ELC Product Family Overview

ELC Modules

The Eaton Logic Controller (ELC) is our latest offering into the PLC (Programmable Logic Controller) marketplace. With the latest technology, this reduced sized ELC with its abundant module selection will provide a "Just Right" concept of providing only what you want for the price you need.

- **Size** – Providing large PLC features/functions in a small 1" package. ELC is 1/3 the size of a D50, offering identical and even a larger feature set than the D50. ELC can provide 46 I/O in the space that a D50 could provide 14 I/O.
- **Flexibility** – ELC controllers can handle I/O counts from 10 I/O to 256 I/O using the same controller. ELC eliminates the process of counting I/O and deciding which controller to use, ELC is the only one needed. ELC modules come in many flavors of I/O from modules containing 4 in / 4 out to modules containing 8 in / 8 out. ELC is not a rack based system — it simply mounts to a DIN rail. Add modules by simply snapping them into the mating connectors and closing the attached locks.
- **Large PLC Features** – ELC has the feature set of larger PLCs, from its multiple communications ports, remote I/O ability, data storage, high speed counter, high speed pulse outputs, interrupts, timer resolution to 1 ms, PID, plus much more.
- **Software** – ELCSoft, the software, configures the entire line of ELC controllers. Priced less than $200, it programs in standard ladder logic and sequential function chart programming. It will aid in knowing what registers are in use and what modules are attached to the ELC. It monitors the runtime application, allows forcing (except basic), and entering values. Software wizards aid programming of remote I/O, standard communications and PIDs.
- **Power of One** – ELC communicates easily to MVX drives, eliminating the need to operate drives by analog voltage/current or digital I/O. ELC can access all of the parameters in the MVX by serial communications, saving OEM money. ELC communicates to ***IT.*** I/O through the Modbus TCP gateway. This allows ELC to control the ***IT.*** I/O if local control is desired. This will also allow ***IT.*** I/O to be used in communicating MCC applications where the ELC can be either a DeviceNet™, Profibus, or ModbusTCP communicating MCC. ELC communicates to PowerNet Modbus products, allowing ELC connectivity to Switchgear and PowerNet applications.
- **Price** – Following the "Just Right" concept, ELC is priced correctly to please customers.
- High speed pulse capture and high speed pulse output on all controllers
- Interrupts
- Large module selection AC/DC in, relay/transistor out
- Large analog selection of analog in, out, combined, thermocouple, RTD Platinum
- Over 200 instructions to choose from: Floating point math, communications, hex, decimal, octal, BCD, ASCII conversion, 1, 4, 8, 16, 32, bit manipulations, logical, block move, block compare, retentive data storage, time base from clock/calendar
- 2 Modbus (ASCII or RTU) serial ports: 1 slave only, 1 master/slave
- Network communications on Modbus TCP, DeviceNet and Profibus
- ELC controller can be wired for remote I/O communications (except the PB model).

ELC Controllers/Modules

Product Description

ELC Controllers

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

ELC Modules

ELC Expansion Modules

ELC expansion modules provide the correct amount of I/O for application solutions. Choose 4, 8, or 16 I/O. Any number of expansion modules can be added to the ELC processor to create 256 I/O (128 Inputs and 128 Outputs maximum).

ELC Specialty Modules

In addition the to expansion I/O, specialty modules like Analog In, Analog Out, Platinum Temperature, Thermocouple, DeviceNet, PROFIBUS DP and Switch Module, etc. can be added. Use the ELC-485APTR to easily connect to the RS-485 port of MVX drive, ELC controllers and other devices.

Catalog Number Selection

Table 50-1. ELC Controllers/Modules Catalog Numbering System

ELC- AN 02 N A N N

Module Type	I/O Count	Analog Inputs	Digital Inputs	Analog Outputs	Digital Outputs
AN = Analog **EX** = Digital Expansion **PA** = Processor w/clock & analog **PB** = Processor w/o clock **PC** = Processor w/clock **PH** = Processor, high speed **PT** = PT100 **TC** = Thermocouple		**A** = AC **N** = None	**A** = AC **D** = DC **N** = None	**A** = Analog **N** = None	**I** = High Currency Relay **N** = None **R** = Relay **T** = Transistor

Features

ELC Controllers

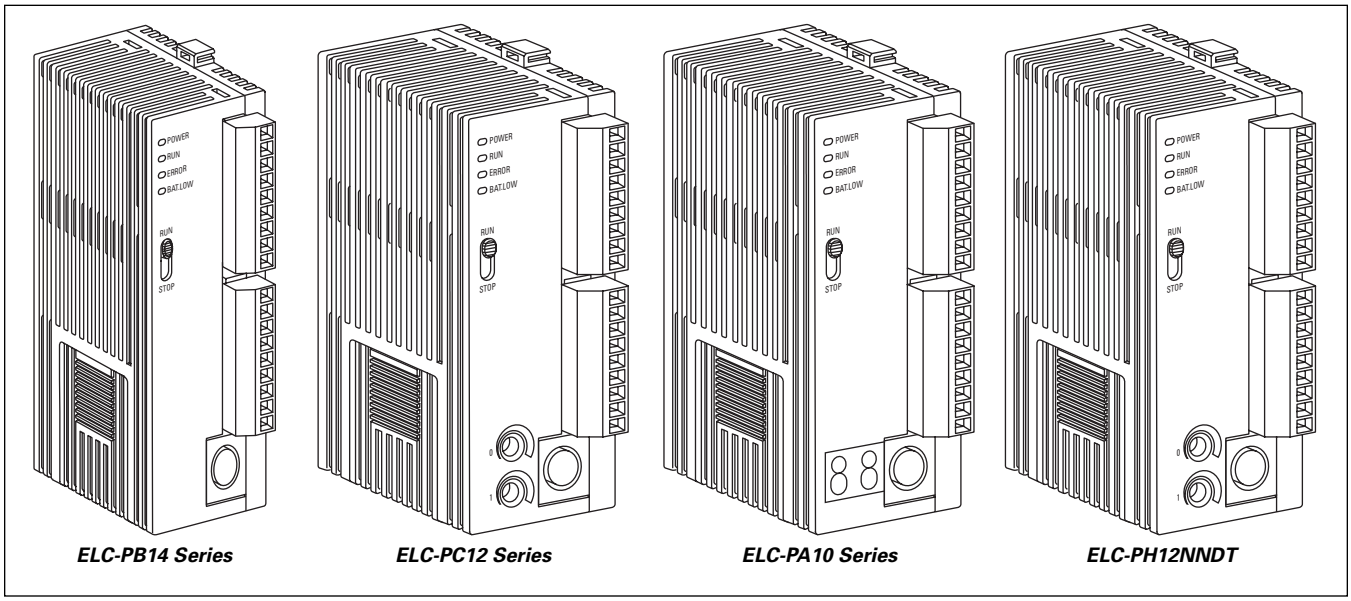
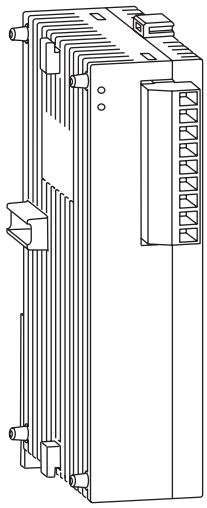


Figure 50-1. ELC Controllers

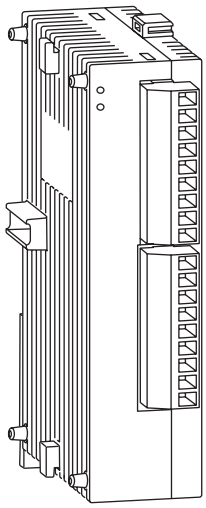
Table 50-2. ELC Controller Features

Items	ELC-PB14 Series	ELC-PC12 Series	ELC-PA10 Series	ELC-PH12NNDT
Maximum I/O	256 (128 In / 128 Out) Any number of modules			
I/O Type	14 (8 In / 6 Out) – Digital	12 (8 In / 4 Out – Digital)	10 (4 In / 2 Out Digital, 2 In / 2 Out Analog)	12 (8 In / 4 Out – Digital)
Execution Speed	Basic commands - 2µ seconds minimum			
Program Language	Boolean + Ladder Logic + SFC			
Program Capacity	3792 Steps	7920 Steps		
Data Memory Capacity (bits)	1280 Bits	4096 Bits		
Data Memory Capacity (words)	744 Words	5000 Words		
Index Registers	2 Words	8 Words		
File Memory Capacity	—	1600 Words		
Commands	32 Basic / 107 Advanced	32 Basic / 168 Advanced		
Floating Point	Yes	Yes		
SFC Commands	128 Steps	1024 Steps		
Timers	128 (1 – 100 ms)	256 (1 – 100 ms)		
Counters	128 (16 Bit / 32 Bit / Up/Down)	250 (16 Bit / 32 Bit / Up/Down)		
High Speed Counters	4 (14 modes) 10K Max	4 (14 modes) 20 kHz for PA/PC 100 kHz for PH		
Pulse Output	2 channels 10 kHz Max	2 channels, 40 kHz Max for PC/PA, 100 kHz for PH		
Master Control Loop	8 Loops			
Subroutines	64 Subroutines	256 Subroutines		
Interrupts	6	15 (External / Time base / HS CNTR / Comm.)		
Real-time Clock/Calendar	—	Built-in		
Specialty Expansions Modules	8 (Analog In / Analog Out / TC / PT) Modules do not count in total I/O			
Serial Ports	2 (1 – RS-232, 1 – RS-485)			
Special Features	—	2 Potentiometers	2 7-Segment Displays	2 Potentiometers

ELC Expansion Modules



Style 1



Style 2

Figure 50-2. ELC Expansion Modules

Table 50-3. ELC Expansion Module Features

Model	Style	Inputs		Outputs	
		Points	Type	Points	Type
ELC-EX08NNAN — AC IN	1	8	120V AC	0	—
ELC-EX08NNDN — DC IN	1	8	DC Sink or Source	0	—
ELC-EX08NNNR — Relay OUT	1	0	—	8	Relay
ELC-EX08NNNT — Transistor OUT	1	0	—	8	Transistor
ELC-EX06NNNI — High Current Relay OUT	2	0	—	6	Relay (6 Amps)
ELC-EX08NNDR — IN/OUT Combo	2	4	DC Sink or Source	4	Relay
ELC-EX16NNDR — IN/OUT Combo	2	8	DC Sink or Source	8	
ELC-EX08NNDT — IN/OUT Combo	2	4	DC Sink or Source	4	Transistor
ELC-EX16NNDT — IN/OUT Combo	2	8	DC Sink or Source	8	

ELC Specialty Modules

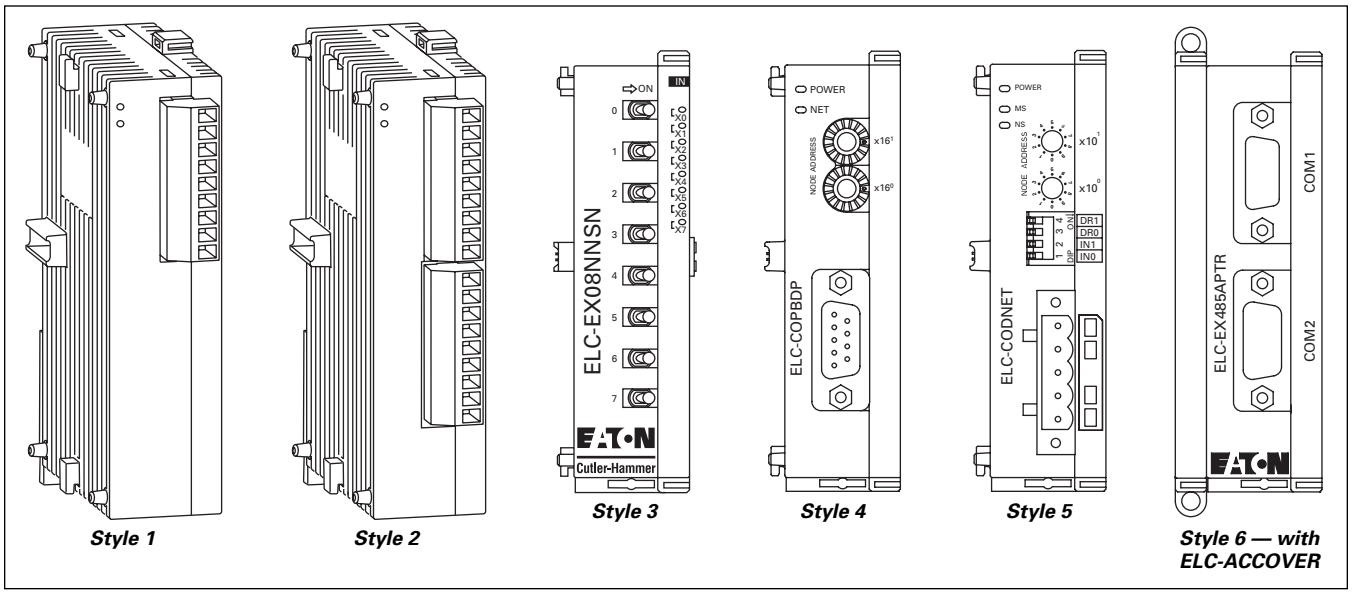


Figure 50-3. ELC Specialty Expansion Modules

Table 50-4. ELC Expansion Module Features

Model	Power	Style	Inputs		Outputs	
			Points	Type	Points	Type
ELC-AN02NANN — Analog OUT	24V DC	1	0	-20 mA~20 mA -10V ~ +10V	2 (12 bits)	0~20 mA, 4~20 mA 0V ~ +10V, 2V ~ +10V
ELC-AN04NANN — Analog OUT		2	0		4 (12 bits)	
ELC-AN06AANN — Analog Combo		2	4	±10V, ±20 mA	2 (12 bits)	0~20 mA, 0 ~ +10V
ELC-AN04ANNN — Analog IN		2	4 (V = 14 bits, I = 11 bits	±10V, ±20 mA	0	
ELC-PT04ANNN — PT100		2	4 (V = 14 bits, I = 13 bits)	PT100	0	
ELC-TC04ANNN — Thermocouple		2	4	Thermocouple	0	
ELC-EX08NNSN — Switch Input	24V DC	3	8	Switch	0	
ELC-COPBDP — PROFIBUS DP	24V DC	4	32	Digital	32	Digital
ELC-CODNET — DeviceNet	24V DC	5	32	Digital	32	Digital
ELC-485APTR — RS-485 Easy Connect	N/A	6	0	—	0	—

Product Selection

Table 50-5. ELC Controllers (PB, PC, PA)

Description	Inputs			Outputs			Catalog Number	Price U.S. $
	AC	DC	Analog	Relay	Transistor	Analog		
14 I/O PB Series		8		6			**ELC-PB14NNDR**	
14 I/O PB Series		8			6		**ELC-PB14NNDT**	
12 I/O PC Series	8			4			**ELC-PC12NNAR**	
12 I/O PC Series		8		4			**ELC-PC12NNDR**	
12 I/O PC Series		8			4		**ELC-PC12NNDT**	
10 I/O PA Series		4	2	2		2	**ELC-PA10AADR**	
10 I/O PA Series		4	2		2	2	**ELC-PA10AADT**	
12 I/O PH Series		8			4		**ELC-PH12NNDT**	

Table 50-6. Digital I/O Expansion Modules

Description	Inputs		Outputs		Catalog Number	Price U.S. $
	AC	DC	Relay	Transistor		
6 I/O Expansion (6 Amp Outputs)			6		**ELC-EX06NNNI**	
8 I/O Expansion — AC IN	8				**ELC-EX08NNAN**	
8 I/O Expansion — AC IN		8			**ELC-EX08NNDN**	
8 I/O Expansion — Relay OUT			8		**ELC-EX08NNNR**	
8 I/O Expansion — Transistor OUT				8	**ELC-EX08NNNT**	
8 I/O Expansion — IN/OUT Combo		4	4		**ELC-EX08NNDR**	
8 I/O Expansion — IN/OUT Combo		4		4	**ELC-EX08NNDT**	
16 I/O Expansion — IN/OUT Combo		8	8		**ELC-EX16NNDR**	
16 I/O Expansion — IN/OUT Combo		8		8	**ELC-EX16NNDT**	
8 I/O Expansion — Switch Input		8			**ELC-EX08NNSN**	

Table 50-7. Analog I/O Modules

Description	Analog In	Analog Out	Catalog Number	Price U.S. $
4 I/O Analog In	4		**ELC-AN04ANNN**	
2 I/O Analog Out		2	**ELC-AN02NANN**	
4 I/O Analog Out		4	**ELC-AN04NANN**	
6 I/O Analog In/Out	4	2	**ELC-AN06AANN**	
4 I/O Thermocouple J, K, R, S, T	4		**ELC-TC04ANNN**	
4 I/O Platinum RTD, PT100	4		**ELC-PT04ANNN**	

Table 50-8. Accessory Modules

Description	Catalog Number	Price U.S. $
Profibus DP Module	**ELC-COPBDP**	
DeviceNet Module	**ELC-CODNET**	
RS-485 Easy Connect Adapter, DB9, RJ-12, 2-Pin Connections to RS-485	**ELC-485APTR**	

Discount Symbol **2CD-5**