
6 relay out (6 amp)	—	—	6	—	70 mA	**ELC-EX06NNNI**
8 AC in	8	—	—	—	50 mA	**ELC-EX08NNAN**
8 DC in sink/source	—	8	—	—	50 mA	**ELC-EX08NNDN**
8 relay out	—	—	8	—	70 mA	**ELC-EX08NNNR**
8 transistor out	—	—	—	8 sink	70 mA	**ELC-EX08NNNT**
8 IN/OUT combo	—	4	4	—	70 mA	**ELC-EX08NNDR**
8 IN/OUT combo	—	4	—	4 sink	70 mA	**ELC-EX08NNDT**
16 IN sink/source	—	16	—	—	90 mA	**ELC-EX16NNDN**
16 IN/OUT combo	—	8	8	—	90 mA	**ELC-EX16NNDR**
16 IN/OUT combo	—	8	—	8 sink	90 mA	**ELC-EX16NNDT**
16 IN/OUT combo	—	8	—	8 source	90 mA	**ELC-EX15NNDP**
8 switch input	—	8	—	—	20 mA	**ELC-EX08NNSN**

ELC Right Side Analog and Specialty Modules

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Contents

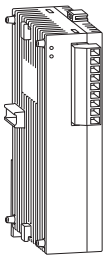
Right Side Analog and Specialty Modules

Product Description

These modules offer various features in addition to the controller's standard digital inputs and outputs. Each controller may be expanded using up to 14 expansion modules—however, no more than a maximum of 8 analog or specialty I/O modules can be used with any controller. All analog, temperature, and the motion modules have a separate power input that must be powered even when connected directly to the ELC controller system. This separate power input allows analog and other specialty modules to be located close to the devices they are measuring, shortening the length of the sensing cable, and therefore reducing the probability of noise coupling. In addition to a separate power input, these modules have an RS-485 port so they can communicate Modbus to any other Modbus device, including the ELC controllers.

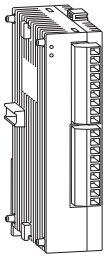
- **ELC-AN02NANN**—2-channel analog output module uses voltage or current mode for any channel with12-bit resolution in any mode
- **ELC-AN04NANN**—4-channel analog output module uses voltage or current mode for any channel with12-bit resolution in any mode
- **ELC-AN06AANN**—4-analog input channels and 2-analog output channels. Input channels use voltage or current mode for any channel. Inputs are 12-bit resolution in voltage mode and 11-bit resolution in current mode. Analog output channels use voltage or current mode for any channel with12-bit resolution in any mode
- **ELC-AN04ANNN**—4-analog input module uses voltage or current mode for any channel. Inputs are 14-bit resolution in voltage mode and 13-bit resolution in current mode
- **ELC-PT04ANNN**—4-channel PT100 temperature sensor input module. Use three-wire PT100 sensors on each channel with 14-bit resolution. Temperature ranges from –328° to 1112°F (–200° to 600°C)
- **ELC-TC04ANNN**—4-channel thermocouple temperature sensor input module. Use J, K, R, S or T sensors on any channel with 14-bit resolution.
- **ELC-EX08NNSN**—8-input switch module. Use for debugging applications or for manual switch inputs to the ELC controller
- **ELC-COPBDP**—PROFIBUS-DP slave module. Supports baud rates up to 12 Mbps with auto-baud detection. Consumes 4 bytes of input data (32 input bits of X) and 4 bytes or output data (32 bits of Y)
- **ELC-CODNET**—DeviceNet slave module. Supports baud rates up to 500 Kbps. Supports explicit and polled connections. Consumes 4 bytes of input data (32 input bits of X) and 4 bytes or output data (32 bits of Y)
- **ELC-485APTR**—This module is a passive RS-485 connection device. It has an RJ12 port for connecting to a drive. It has a 2-pin screw terminal to connect to the ELC controller. It also has one male DB9 and a female DB9, which may be used for connecting to other RS-485 devices. This module can be connected directly to the ELC controller but should be placed as the last module to the right because it does not pass the I/O bus through to the next module
- **ELC-MC01**—Single axis motion control module. Can be used with any ELC controller for single axis motion control. Add more MC01 modules for up to 8 axes. If used with the PH model controller, it can provide a second axis because the PH model has single axis built in. If used with the PV model controller, it can perform as a third axis motion control module because the PV model incorporates 2 axis of motion control and is capable of providing output pulses up to 200 kHz

Features



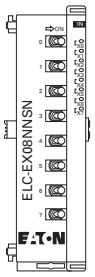
Right Side Analog Module Features—Style 1

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-AN02NANN—analog out	24 Vdc	0	—	2 (12 bits)	0~20 mA, 4~20 mA 0V ~ +10V, 2V ~ +10V



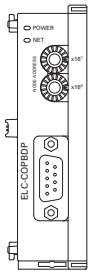
Right Side Specialty Module Features—Style 2

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-AN04NANN—analog out	24 Vdc	0	—	4 (12 bits)	—
ELC-AN06AANN—analog combo		4 (V = 12 bits, I = 11 bits)	±10V, ±20 mA	2 (12 bits)	0~20 mA, 0 ~ +10V
ELC-AN04ANNN—analog in		4 (V = 12 bits, I = 13 bits)	±10V, ±20 mA	0	—
ELC-PT04ANNN—PT100		4 (14 bits)	PT100	0	—
ELC-TC04ANNN—thermocouple		4	Thermocouple	0	—



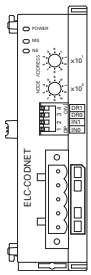
Right Side Specialty Module Features—Style 3

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-EX08NNSN—switch input	24 Vdc	8	Switch	0	—



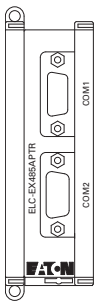
Right Side Communication Module Features—Style 4

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-COPBDP—PROFIBUS DP (slave)	24 Vdc	32	Digital	32	Digital



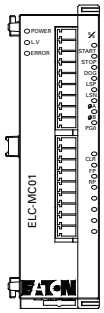
Right Side Communication Module Features—Style 5

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-CODNET—DeviceNet (slave)	24 Vdc	32	Digital	32	Digital



Right Side Communication Module Features—Style 6 (with ELC-ACCOVER)

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-485APTR—RS-485 easy connect	N/A	0	—	0	—



Right Side Specialty Module Features—Style 7

Model	Power	Inputs Points	Type	Outputs Points	Type
ELC-MC01—single axis motion control	24 Vdc	N/A	Phase in, Start, Stop, etc.	N/A	Phase, Pulse, Direction

Product Selection

ELC-AN04ANNN

Right Side Analog and Specialty Modules

Description	Analog In	Analog Out	Maximum Current Consumption (at 24 Vdc)	Catalog Number
4 analog in	4	—	90 mA	**ELC-AN04ANNN**
2 analog out	—	2	125 mA	**ELC-AN02NANN**
4 analog out	—	4	170 mA	**ELC-AN04NANN**
6 analog IN/OUT	4	2	90 mA	**ELC-AN06AANN**
4 Thermocouple J, K, R, S, T	4	—	90 mA	**ELC-TC04ANNN**
4 platinum RTD, PT100	4	—	90 mA	**ELC-PT04ANNN**
Motion control, one axis module (up to eight modules per controller)	—	—	—	**ELC-MC01**

ELC-COPBDP

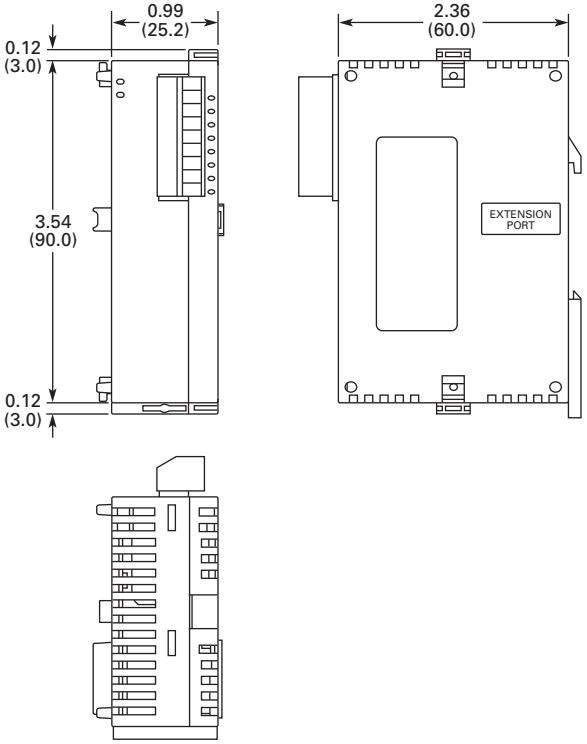
Right Side Communication Modules

Description	Catalog Number
PROFIBUS DP (slave)	**ELC-COPBDP**
DeviceNet (slave)	**ELC-CODNET**
RS-485 easy connect adapter, DB9, RJ-12, 2-pin connections to RS-485	**ELC-485APTR**

Dimensions

Approximate Dimensions in Inches (mm)

Right Side Specialty and Expansion Modules



ELC Left Side Specialty Modules

Contents

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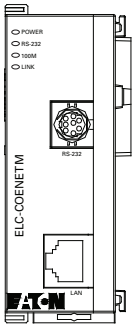
Left Side Specialty Modules

Product Description

Left side specialty modules connect to a high-speed bus located on the left of the ELC-PV model controller. A single ELC-PV model processor can support up to eight left side specialty modules and in any combination desired. This is in addition to the right side analog, specialty and digital I/O modules.

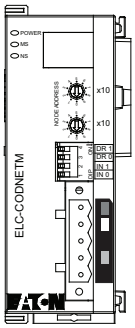
- **ELC-COENETM**—Ethernet communication module. Enables the ELC-PV model controller to connect to ModbusTCP networks auto detecting 10/100MB connections. The Ethernet module enables the uploading and downloading of programs in addition to program monitoring. Use ELCSoft to search for all the Ethernet modules attached to the network and manage them remotely. Share data in a peer-to-peer network to reduce long I/O wiring. Send e-mails for alerts and notifications. For example, advise personnel of alarm condition or send daily production yield summaries. Keep accurate time with the NTP (Network Time Protocol) feature, which synchronizes your controller with an NTP server. The Ethernet module will automatically detect and use the type of patch or crossover cable attached. IP addresses may be filtered to manage module traffic in order to maximize communication performance.
- **ELC-CODNETM**—DeviceNet master module maps up to 380 bytes of data directly into the PV model controller for quick and easy access. Use Polled, Bit-Strobe and Change of State/Cyclic DeviceNet commands, or send explicit messages. Configuration of DeviceNet components in ELCSoft is easy with the drag-and-drop interface. Use the pre-populated EDS files within ELCSoft and add others to simplify the configuration

Features



Left Side Communication Modules—Style 8

Model	Inputs Points	Type	Outputs Points	Type
ELC-COENETM—Ethernet Modbus TCP (master/slave)	N/A	ModbusTCP	N/A	ModbusTCP



Left Side Communication Modules—Style 9

Model	Inputs Points	Type	Outputs Points	Type
ELC-CODNETM — DeviceNet Scanner (master/slave)	190 bytes	DeviceNet	190 bytes	DeviceNet

Product Selection

ELC-CODNETM

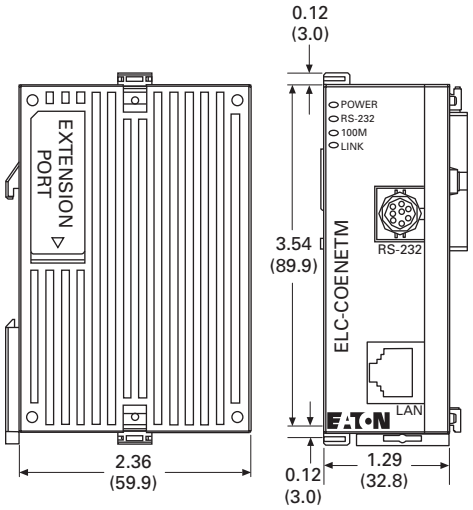
Left Side Specialty Expansion Modules (Require a PV Model Controller)

Description	Catalog Number
Ethernet ModbusTCP (master/slave)	**ELC-COENETM**
DeviceNet Scanner (master/slave)	**ELC-CODNETM**

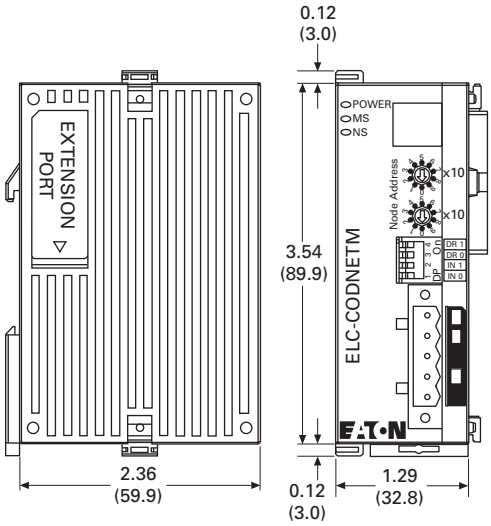
Dimensions

Approximate Dimensions in Inches (mm)

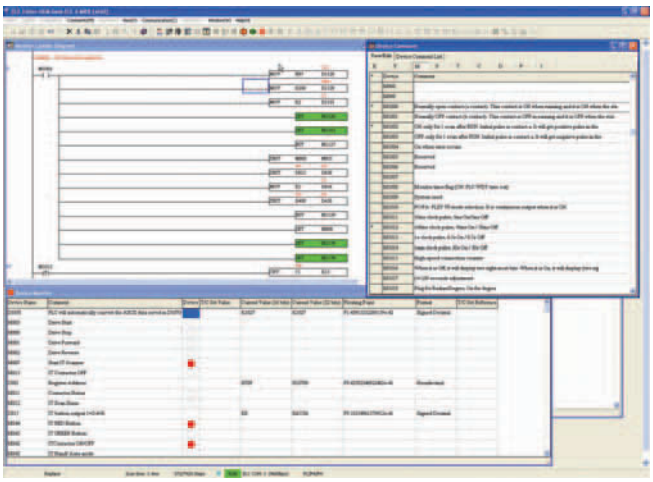
ELC-COENETM



ELC-CODNETM



ELCSoft Editor



Contents

Programming Software

Product Description

ELCSoft programming software configures all ELC controllers. With ELCSoft, applications can be created, edited and monitored. Move programs from one controller to another with ease. Program in ladder, sequential function chart or instruction language. ELCSoft is the single program to develop ELC controller applications. ELCSoft is also used to configure the DeviceNet master and Modbus TCP Ethernet modules.

New program simulation capabilities are available in ELCSoft ver. 2.

Requirements

Operating Systems

- Windows® 2000
- Windows XP
- Windows Vista
- Windows 7

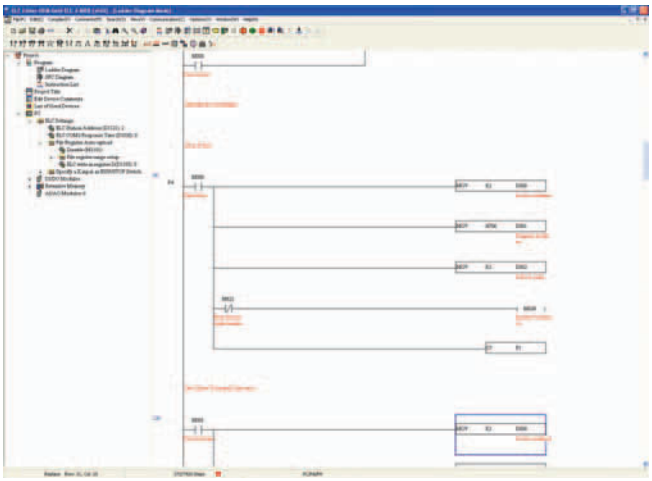
Hard Drive

- At least 100M bytes

RAM

- At least 512M bytes.

ELCSoft Ladder Diagram Mode



Product Selection

ELC Software

Description	Catalog Number
Programming Software for ELC Controllers	**ELCSOFT**

ELC Power Supplies

Contents

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Power Supplies

Product Description

All ELC controllers, analog and specialty expansion modules operate from 24 Vdc. These power supplies provide a convenient way to provide robust DC voltage for ELC and other products.

Product Selection

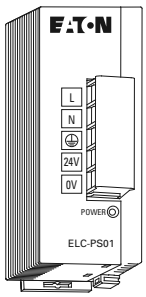
ELC-PS01

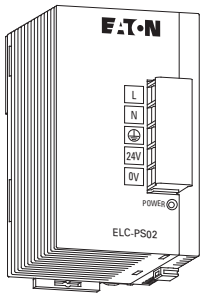
Power Supplies

Description	Catalog Number
24 watt, 1 amp power supply	**ELC-PS01**
48 watt, 2 amp power supply	**ELC-PS02**

Technical Data and Specifications

Power Supplies



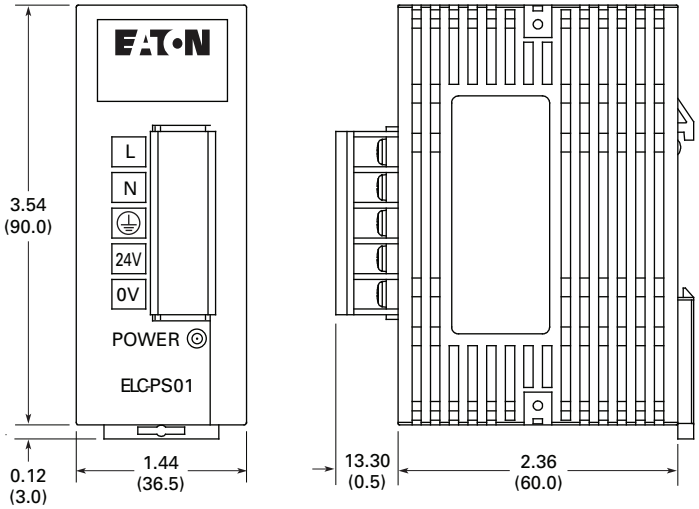


	ELC-PS01	ELC-PS02
Input power	100–240 Vac 50/60 Hz	100–240 Vac 50/60 Hz
Output volts	24 Vdc	24 Vdc
Output current (A)	1A	2A
Watts	24	48

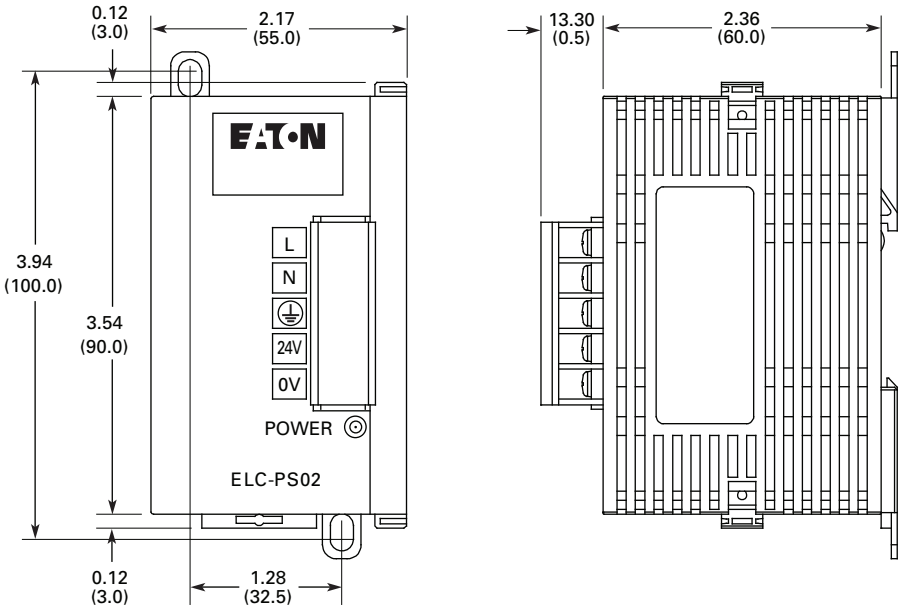
Dimensions

Approximate Dimensions in Inches (mm)

ELC-PS01



ELC-PS02



Accessories and Spare Parts

Product Description

Cables

ELC-CBPCELC1 and ELC-CBPCELC3

Use these cables to connect your PC's RS232 serial port to your ELC controller to download, upload and monitor your ELC controllers, or to connect any ELC-GP to an ELC controller. The ELC-CBPCELC1 cable is 1 meter long and has a right angle connector to the ELC controller to help reduce depth when cable is attached. The ELC-CBPCELC3 is 3 meters long with a straight connector.

Storage Devices

ELC-ACPGMXFR

The ELC-ACPGMXFR module is a multifunction device that provides the ability to back up an application already loaded onto one of the ELC controllers. The transfer module can be used for copying the same application to multiple controllers and to transfer an existing application to a new controller in the event of a failure. It will store system settings, passwords and the application, including the data registers for pre-loaded recipes. Once stored in the module, the application, data registers and settings can be transferred to another ELC controller of the same model number.

Hand-Held Programmer

ELC-HHP

ELC-HHP is an easy-to-use, hand-held programming and monitoring tool for ELC controllers when a PC is not available. With ELC-HHP, applications can be programmed directly with the attached keypad. Applications can also be uploaded from an ELC, saved and transferred to a different ELC, or downloaded from a PC and transferred to other ELCs. External power is not required when using the hand-held programmer because it draws its power from either the ELC or the PC through the attached cable.

Plate Mount

ELC-ACCOVER

Use the ELC-ACCOVER surface mount stand-alone modules instead of mounting to a DIN rail. This may be used to mount analog, temperature or the RS-485 adapters remotely.

Product Selection

Accessories

ELC Accessories

Description	Catalog Number
Cable to connect a PC or an ELC-GP unit to ELC, 3 meters (DB9 pin female to 8-pin DIN)	**ELC-CBPCELC3**
Cable to connect a PC or an ELC-GP unit to ELC, 1 meter with right angle connector (DB9 pin female to 8-pin DIN)	**ELC-CBPCELC1**
Program transfer module for ELC controllers	**ELC-ACPGMXFR**
Hand-held programmer (Includes interface cables)	**ELC-HHP**
Plate mount for specialty modules, qty. 10	**ELC-ACCOVER**
ELC starter kit (includes ELC-PA10AADT, ELC-PS01, ELC-GP04, ELC-CBPCELC3, ELC-CBPCGP3, ELCSoft, ELCSoftGP)	**ELCSTARTKIT1**

Spare Parts

ELC Spare Parts

Description	Quantity	Catalog Number
Kit consists of:		**ELC-SPKIT**
Module to module locking clips (white)	4	
Module DIN rail clip (white)	2	
3-pin power plug and cable assembly (white)	4	
2-pin RS-485 communications connector (green—for latest version PA, PB, PC and PH)	4	
3-pin RS-485 communications connector (green—PV controllers only)	2	
Left side expansion port cover (PV controllers and left side communications modules)	2	
Right side I/O expansion port cover (all controllers and I/O modules)	2	
Battery cover door (for PA, PC and PH controllers)	2	
Metal mounting clips (only for PV controllers)	2	
Kit consists of:		**ELC-IOBLOCK**
9-pin replacement I/O blocks (green)	4	
Kit consists of:		**ELC-BAT**
Battery with pigtail and connector (for PA, PC and PH controllers only)	2	

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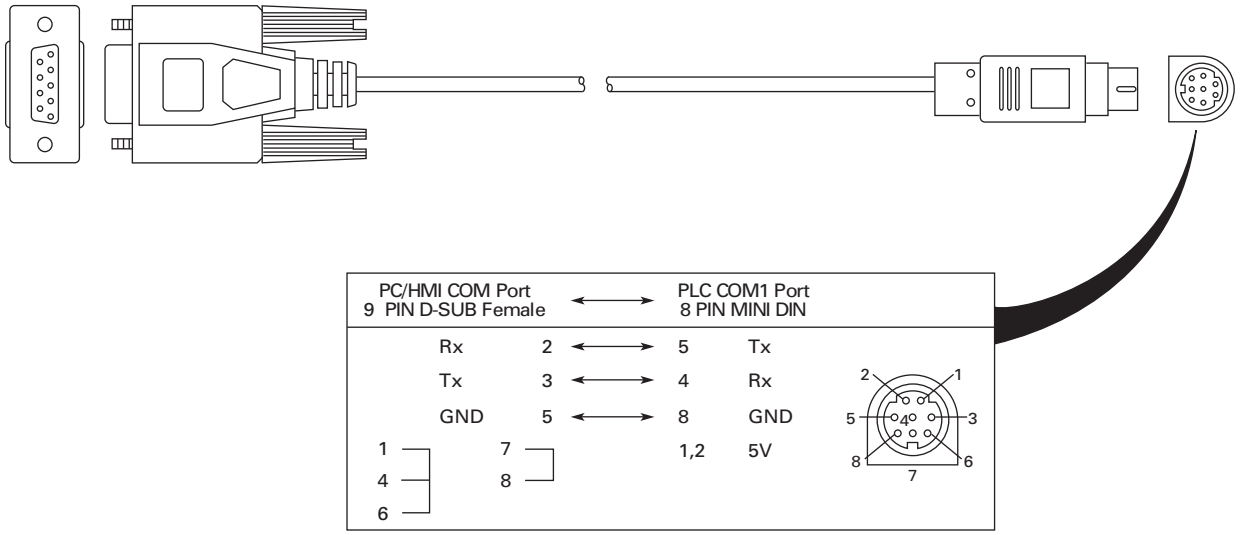
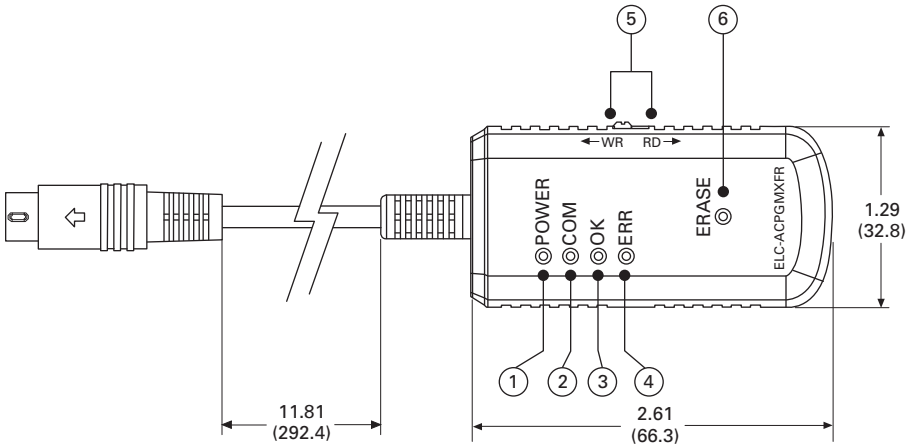
Dimensions

Approximate Dimensions in Inches (mm)

ELC-CBPCELC1 Cable (Right Angle Connector not Shown) and ELC-CBPCELC3 Cable (Straight Connector as Shown)

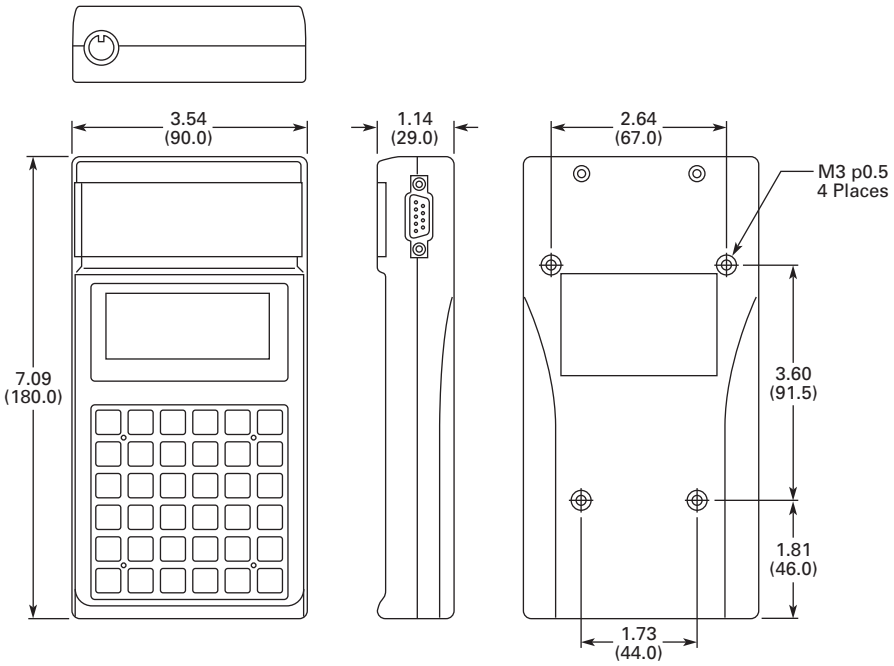


ELC-ACPGMXFER Storage Device



Approximate Dimensions in Inches (mm)

ELC-HHP Hand-Held Programmer



ELC-ACCOVER Plate Mount for Specialty Modules