

# ELC PROGRAMMABLE LOGIC CONTROLLERS AND MODULES



Starts at  
**£90**



- **Base Models with 10 to 14 I/O, Expandable to 256**
- **Half the Size of Most PLCs**
- **1-, 4-, 8-, 16-and 32-Bit Instructions**
- **DIN Rail Mountable, No Rack Required**
- **Built-in Integral LED Display**
- **High-level Network Access - Modbus, DeviceNet and Profibus**
- **Remote Analog Modules for Analog I/O, Thermocouples and RTDs**

The Eaton Logic Controller (ELC) is Eaton Cutler-Hammer's latest offering into the PLC (Programmable Logic Controller) market. Using the latest technology this reduced-sized ELC, with its abundant module selection provides a "just right" concept, for delivering only what you want for the price you desire.

## The Right Amount of I/O

Why pay for functionality you'll never need? Why be trapped with functionality that you can't scale to meet changing needs? Eaton is changing everything with the ELC. At less than half the size of most PLCs, the Cutler-Hammer ELC is an ideal solution when space is at a premium and specialized I/O needs present themselves.

## ELC's Value Added Differences

4 Controller Styles:

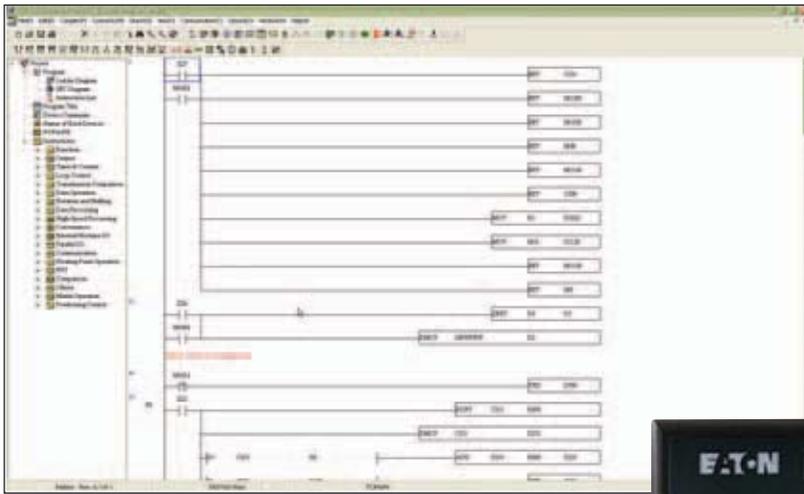
- **Basic**—14 I/O (8I/6O) Over 130 instructions provide all the power you need; 2 serial ports for master/slave communications
- **Clock/Calendar**—Same features as the basic model plus clock/calendar, remote I/O and retentive data storage
- **Analog**—Same features as clock/calendar plus analog in and out
- **High Speed**—All the features of clock/calendar with the ability to capture or output 100 KHz pulses

## A Wealth of Features

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

- 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
- ELC controller can be wired for remote I/O communications (except the PB model)





## ELC SOFTWARE

- Display registers “in use” and modules attached to the ELC
- Monitor runtime applications; force (except basic), and enter/modify register values
- Wizards aid programming of remote I/O, standard communications, high speed counters, pulse outputs, ELC Link, positioning, interrupts, PIDs, and extension module setup

ELCSoft, software, £66.

## GRAPHIC PANELS

ELC Graphic Panels are simple to program and easily connect to ELC products. ELC graphic panels make modifying an application quick and easy. ELC graphic panels also connect to Cutler-Hammer® MVX drives, IQMODBUS meters and many other devices. With over 30 objects that can be placed anywhere on the display, these tough panels also communicate with other major controllers. These graphic panels have two serial ports which can be used simultaneously to communicate. Transfer applications to or from these graphic panels using the handy transfer module (ELC-GPXFERMOD). Ten programmable functions keys provide easy to change pages, input numeric values, enter alpha-numeric passwords, set, reset and more. Create alarms, password protect, import bitmaps, and use many different fonts.



ELC-GP02,  
£123.



ELC-GP04,  
£162.

## 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:** 250 V

### Damped-Oscillatory Wave:

**Power Line:** 1 kV

**Digital I/O:** 1 kV

**RS Immunity:** 26 MHz to 1 GHz, 10 V/m

### OTHER APPROVALS

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

## ENVIRONMENTAL RATINGS

### TRANSPORTATION AND STORAGE

**Temperature:** -25 to 70°C

(-13 to 158°F)

**Humidity:** 5 to 95%

### OPERATING

**Temperature:** 32 to 131°F (0 to 55°C)

**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 M @ 500 Vdc, between all inputs/outputs and earth

**Grounding:** The diameter of the 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:**

**Standard:** IEC1131-2, IEC 68-2-6

(TEST Fc)/IEC1131-2 and

IEC 68-2-27 (TEST Ea)

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

### DC INPUT POINT ELECTRICAL

**Input Type:** DC (SINK or SOURCE)

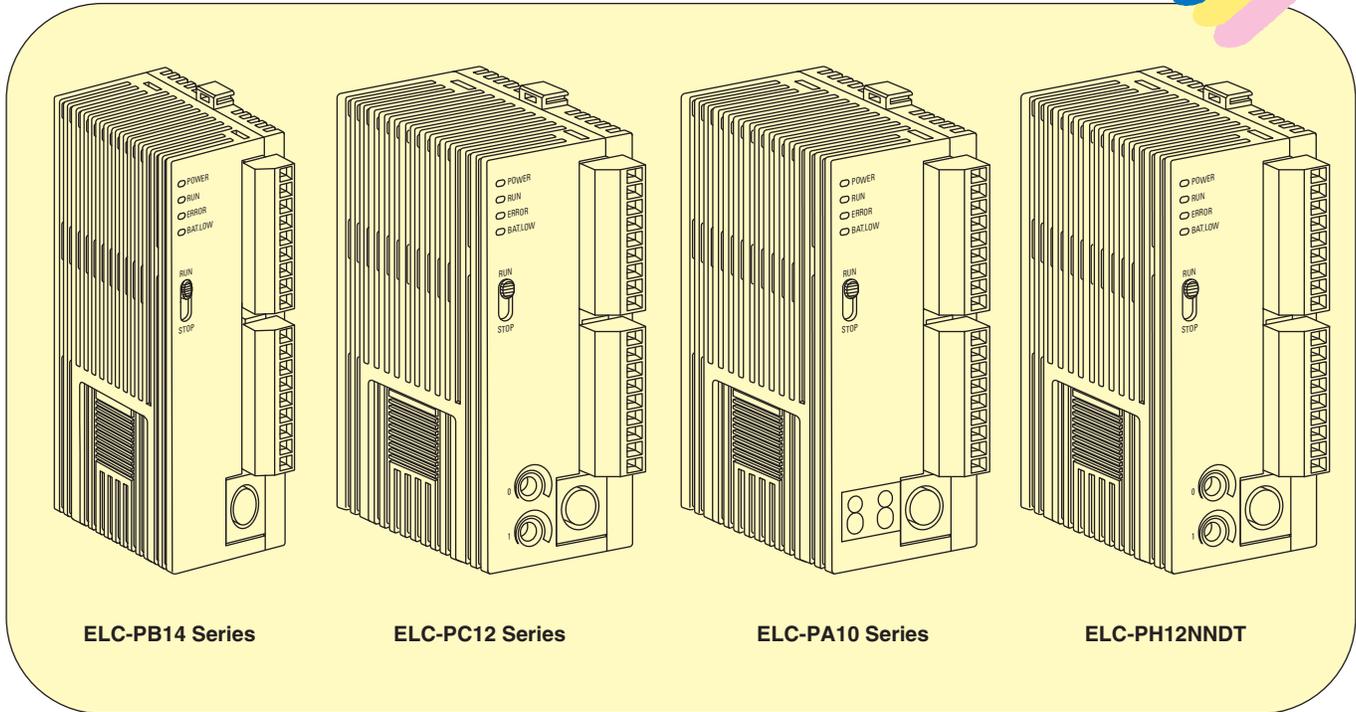
**Input Current:** 24 Vdc 5 mA

**Active Level:**

**OFF/ON:** Above 16 Vdc

**ON/OFF:** Below 14.4 Vdc

**Response Time:** About 10 mS; an adjustment range of 0 to 10,000 mS could be selected through D1020 and D1021



ELC-PB14 Series

ELC-PC12 Series

ELC-PA10 Series

ELC-PH12NNDT

## SPECIFICATIONS (CONTINUED)

**Maximum I/O:** 256 (128 In / 128 out);  
any number of modules

### I/O Type:

**ELC-PB14 Series:**

14 (8 in/6 out, digital)

**ELC-PC12 Series:**

12 (8 in/4 out, digital)

**ELC-PA10 Series:**

10 (4 in/2 out, digital);

2 in/2 out, analog)

**ELC-PH12NNDT:**

12 (8 in/4 out, digital)

**DC In Sink/Source:** Yes

**Execution Speed:** Basic commands—  
2  $\mu$  seconds min

**Program Language:** Boolean + ladder  
logic + SFC

### Program Capacity:

**ELC-PB14 Series:** 3792 Steps

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 7920 Steps

### Data Memory Capacity (bits):

**ELC-PB14 Series:** 1280 Bits

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 4096 Bits

### Data Memory Capacity (words):

**ELC-PB14 Series:** 744 Words

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 5000 Words

### Index Registers:

**ELC-PB14 Series:** 2 Words

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 8 Words

### File Memory Capacity:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** 1600 Words

### Commands:

**ELC-PB14 Series:** 32 Basic/  
107 advanced

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 32 Basic/  
168 advanced

**Floating Point:** Yes

### SFC Commands:

**ELC-PB14 Series:** 128 Steps

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 1024 Steps

### Timers:

**ELC-PB14 Series:** 128 (1 to 100 ms)

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 256 (1 to 100 ms)

### Counters:

**ELC-PB14 Series:** 128 (16 bit/  
32 bit/up/down)

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 250 (16 bit/  
32 bit/up/down)

### High Speed Counters:

**ELC-PB14 Series:** 1 (14 modes)  
10 K max

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 1 (14 modes) 20 kHz  
for PA/PC; 100 kHz for PH

### Pulse Output:

**ELC-PB14 Series:** 2 channels  
10 kHz max

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 2 channels, 40 kHz  
max for PC/PA, 100 kHz for PH

### Master Control Loop:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** 8 Loops

### Subroutines:

**ELC-PB14 Series:** 64 subroutines

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 256 subroutines

### Interrupts:

**ELC-PB14 Series:** 6

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT:** 15 (external/time  
base/HS CNTR /comm)

### Real-time Clock/Calendar:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** Built-in

### Specialty Expansions Modules:

8 (analog in/analog out/TC/RTD/PT);  
modules do not count in total I/O

**Serial Ports:** 2 (one RS232, one RS485)

### Remote I/O:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** With 16 other  
devices

### Run Time Editing:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** Yes, also  
includes PB

### Run/Stop Switch:

**ELC-PC12 Series, ELC-PA10 Series,**

**ELC-PH12NNDT Only:** Yes, also  
includes PB

### Removable Terminal Strips:

**ELC-PC12 Series, ELC-PA10 Series,**

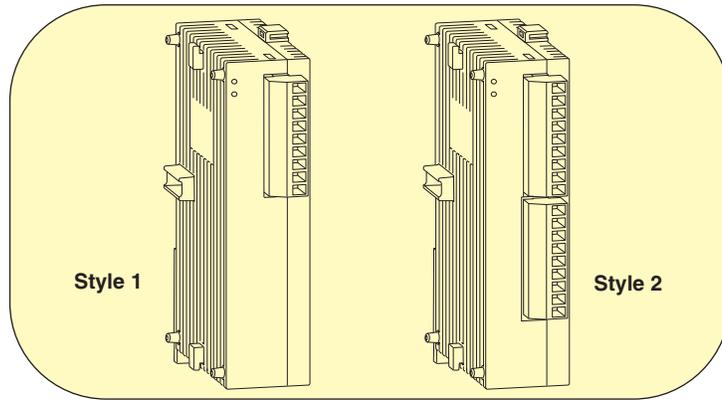
**ELC-PH12NNDT Only:** Yes, also  
includes PB

### Special Features:

**ELC-PC12 Series:** 2 potentiometers

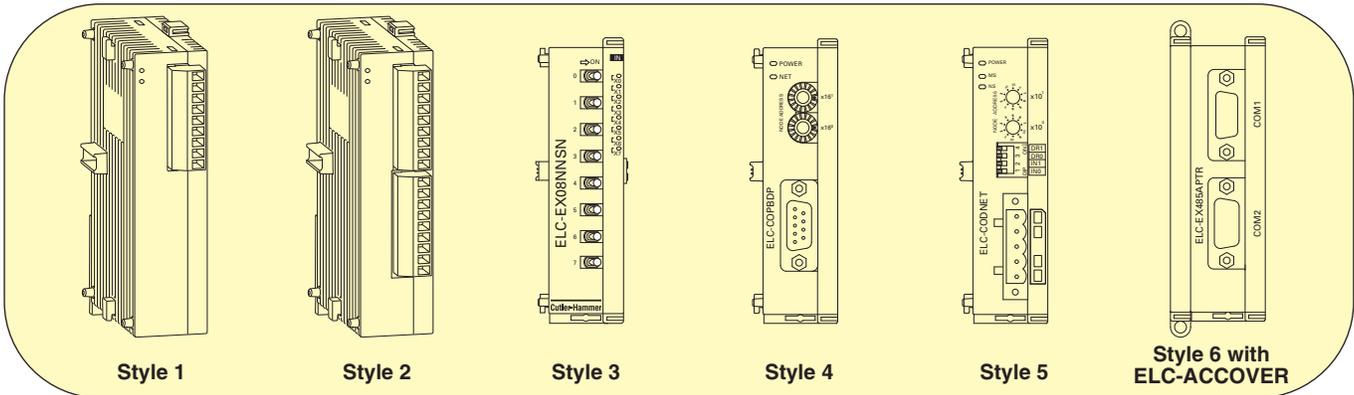
**ELC-PA10 Series:** Two 7-segment  
displays

**ELC-PH12NNDT:** 2 potentiometers



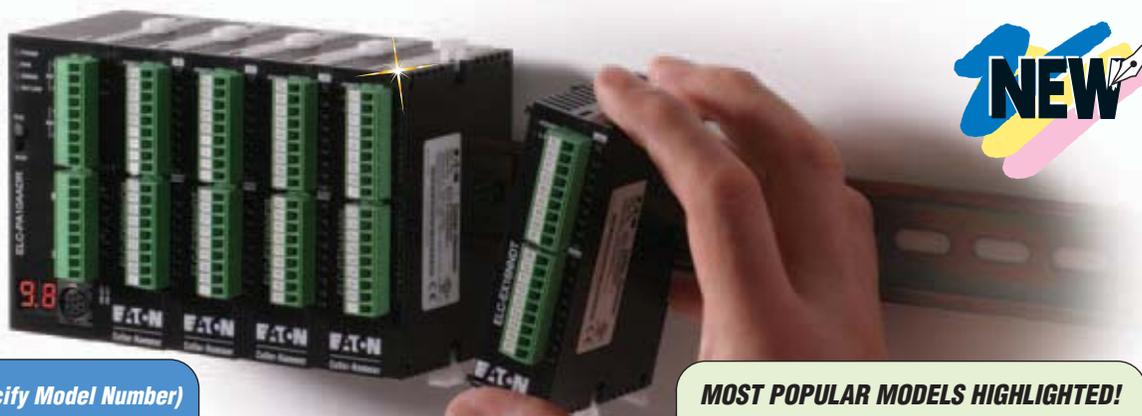
## ELC EXPANSION MODULES

MODEL	TYPE	STYLE	INPUTS		OUTPUTS	
			POINTS	TYPE	POINTS	TYPE
ELC-EX08NNAN	AC IN	1	8	120 Vac	0	—
ELC-EX08NNDN	DC IN	1	8	DC Sink or Source	0	—
ELC-EX08NNNR	Relay OUT	1	0	—	8	Relay
ELC-EX08NNDT	IN/OUT Combo	2	4	DC Sink or Source	4	Transistor
ELC-EX08NNNT	Transistor OUT	1	0	—	8	Transistor
ELC-EX06NNNI	High Current Relay OUT	2	0	—	6	Relay (6 A)
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	Relay
ELC-EX16NNDT	IN/OUT Combo	2	8	DC Sink or Source	8	Transistor



## ELC SPECIALTY MODULES

MODEL	TYPE	POWER	STYLE	INPUTS		OUTPUTS	
				POINTS	TYPE	POINTS	TYPE
ELC-AN02NANN	Analog OUT	24 Vdc	1	0	-20 mA~20 mA	2 (12 bits)	0 to 20 mA, 4 to 20 mA 0 to 10V, 2 to 10V
ELC-AN04NANN	Analog OUT		2	0	-10V ~ +10V	4 (12 bits)	
ELC-AN06AANN	Analog Combo		2	4	±10V, ±20 mA	2 (12 bits)	
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	J, K, R, S, T	0	
ELC-EX08NNSN	Switch Input	24 Vdc	3	8	Switch	0	Digital
ELC-COPBDP	PROFIBUS DP	24 Vdc	4	32	Digital	32	
ELC-CODNET	DeviceNet	24 Vdc	5	32	Digital	32	
ELC-485APTR	RS485 Easy Connect	N/A	6	0	—	0	—



**To Order** (Specify Model Number)

**MOST POPULAR MODELS HIGHLIGHTED!**

MODEL NO.	PRICE	DESCRIPTION	INPUT			OUTPUT		
			AC	DC	ANALOG	RELAY	TRANSISTOR	ANALOG
ELC-PB14NNDR	£90	14 I/O PB Series		8		6		
ELC-PB14NNDT	90	14 I/O PB Series		8			6	
ELC-PC12NNAR	112	12 I/O PC Series	8			4		
ELC-PC12NNDR	102	12 I/O PC Series		8		4		
ELC-PH12NNDT	121	12 I/O PH Series		8			4	
ELC-PA10AADR	190	10 I/O PA Series		4	2	2		2
<b>DIGITAL I/O EXPANSION MODULES</b>								
MODEL NO.	PRICE	DESCRIPTION	TYPE	INPUT		OUTPUT		
				AC	DC	RELAY	TRANSISTOR	
ELC-EX06NNNI	£49	6 I/O expansion	6 A outputs			6		
ELC-EX08NNAN	39.50	8 I/O expansion	AC in	8				
ELC-EX08NNDN	36	8 I/O expansion	DC in		8			
ELC-EX08NNNR	43.50	8 I/O expansion	Relay out			8		
ELC-EX08NNDR	43.50	8 I/O expansion	in/out combo		4	4		
ELC-EX16NNDR	53	16 I/O expansion	in/out combo		8	8		
ELC-EX08NNDT	43.50	8 I/O expansion	in/out combo		4		4	
ELC-EX08NNNT	43.50	8 I/O expansion	Transistor out				8	
ELC-EX16NNDT	53	16 I/O expansion	in/out combo		8		8	
ELC-EX08NNSN	39	8 I/O expansion	Switch in		8			
<b>ANALOG I/O MODULES</b>								
MODEL NO.	PRICE	DESCRIPTION	ANALOG IN			ANALOG OUT		
ELC-AN04ANNN	£82	4 I/O analog in	4					
ELC-AN02NANN	105	2 I/O analog out				2		
ELC-AN04NANN	143	4 I/O analog out				4		
ELC-AN06AANN	165	6 I/O analog in/out	4			2		
ELC-TC04ANNN	182	4 I/O thermocouple J, K, R, S, T	4					
ELC-PT04ANNN	178	4 I/O platinum RTD, PT100	4					
<b>ACCESSORIES</b>								
MODEL NO.	PRICE	DESCRIPTION						
ELC-CODNET	£149	ELC expansion module for DeviceNet e						
ELC-COPBDP	213	ELC expansion module for ProfibusDP slave						
ELC-MC01	222	ELC motion control for 1 axis, use with ELC-PHNNDT						
ELC-ACPGMXFR	46	Program transfer module for ELC controllers						
ELC-GP02	123	ELC graphics panel, monochrome, 160x32 pixels, 10 keys						
ELC-GP04	162	ELC graphics panel, monochrome, 128x64 pixels, 10 keys						
ELC-GPXFERMOD	45	ELC graphics panel transfer module						
ELC-PS01	24	ELC power supply, 24 W, 1 A						
ELC-PS02	47.50	ELC power supply, 48 W, 2 A						
ELCSOFT	96	ELC programming software for ELC controllers						
ELCSOFTGP	74	ELC programming software for ELC graphics panels						
ELC-CBPCELC1	16.75	Cable to connect a PC or a GP unit to ELC, 1 m (3.3') (DB9 pin female to 8 pin DIN)						
ELC-CBPCELC3	18.75	Cable to connect a PC or a GP unit to ELC, 3 m (9.8') (DB9 pin female to 8 pin DIN)						

Ordering Example: ELC-PB14NNDR, ELCSOFT, £90 + 96 = £186.

# omega.co.uk<sup>®</sup>

Your One-Stop Source for Process Measurement and Control!

Freephone 0800 488 488 | International +44(0) 161 777 6622 | Fax +44(0) 161 777 6622 | Sales@omega.co.uk

[www.omega.co.uk](http://www.omega.co.uk)



#### UNITED STATES

[www.omega.com](http://www.omega.com)

1-800-TC-OMEGA  
Stamford, CT.

#### UNITED KINGDOM

[www.omega.co.uk](http://www.omega.co.uk)

Manchester, England  
0800-488-488  
+44-(0)161-777-6611

#### CANADA

[www.omega.ca](http://www.omega.ca)

Laval(Quebec)  
1-800-TC-OMEGA

#### FRANCE

[www.omega.fr](http://www.omega.fr)

0800-466-342

#### GERMANY

[www.omega.de](http://www.omega.de)

Deckenfronn, Germany  
0800-8266342

#### BENELUX

[www.omega.nl](http://www.omega.nl)

0800-099-33-44



## More than 100,000 Products Available!

### • Temperature

Calibrators, Connectors, General Test and Measurement Instruments, Handheld Instruments for Temperature Measurement, Ice Point References, Indicating Labels, Crayons, Cements and Lacquers, Infrared Temperature Measurement Instruments, Recorders, Relative Humidity Measurement Instruments, PT100 Probes, PT100 Elements, Temperature & Process Meters, Timers and Counters, Temperature and Process Controllers and Power Switching Devices, Thermistor Elements, Probes and Assemblies, Thermocouples, Thermowells and Head and Well Assemblies, Transmitters, Thermocouple Wire, RTD Probes

### • Flow and Level

Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

### • pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

### • Data Acquisition

Communication Products and Converters, Data Acquisition and Analysis Software, Data Loggers Plug-in Cards, Signal Conditioners, USB, RS232, RS485, Ethernet and Parallel Port Data Acquisition Systems, Wireless Transmitters and Receivers

### • Pressure, Strain and Force

Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Pressure Transmitters, Strain Gauges, Torque Transducers, Valves

### • Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters