

# ELC Programmable Logic Controllers (PLCs)

## ELC-PH12NNDT



- ✓ **High-Speed Counters and Pulse Outputs (100 KHz)**
- ✓ **8 Digital Inputs, 4 Digital Outputs**
- ✓ **Expandable to 256 I/O With Expansion Modules**
- ✓ **Half the Size of Most PLCs**
- ✓ **Powerful Instruction Set**
- ✓ **7.9K Program Steps**
- ✓ **Real-Time Clock/Calendar**
- ✓ **Built-In Potentiometers**
- ✓ **High-level Network Access: MODBUS<sup>®</sup> TCP, DeviceNet and Profibus**
- ✓ **Remote I/O Modules for Analog I/O, Digital I/O, Thermocouples and RTDs**

supply for a complete motion-control system that costs less than \$1000.

### SPECIFICATIONS

#### 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 to 1 GHz, 10V/m

#### OTHER APPROVALS

**Agency Certifications:** UL 508, cUL, CE, Class 1, Div 2

**Height:** 90 mm (3.54")

**Width:** 37.4 mm (1.47")

**Depth:** 60 mm (2.36")

**Approx Weight:** 0.158 kg (0.348 lb)

#### ENVIRONMENTAL RATINGS TRANSPORTATION AND STORAGE

**Temperature:** -25 to 70°C

(-13 to 158°F)

**Humidity:** 5 to 95%

#### OPERATING

**Temperature:** 0 to 55°C

(32 to 131°F)

**Humidity:** 50 to 95%

#### Power Supply Voltage:

**ELC:** 24 Vdc (-15 to 20%)  
 with DC input reverse polarity protection

**Expansion Unit:** Supplied by the ELC

**Power Consumption:** 3 to 6 W

**Insulation Resistance:** >5 MΩ @ 500 Vdc, between all inputs/outputs

#### DC INPUT POINT ELECTRICAL



ELC-PH12NND, shown actual size.

**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:

**X0-X5:** 10 mS (or up to 10,000 mS, setting by D1020)

**X10, X11:** 4.7 μS (or up to 1000 times, setting by D1021)

#### DC OUTPUT POINT ELECTRICAL

##### Maximum Loading:

**Y0, Y1:** 9W/1 point

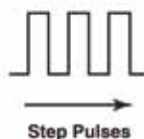
**Y10, Y11:** 0.9W/1 point

The ELC-PH12NNDT PLC provides high-speed pulse outputs which can be used to drive any of OMEGA's step and direction stepper drives. The ELCSoft ladder logic software has built-in step

motor functions which make programming your motion control application easy. The STM23S-2AN is an integrated stepper drive + stepper motor which accepts pulses from a PLC. Add the ELCSoft programming software, ELC-CBPCELC1 programming cable, and OMPS150A24 power

### Complete Single-Axis Motion Control System

PLC + Integrated Stepper Drive/Motor



**Response Time:**

Y0, Y1 OFF/ON: &lt;20µS

Y0, Y1 ON/OFF: &lt;30µS

Y10, Y11 OFF/ON: &lt;1µS

Y10, Y11 ON/OFF: &lt;1µS

**Maximum I/O:** 256 (128 in/128 out);  
any number of modules**I/O Type:** 12 (8 in/4 out, digital)**DC In Sink/Source:** Yes**Execution Speed:** Basic commands—  
2 µsec's min**Program Language:** Boolean + ladder  
logic + SFC**Program Capacity:** 7920 steps**Data Memory Capacity:** 5000 Words**Index Registers:** 8 words**File Memory Capacity:** 1600 words**Commands:** 32 basic/168 advanced**Floating Point:** Yes**SFC Commands:** 1024 steps**Timers:** 256 (1 to 100 ms)**Counters:** 250 (16 bit/32 bit/up/down)**High Speed Counters:** 1 (14 modes),  
100 kHz**Pulse Output:** 2 channels, 100 kHz**Master Control Loop:** 8 loops**Subroutines:** 256 subroutines**Interrupts:** 15 (external/time base/HS  
CNTR /comm)**Real-Time Clock/Calendar:** Built-in**Expansion Modules:** Digital, analog,  
thermocouple, RTD, motion control**Serial Ports:** 2 (one RS232,  
one RS485)**To Order**

MODEL NO.	DESCRIPTION
ELC-PH12NNDT	8 DC in/4 digital out, high-speed counters/outputs, clock/calendar
<b>DIGITAL I/O EXPANSION MODULES</b>	
ELC-EX06NNNI	6 high-current relay outputs (6 A)
ELC-EX08NNAN	8 AC Inputs
ELC-EX08NNDN	8 DC Inputs
ELC-EX08NNNR	8 relay outputs (1.5 A)
ELC-EX08NNDR	4 DC inputs, 4 relay outputs
ELC-EX08NNDT	4 DC inputs, 4 transistor outputs
ELC-EX08NNNT	8 transistor outputs
ELC-EX08NNSN	8 switch inputs
ELC-EX16NNDR	8 DC inputs, 8 relay outputs
ELC-EX16NNDT	8 DC inputs, 8 transistor outputs
<b>ANALOG I/O EXPANSION MODULES</b>	
ELC-AN04ANNN	4 analog inputs
ELC-AN02NANN	2 analog outputs
ELC-AN04NANN	4 analog outputs
ELC-AN06AANN	4 analog inputs, 2 analog outputs
ELC-TC04ANNN	4 thermocouple inputs, Types J, K, R, S, T
ELC-PT04ANNN	4 platinum RTD inputs, Pt100
<b>ACCESSORIES</b>	
ELCSTARTKIT1	Includes ELC-PA10AADR, ELC-PS01, ELC-GP04, ELC-CBPCELC3, ELC-CBP CGP3, ELC SOFT, ELC SOFT GP
ELC-485APTR	RS485 easy connect adaptor
ELC-ACPGMXFR	Program transfer module for ELC controllers
ELC-ACCOVER	Plate mount for specialty modules
ELC-PS01	ELC DC power supply, 24V, 1 A
ELC-PS02	ELC DC power supply, 24V, 2 A
ELC-HHP	Hand-held programmer for ELC controllers
XBANS3575P	DIN rail, 35 x 7.5 mm x 2 m (1.4 x 0.30" x 6.6'), slotted
XBANS3575U	DIN rail, 35 x 7.5 mm x 2 m (1.4 x 0.30" x 6.6'), solid
XBANS3515P	DIN rail, 35 x 15 mm x 2 m (1.4 x 0.60" x 6.6'), slotted
XBANS3515U	DIN rail, 35 x 15 mm x 2 m (1.4 x 0.60" x 6.6'), solid
XBANS3575PL	DIN rail, 35 x 7.5 mm x 2 m (1.4 x 0.30" x 6.6'), solid, aluminum
<b>SOFTWARE AND CABLES</b>	
ELC SOFT	Programming software for ELC controllers
ELC-CBPCELC1	ELC programming/communications cable, 1 m (3.3') length
ELC-CBPCELC3	ELC programming/communications cable, 3 m (9.8') length
OM-CONV-USB	USB to RS232 interface converter

**Ordering Example:** ELC-PH12NNDT, PLC with high-speed I/O, ELC SOFT, programming software, ELC-CBPCELC1, programming cable, ELC-PS01, power supply.