Life Is On | Eurotherm by Schneider Electric

Helping Deliver an Efficient and Secure Process

Eurotherm EPC3000 Programmable Controllers

Maintain high standards of production quality and ease your cybersecurity worries

Product at a glance

The EPC3000 range of programmable single loop process and temperature controllers is designed to optimize efficiency, and repeatability and is certified for cybersecurity communications robustness.

The controllers combine industry-leading control and measurement performance with simplicity of use, while remaining highly flexible.

A simple “Quick Start” configuration code enables fast commissioning using just the instrument HMI. For applications requiring additional processing, user function block wiring provides an extensive range of math, logic, totalizer and specialized functions.

A highly visible three-color display with natural language status and alarm indications is easy and clear for operators to use.

The EPC3000 Controller is highly durable, with battery-free design, prolonging service life.

Accuracy and Repeatability

Process inputs are fast and accurate, with exceptional thermal stability, aiding precise and consistent control over long periods without calibration drift. Recalibration and user calibration correction functions are available to further improve accuracy.

The industry-leading Eurotherm PID algorithm delivers fast reacting and repeatable control and has been enhanced in the EPC3000 range to further reduce overshoot. Rapid rise to operating temperature and low oscillation helps improve yield. PID settings may be adjusted to suit specific process operating regions, helping deliver optimum performance.

Connectivity and Cybersecurity

The EPC3000 controller range is Ethernet enabled as standard and is the first Eurotherm controller to be designed and certified to meet the stringent cybersecurity requirements of **Achilles® Communications Robustness Testing Level 1**. Ethernet communications are supported via a standard RJ45 connector, providing fast access to process and diagnostic information as well as connectivity to external PLCs, SCADA systems and IIoT technologies.

Modbus RTU serial communication is also supported.

A free PC-based backup and configuration tool uses a USB connection, to power the instrument for convenient desktop configuration.

- Precision furnace control
- Atmosphere control
- Industrial ovens
- Crystal growing
- Composite materials processing
- Heat exchangers
- Automotive paint drying
- Baking ovens

- Precision single loop controller cybersecurity functionality
- Precise (0.1%) accuracy universal input with 50ms sample rate
- Thermocouples, resistance thermometer, mA, mV, V, zirconia inputs
- Exceptional thermal stability
- Fast PID response with minimal overshoot and oscillation
- Up to 8 PID sets available with gain scheduling function
- Multi-programmer function with maximum of 20 programs of 8 steps or 10 programs of 24 steps
- Direct Ethernet RJ45 Connection certified to Achilles® CRT Level 1
- High visibility customizable display
- Quick code setup with application templates
- User function block wiring including math, logic and totalizer
- Extensive range of international approvals
- EN 14597 TR type approval

Specification

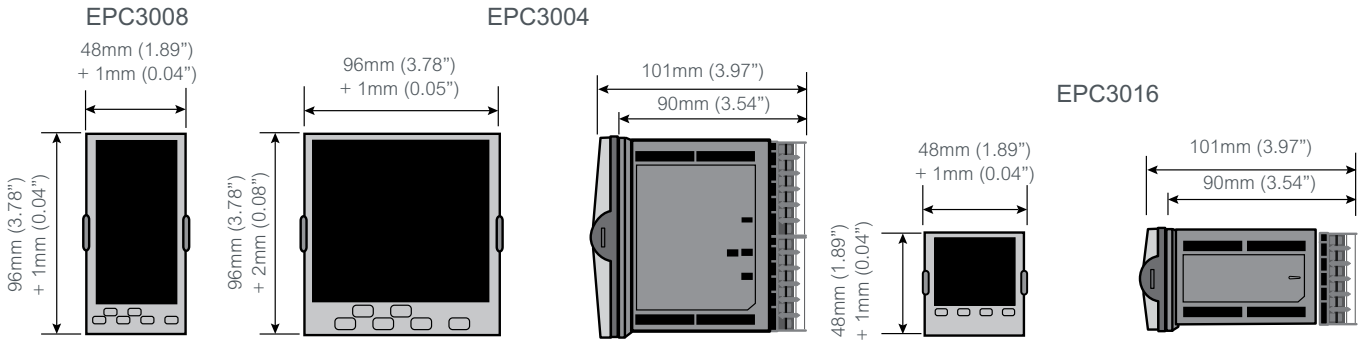
General	
Controller Function	• Single loop panel mount PID controller range with autotune, on/off, valve positioning (no slidewire required). • Zirconia probe atmosphere control. • Single loop profile/program. • AC Mains voltage and 24Vdc power options.
Measurement Inputs	1 or 2 inputs. Accuracy ±0.1% of reading (refer to Universal Inputs table).
PID Control	• 2 PID sets are available as standard, with 8 as an optional extension (Each PID set offers a separate proportional band for heat and cool operation). • Enhanced Autotuning control with cutback function to minimize overshoot and oscillation. Fast reacting precision control to setpoint changes or after process disturbances. • Enhanced valve positioning (unbounded) algorithm. • Gain scheduling allows PID selection for a wide range of operating situations, including deviation from setpoint, absolute temperature, output level and others. • AC supply voltage monitoring for feedforward function. Process Variable (PV) and Setpoint (SP) feedforward functions.
Setpoint Programmer/Profiler	• Options include 20 profiles of 8 steps (20x8), 10x24, 1x24 and 1x8. • Holdback (“guaranteed soak”), event outputs, time to target, ramp rate, dwell, step and call segment types. • Communication addresses compatible with Eurotherm 2400 programmable Controller. • Additional timer functions available.
User Function Block Wiring	• Optional totalizer • Math • Logic and multiplexing • BCD conversion • Counter/timer and many other special function blocks available including 16 point linearization, zirconia and dual input switchover.
Additional Functions	• Digital and analog retransmission functions. • CT Input - Monitor partial load failure, load short and open circuit; Dual input functions including switchover, redundant sensor, average, min, max, zirconia. • 6 Freely configurable alarms with manual, automatic, non-latching and event types plus alarm delay function and blocking. • Alarms may be inhibited in standby. • 5 Recipes with 40 freely selectable parameters switchable from front panel or digital input. • Scrolling parameter help and user messages displayed on event. • USB backup lead and free configuration software.
Backup and Configuration Tools	• Free Eurotherm iTools software for backup and configuration. • USB Backup lead available for convenient desktop configuration and back up; powers the instrument with or without a sleeve. • iTools also connects using Ethernet Modbus/TCP and serial Modbus RTU.
“OEM Security”	Helps protect instrument configurations from unauthorized viewing, cloning or backwards engineering.

Function Blocks	Function	Standard	Standard Toolkit Blocks	Enhanced Toolkit Blocks
Instrument	Interface to Instrument wide settings	1	-	-
Loop	Enhanced Eurotherm PID Loop	1	-	-
Programmer*	Ramp/Dwell Programmer	1	-	-
BCD	BCD Conversion	1	-	-
Alarm	General purpose analog alarm monitoring	6	-	-
Recipe	General purpose recipe function	1	-	-
Comms*	Interface to serial and Ethernet communications	2	-	-
AI	Interface to main analog input	2	-	-
IP Monitor	Input monitoring (min, max, other functions)	2	-	-
IO*	Interface to Inputs and Outputs	6	-	-
Option DIO*	Digital I/O options	8	-	-
Remote Input	Interface to remote (communications) input	1	-	-
OR	Eight input logical “OR” operation	8	-	-
CT*	Current transformer	1	-	-
Zirconia*	Zirconia Probe input	1	-	-
Wires*	User wiring	50	200	200
Math2	Two input math functions	-	4	8
Lgc2	Two input logical operations	-	4	8
Lgc8	Eight input logical operations	-	2	4
Timer	Timer based functions	-	1	2
SwitchOver	Input switchover	-	1	1
Mux8	Eight Input multiplexer	-	3	4
Total	Totalizer	-	1	1
Counter	Counter block (32-bit)	-	1	2
UsrVal	User values (freely assignable)	-	4	12
Lin16	16 point linearization	-	2	2

*Dependent on instrument/options ordered

Environmental Specifications, Standards Approvals and Certifications		
Operating Temperature		0 to 55°C (32 to 131°F)
Storage Temperature		-20 to +70°C (-4 to 158°F)
Operating/Storage Humidity		5% to 90% RH non-condensing
Atmosphere		Non-corrosive, non-explosive
Altitude		<2000 meters (6562 feet)
Vibration and Shock		EN 61131-2 (5 to 11.9Hz @ 7mm peak to peak displacement, 11.9-150Hz @ 2g, 0.5 octave min.) EN 60068-2-6 Test FC, Vibration. EN 60068-2-27 Test Ea and guidance, Shock.
Front of Panel Sealing Protection		Standard bezel: EN 60529 IP65, UL50E Type 12 (equivalent to NEMA 12) Washdown bezel: EN 60529 IP66, UL50E Type 4X (indoor use) (equivalent to NEMA 4X)
Rear of Panel Protection		EN 60529 IP10
Electromagnetic Compatibility (EMC)	Emissions	HV Power Supply units to EN 61326-1 Class B – Light industrial LV Power Supply units to EN 61326-1 Class A – Heavy industrial
	Immunity	EN 61326-1 Industrial
Approvals and Certification	Europe	CE (EN 61326), RoHS (EN 50581), REACH, WEEE, EN 14597 TR Type Approval
	USA, Canada	UL, cUL
	Russia	EAC (CUTR) pending
	China	RoHS, CCC: Exempt (Product not listed in catalog of products subject to China Compulsory Certification)
	Global	When subject to the necessary field calibration, EPC3000 series controllers manufactured by Eurotherm are suitable for use in Nadcap applications in all furnace classes, as defined in AMS2750E clause 3.3.1. Meets accuracy requirements of CQI-9 Achilles® Level 1 CRT Cyber Security Assessment Schneider Electric Green Premium
Electrical Safety		EN 61010-1 (installation category II, pollution degree 2)

Mechanical Details



Panel cut out and Weight			
	EPC3008	EPC3004	EPC3016
Cut Out Dimension	92mm (-0.0 +0.8) x 45mm (-0.0 +0.6)	92mm (-0.0 +0.8) x 92mm (-0.0 +0.8)	45mm (-0.0 +0.6) x 45mm (-0.0 +0.6)
	3.62" (-0.0 +0.03") x 1.77" (-0.0 +0.02)	3.62" (-0.0 +0.03") x 3.62" (-0.0 +0.03)	1.77" (-0.0 +0.02") x 1.77" (-0.0 +0.02)
Product Weight	350g	420g	250g
	12.34oz	14.81oz	8.81oz

Inputs and Outputs

I/O and Communication Types

I/O and Comms	EPC3016	EPC3008/EPC3004
Analog Inputs	• 1 universal input 20Hz • 1 auxiliary input 4-20mA, 0-10V 4Hz (option)	• 1 or 2 (option) universal input 20Hz
Optional I/O Modules:	Up to 2, freely selectable: • Form A Relay Output • Logic I/O • DC Analog Output • TRIAC Output	Up to 3, freely selectable: • Form A Relay Output • Logic I/O • DC Analog Output • TRIAC Output
Form C Relay Output	1	1
Contact Closure Logic Input	1 (option)	2
Logic I/O (Open Collector)	–	4 or 8 (option)
Current Transformer	1 (option)	1
24V Transmitter Power Supply	–	1
Communications	1 of the following options: • EIA-485 • EIA-422 • EIA-232 • Modbus RTU slave (EI Bisynch available with serial comms) • Modbus TCP slave • Modbus TCP Slave + Ethernet/IP Server, or Modbus TCP Slave + BACnet Slave	2 of the following options: • EIA-485 Modbus (or EI Bisynch) and Modbus TCP • Modbus TCP Slave + Ethernet/IP Server, or Modbus TCP Slave + BACnet Slave

I/O Specifications

Universal Process Inputs	
Input Types	Thermocouples, Pt100/Pt1000 RTD, 4-20mA, 0-20mA, 10V, 2V, 0.8V, 80mV, 40mV, zirconia (oxygen probe), pyrometers. For other input types, contact your Eurotherm supplier for advice. Accuracy ±0.1% of reading. When subject to the necessary field calibration, EPC3000 series controllers manufactured by Eurotherm are suitable for use in Nadcap applications in all furnace classes as defined in AMS2750E clause 3.3.1. For further information see eurotherm.com/certificates.
Sample Time	• Process Inputs 50ms (20Hz) • Thermocouple 62.5ms (16Hz) • RTD 100ms (10Hz) • Automatic cycle time selection
Mains Rejection (48-62Hz)	• Series mode rejection >80dB. • Common mode rejection >150dB
Sensor Break	AC sensor break. Break detected within 3 seconds worst case.
Input Filtering	OFF to 60 seconds filter time constant.
User Calibration	User 2 point input adjust (offset/gradient), transmitter output scaling.
Thermocouple	• K, J, N, R, S, B, L, T as standard, plus 2 downloadable custom curves • Linearization accuracy: refer to User Guide • Cold Junction (CJ) calibration accuracy: ±1.0ºC at 25ºC (±1.8ºF at 77ºF) ambient • CJ ambient rejection ratio: better than 40:1 from 25ºC ambient • External CJ selectable as 0, 45, 50ºC or measurable for EPC3004/EPC3008

Inputs and Outputs

Input Ranges	40mV	80mV	0.8V	2V	10V	RTD (Pt100/ Pt1000)	mA
Range Min	-40mV	-80mV	-800mV	-2V	-10V	0Ω (-200ºC; -328ºF)	-32mA
Range Max	+40mV	+80mV	+800mV	+2V	+10V	400Ω /4000Ω (850ºC; 1562ºF)	+32mA
Thermal Stability from 25ºC (77ºF) Ambient	±0.4µV/ºC ±13ppm/ºC	±0.4µV/ºC ±13ppm/ºC	±0.4µV/ºC ±13ppm/ºC	±0.4µV/ºC ±13ppm/ºC	±0.8µV/ºC ±70ppm/ºC	±0.01ºC/ºC ±25ppm/ºC	±0.16µA/ºC ±113ppm/ºC
Resolution	1.0µV unfiltered	1.6µV	16µV	41µV	250µV	0.05 ºC (0.09 ºF)	0.6µA
Electrical Noise (peak to peak with 1.6s input filter)	0.8µV	3.2µV	32µV	82µV	250µV	0.05 ºC (0.09 ºF)	1.3µA
Linearity Accuracy (best fit straight line)	0.003%	0.003%	0.003%	0.003%	0.007%	0.033%	0.003%
Calibration Accuracy @25ºC (77ºF) ambient	±4.6µV ±0.053%	±7.5µV ±0.052%	±75µV ±0.052%	±420µV ±0.044%	±1.5mV ±0.063%	±0.31ºC (0.56ºF) ±0.023%	±3µA ±1.052%
Input Resistance	100MΩ	100MΩ	100MΩ	100MΩ	57kΩ	–	2.49Ω (1% Shunt)
Bulb Current	–	–	–	–	–	190µA/ 180µA	–

Remote Setpoint Auxiliary Analog Input (3016 Only)	
Range	0 to 10V and 4 to 20mA. Max ranges -1V to 11V and 3.36mA to 20.96mA
Accuracy	<±0.25% of reading ± 1LSD, 14 Bits
Sample Rate	4Hz (250ms)
Functions	• Remote setpoint input • Auxiliary analog input
Thermal Stability	100ppm (typical) < 150ppm (worst case)
Mains Rejection	Common Mode 48-62Hz > 120dB, Series Mode > 90dB
Input Impedance	Voltage 223kΩ. Current 2.49Ω

Current Transformer Input	
Input Range	• 0-50mA RMS, 48-62Hz • 10Ω burden resistor fitted inside module
Measurement Scaling	10, 25, 50 or 100 Amps
Calibration Accuracy	<1% of reading (typical) <4% of reading (worst case)
Input Functions	• Partial load failure. SSR open or short circuit. • Other functions including power usage totalization available using soft wiring.

Contact Closure Logic Inputs		
Thresholds	Open > 400Ω, Closed < 100Ω	
Input Functions	• Auto/Manual select	• Recipe select
	• SP2 select	• PID select
	• Integral hold	• BCD bit
	• Control inhibit	• Autotune enable
	• Program run functions	• Standby
	• Keylock	• PV select plus other functions available using soft wiring.

Inputs and Outputs

Logic I/O Modules	
Output Rating	ON 12Vdc 44mA max. Minimum control cycle time 50ms (auto)
Output Functions	Time proportioned heat, time proportioned cool. SSR drive alarm and event outputs, interlock outputs, other functions available using soft wiring.
Contact Closure (input)	Open 500Ω, Closed 150Ω
Input Functions	• Auto/Manual select • SP2 select • Integral hold • Control inhibit • Program run functions • Keylock • Recipe select • PID select • BCD bit • Autotune enable • Standby • PV select plus other functions available using soft wiring.

Logic I/O Open Collector Type (EPC3004/EPC3008 only)	
External DC Power Supply	15V to 35Vdc
Output Limit	Maximum current sinking 40mA
Output Functions	Alarm and event outputs, interlock outputs, other functions available using soft wiring. Cannot be used as a control output.
Voltage Sensing Input	OFF < 1V, ON > 4V. Max 35V, Min -1V
Contact Closure Input	OFF > 28KΩ, ON < 100Ω
Input Functions	• Auto/Manual select • SP2 select • Integral hold • Control inhibit • Program run functions • Keylock • Recipe select • PID select • BCD bit • Autotune enable • Standby • PV select plus other functions available using soft wiring.

Relays (Form A Modules and Form C built in)	
Types	Form A (normally open) Form C (changeover)
Output Functions	Time proportioned heat, time proportioned cool. SSR Drive. Direct valve raise/lower. Alarm and event outputs, interlock outputs, other functions available using soft wiring.
Rating	Min 100mA @ 12V, Max 2A @ 264V AC resistive. External suppression device (“snubber”) recommended.

TRIAC Module	
Rating	Min 40mA, 30V RMS, Max 0.75A @ 264V AC resistive.
Output Functions	Time proportioned heat, Time proportioned cool. SSR drive alarm and event outputs, interlock outputs, other functions available using soft wiring.
Surge Rating	Max current surge 30A (<10ms) Max continuous operating voltage 540V peak, 385V RMS. Max surge voltage 800V peak, 565V RMS (< 10ms).

Isolated DC Analog Output Module		
	Current Output	Voltage Output
Range	0-20mA	0-10V
Load Resistance	<550Ω	>450Ω
Calibration Accuracy	±(0.5% of reading + 100µA offset)	±(0.5% of reading + 50mV offset)
Resolution	13.5 bit resolution	13.5 bit resolution
Output Functions	• SCR/Power control drive • Proportional valve • Retransmission to chart recorder or other instrumentation • Other functions using soft wiring	
Digital Input (DI), where configured	The DC output module can be configured as contact closure input see “I/O List (io)” on page 106 of User Guide (HA032842). In this case: • Retransmission to chart recorder or other instrumentation • Other functions using soft wiring	

Power, Communications and Operator Interface

Power and Transmitter Power Supply

Power Supply, AC Supply Measurement and Transmitter Power Supply	
Controller Supply Voltage	100-230Vac +/- 15%, 48 to 62Hz or 24Vac +10/-15%, 48 to 62Hz 24Vdc +20/-15%, max 5% ripple voltage.
Power Supply Rating	EPC3016 Controller 6W EPC3008/3004 Controller 9W
Power Measurement	Only available in 100-230Vac powered instruments. Measures direct from power supply (no additional connections). Uncalibrated. Electrical noise 0.5V filtered, used by the PID function for power feedforward.
Transmitter Power Supply	24Vdc. 2 to 28mA load. Isolated from system (300V AC double insulation) (EPC3004/EPC3008 only)

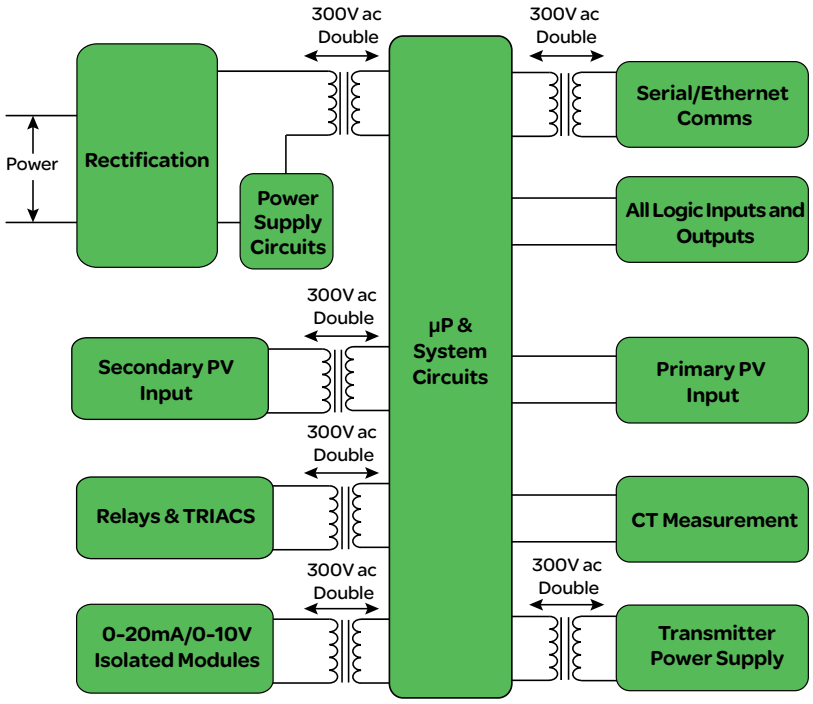
Communications

Communications	
Ethernet	• Shielded grounded RJ45 connection supporting 10/100BASE-T auto-sensing • Certified to Achilles® communications robustness testing level 1 • Modbus/TCP, BACNet and Ethernet/IP Protocols • Fixed IP address or DHCP • Bonjour Auto-Discovery
Serial	• EIA-485 Half duplex • EIA-422/EIA-232 Full duplex • Baud Rates 4800 (EI-Bisynch only), 9600, 19200 • Modbus RTU 8 data bits, odd/even/no parity selectable • EI-Bisynch 7 data bits even parity fixed

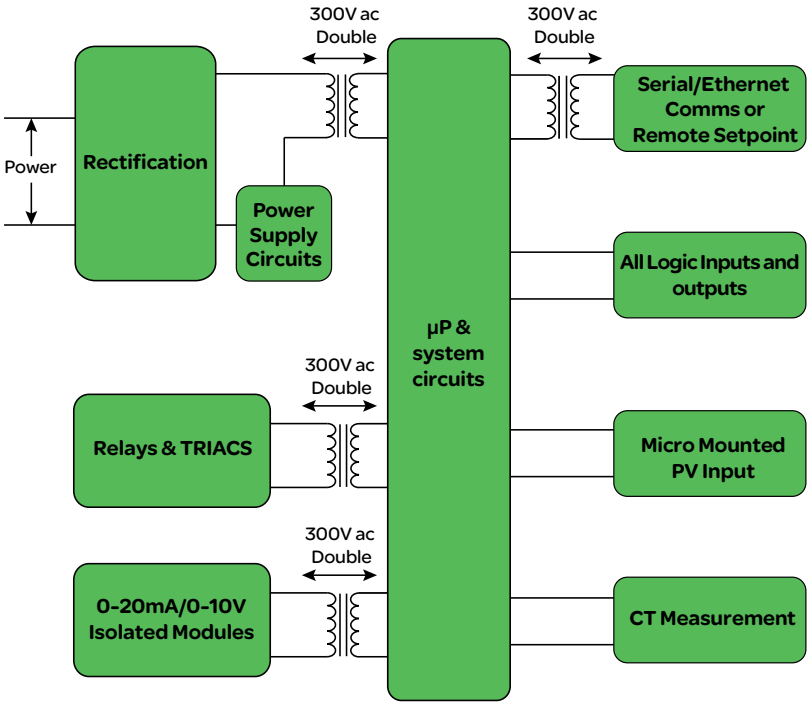
Operator Interface

Display and Operation	
Type	High visibility LCD with backlight. Flat “washdown” membrane bezel with superior panel sealing, or sculpted bezel with fully tactile keys.
Keyboard	100,000 operations typical
Main PV	• EPC3016 4 digits, 3 decimal places • EPC3008 4.5 digits, 4 decimal places • EPC3004 5 digits, 4 decimal places; green/red bicolor (red in alarm)
Second Line (EPC3004/EPC3008 only)	5 character 16 segment text or numeric
Third Line	16 segment scrolling text or numeric display
Text Character sets	Roman, Simplified Cyrillic
Additional Display Functions	• Program status indicator (ramp up, ramp down or dwell) • Output indicators • Alarm indication • Units • Bar graph (EPC3004, EPC3008 Controllers only) • Communications activity indicator
HMI Functions	• Configurable display contents • Configurable scroll lists for operator/supervisor • Configurable scrolling event messages • Passcode level protection with lockout period • 2 Programmable function keys (EPC3004, EPC3008 Controllers only)

EPC3008/EPC3004 Isolation

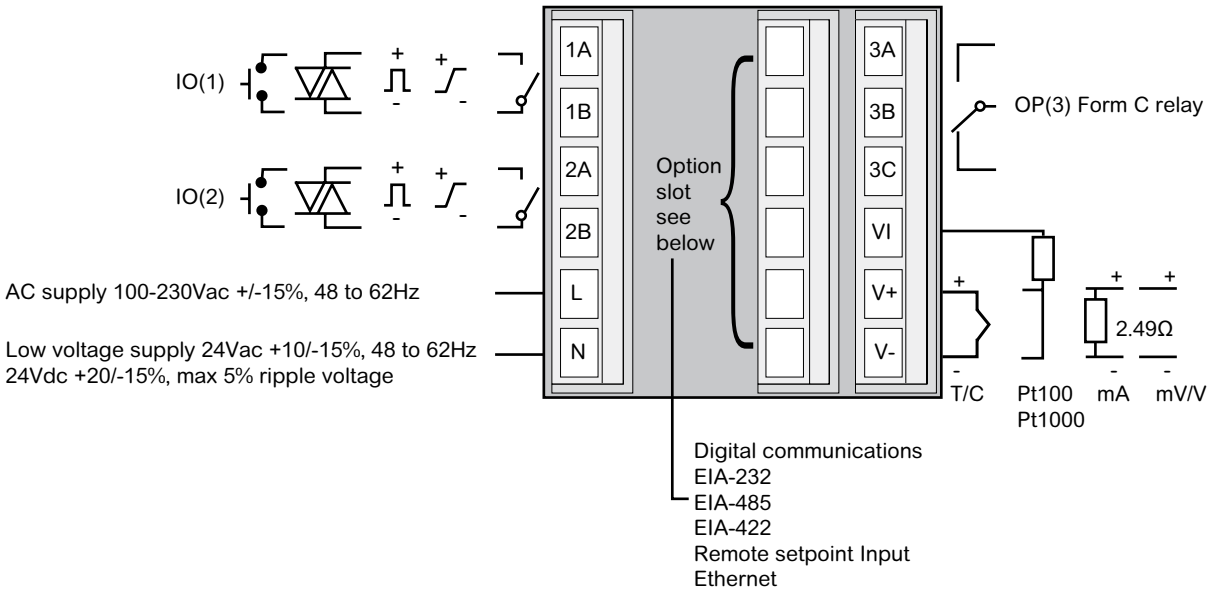


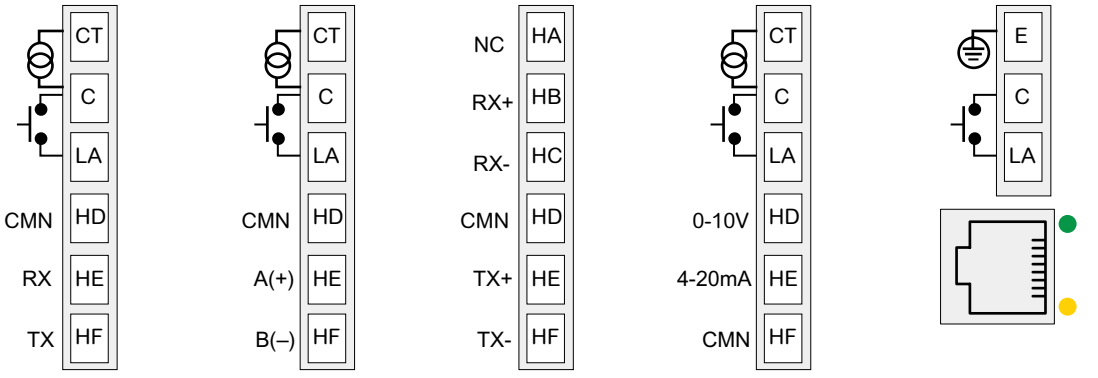
EPC3016 Isolation



Rear Terminals

EPC3016





EIA-232
CT INPUT
DIGITAL INPUT

EIA-485
CT INPUT
DIGITAL INPUT

EIA-422

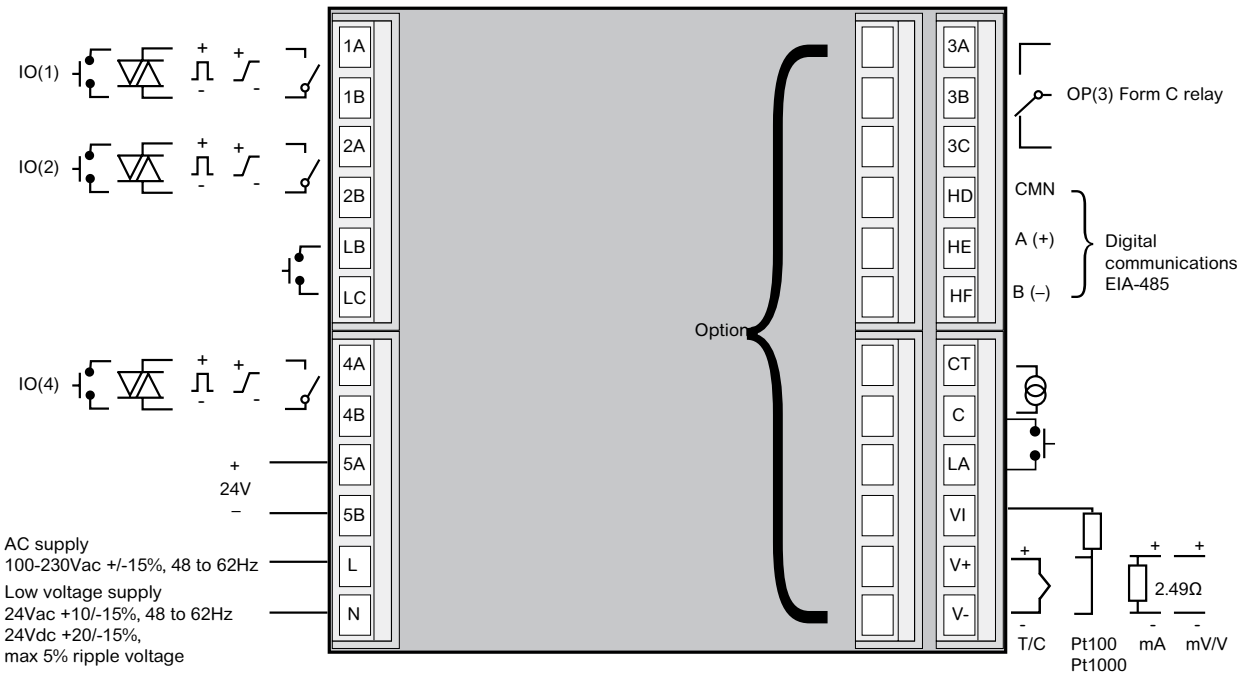
RSP INPUT
CT INPUT
DIGITAL INPUT

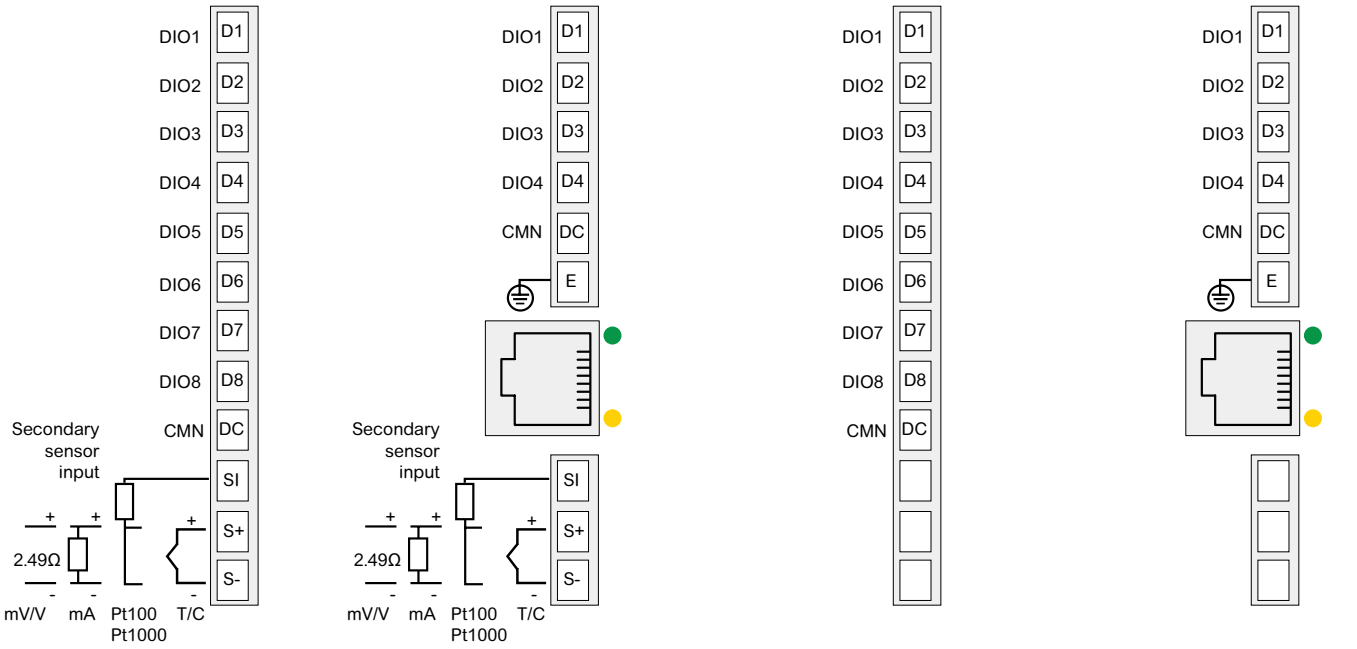
ETHERNET
DIGITAL INPUT

Key to Symbols Used in Wiring Diagrams					
+ −	Logic Output (SSR drive)		Relay Output		Contact Input
+ −	0-10V/0-20mA Analog Output		TRIAC Output		Current Transformer Input

Rear Terminals

EPC3004 / EPC3008





PV INPUT
8 x DIGITAL IN / OUT

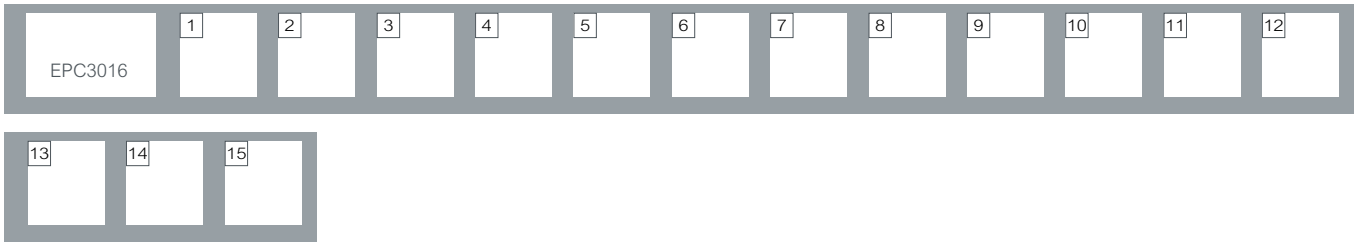
PV INPUT
ETHERNET
4 x DIGITAL IN / OUT

8 x DIGITAL IN / OUT

ETHERNET
4 x DIGITAL IN / OUT

Key to Symbols Used in Wiring Diagrams					
+ –	Logic Output (SSR drive)		Relay Output		Contact Input
+ –	0-10V/0-20mA Analog Output		TRIAC Output		Current Transformer Input

Order Codes EPC3016



Model (see Note 1)	
EPC3016	1/16 DIN Controller

1	Type
CC	Controller only
CP	1 x 8 Segment Basic Programmer
P1	1 x 24 Segment Advanced Programmer
P10	10 x 24 Segment Advanced Programmer
P20	20 x 8 Segment Advanced Programmer

2	Supply Voltage
VH	100 - 230Vac +/-15% (48 to 62Hz)
VL	24Vac +10%, -15% (48 to 62 Hz); 24Vdc +20, -15%; 5% ripple

3	I/O 1
XX	Not Fitted
L2	Logic
R1	Relay Output (without snubber)
R2	Relay (supplied with external snubber)
D1	DC Output
T1	TRIAC (without snubber)
T2	TRIAC (supplied with external snubber)

4	I/O 2
XX	Not Fitted
L2	Logic
R1	Relay Output (without snubber)
R2	Relay (supplied with external snubber)
D1	DC Output
T1	TRIAC (without snubber)
T2	TRIAC (supplied with external snubber)

5	Future
X	Not fitted

6	Future
XX	Future

7	Serial Comms Protocol
XX	Modbus slave (Default) or None
EI	EI-Bisynch Comms

8	Ethernet, Comms & Remote SP
XX	None (Default)
C1	CT Input, contact closure digital input, and EIA-232
C2	CT Input, contact closure digital input, and EIA-485 (3 wire)
C3	EIA-422 only (5 wire)
CR	CT Input, contact closure digital input, RSP Input
CE	Contact closure digital input, Ethernet

9	Ethernet (TCP) Communications Protocol
XX	Modbus TCP Slave (Default) or None
ES	Ethernet/IP Server and Modbus TCP Slave
BS	BACnet Slave and Modbus TCP Slave

10	Tool Kit Blocks
XX	None (Default 50 wires)
TK	Standard (includes 200 wires)
ETK	Enhanced (includes 200 wires)

11	OEM Security
XXX	None (Default)
OEM	OEM Security

12	Bezel
ST	Standard
WD	Washdown

13	Labels
XXXXX	None (Default)
Fnnnn	Custom Label

14	Specials
XXXXXX	None (Default)

15	Gain scheduling Sets
XX	Two Gain Scheduling sets (Default)
08	Eight Gain Scheduling sets

Note 1. Basic EPC3016 Model includes one Form C Relay

Quick Start Codes EPC3016

16	17	18	19	20	21	22	23	24	25	26	27	28

16	Application
X	None
1	Heat only
2	Heat/Cool
V	VPU

17	Input 1 Sensor Type
X	Not required
M	Linear 0 to 80mVdc
V	Linear 0 to 10Vdc
2	Linear 0 to 20mA
4	Linear 4 to 20mA
B	Type B Thermocouple
J	Type J Thermocouple
K	Type K Thermocouple
L	Type L Thermocouple
N	Type N Thermocouple
R	Type R Thermocouple
S	Type S Thermocouple
T	Type T Thermocouple
P	Pt100
W	Pt1000

18	Input 1 Range
X	Not required
F	Full range
1	0 to 100°C or 32 to 212°F or 273 to 373K
2	0 to 200°C or 32 to 392°F or 273 to 473K
3	0 to 400°C or 32 to 752°F or 273 to 673K
4	0 to 600°C or 32 to 1112°F or 273 to 873K
5	0 to 800°C or 32 to 1472°F or 273 to 1073K
6	0 to 1000°C or 32 to 1832°F or 273 to 1273K
7	0 to 1200°C or 32 to 2192°F or 273 to 1473K
8	0 to 1300°C or 32 to 2552°F or 273 to 1573K
9	0 to 1600°C or 32 to 2912°F or 273 to 1873K
A	0 to 1800°C or 32 to 3272°F or 273 to 2073K

19	Future
X	Future

20	Future
XX	Future

21	CT Input Range
X	Not Used
1	10A
2	25A
5	50A
6	100A
7	1000A

22	Digital Input A Function (see Note 2)
X	Not Used
W	Alarm Acknowledge
M	Auto/Manual
R	Programmer Run/Hold
L	Keylock
K	Loop Track
P	Local Setpoint Select
T	Programmer Reset
U	Remote Setpoint Select
V	Recipe Select

23	Future
XX	Future

24	Future
XX	Future

25	Units
X	Use Default (Degrees Celsius)
C	Degrees Celsius
F	Degrees Fahrenheit
K	Kelvin

26	Future
XX	Future

27	Warranty
XX	Standard warranty

28	Certificate of Conformity
XX	None required
CERT1	Supplied with Certificate of Conformity

Note 2. Requires purchase of Communications Option (Field 8) with “Dig In”

Accessory Order Codes

EPC Accessories	1

Model	
EPCACC	EPC Accessories

1	Accessories
RES2R9	2.49Ω Resistor
RES250	250Ω Resistor
RES500	500Ω Resistor
SNUBBER	RC SNUBBER
USBCONF	USB Backup lead
CTR10A	Current transformer 10A Primary
CTR25A	Current transformer 25A Primary
CTR50A	Current transformer 50A Primary
CTR100A	Current transformer 100A Primary
ITOOLS	iTools configuration Software

Order Codes EPC3008 / EPC3004

EPC3008 EPC3004	1	2	3	4	5	6	7	8	9	10	11	12

13	14	15

Model (see Note 3)	
EPC3008	1/8 DIN Controller
EPC3004	1/4 DIN Controller

1	Type
CC	Controller only
CP	1 x 8 Segment Basic Programmer
P1	1 x 24 Segment Advanced Programmer
P10	10 x 24 Segment Advanced Programmer
P20	20 x 8 Segment Advanced Programmer

2	Supply Voltage
VH	100 - 230Vac +/-15% (48 to 62Hz)
VL	24Vac +10%, -15% (48 to 62 Hz); 24Vdc +20, -15%; 5% ripple

3	I/O 1
XX	Not Fitted
L2	Logic
R1	Relay Output (without snubber)
R2	Relay (supplied with external snubber)
D1	DC Output
T1	TRIAC (without snubber)
T2	TRIAC (supplied with snubber)

4	I/O 2
XX	Not Fitted
L2	Logic
R1	Relay Output (without snubber)
R2	Relay (supplied with external snubber)
D1	DC Output
T1	TRIAC (without snubber)
T2	TRIAC (supplied with external snubber)

5	I/O 4
XX	Not Fitted
L2	Logic
R1	Relay Output (without snubber)
R2	Relay Output (supplied with external snubber)
D1	DC Output
T1	TRIAC (without snubber)
T2	TRIAC (supplied with external snubber)

6	Future
XX	Future

7	Serial Comms Protocol
XX	Modbus slave (Default)
EI	EI-Bisynch Comms

8	Ethernet, Comms & Remote SP
XX	None (Default)
I8	Second PV Input; 8 Digital Input/Outputs:
D8	8 Digital Input/Outputs only
E4	Ethernet (modbus TCP slave) 4 x digital I/O only;
IE (see Note 4)	Second PV Input;Ethernet (Modbus TCP slave) + 4 x Digital I/O

9	Ethernet (TCP) Communications Protocol
XX	Modbus TCP Slave (Default) or None
ES	Ethernet/IP Server and Modbus TCP Slave
BS	BACnet Slave and Modbus TCP Slave

10	Tool Kit Blocks
XX	None (Default 50 wires)
TK	Standard (includes 200 wires)
ETK	Enhanced (includes 200 wires)

11	OEM Security
XXX	None (Default)
OEM	OEM Security

12	Bezel
ST	Standard
WD	Washdown

13	Labels
XXXXX	None (Default)
Fnnnn	Custom Label

14	Specials
XXXXXX	None (Default)

15	Gain scheduling Sets
XX	Two Gain Scheduling sets (Default)
08	Eight Gain Scheduling sets

Note 3. Base EPC3008/4 Model includes EIA-485 Modbus RTU Slave communications, 1 Form C Relay, 2x Contact Closure Digital inputs, 1 Current Transformer Input, and 24Vdc Transmitter Power Supply

Note 4. Digital I/O on Ethernet, 2nd Input & Option I/O cannot be used for PID control output

Quick Start Codes EPC3008 / EPC3004

16	17	18	19	20	21	22	23	24	25	26	27	28

16	Application
X	None (exit quick code)
1	Heat only (Default)
2	Heat/ Cool
V	VPU heat only
C	Carbon Potential Controller (requires PV2 and Zirconia)
D	Dew Point Controller (requires PV2 and Zirconia)

17	Input 1 Sensor Type
X	Not required
M	Linear 0 to 80mVdc
V	Linear 0 to 10Vdc
2	Linear 0 to 20mA
4	Linear 4 to 20mA
B	Type B Thermocouple
J	Type J Thermocouple
K	Type K Thermocouple
L	Type L Thermocouple
N	Type N Thermocouple
R	Type R Thermocouple
S	Type S Thermocouple
T	Type T Thermocouple
P	Pt100
W	Pt1000

18	Input 1 Range
X	Not required
F	Full Sensor range
1	0 to 100°C or 32 to 212°F or 273 to 373K
2	0 to 200°C or 32 to 392°F or 273 to 473K
3	0 to 400°C or 32 to 752°F or 273 to 673K
4	0 to 600°C or 32 to 1112°F or 273 to 873K
5	0 to 800°C or 32 to 1472°F or 273 to 1073K
6	0 to 1000°C or 32 to 1832°F or 273 to 1273K
7	0 to 1200°C or 32 to 2192°F or 273 to 1473K
8	0 to 1300°C or 32 to 2552°F or 273 to 1573K
9	0 to 1600°C or 32 to 2912°F or 273 to 1873K
A	0 to 1800°C or 32 to 3272°F or 273 to 2073K

19	Input 2 Sensor Type (see note 5)
X	Not required
M	Linear 0 to 80mVdc
V	Linear 0 to 10Vdc
2	Linear 0 to 20mA
4	Linear 4 to 20mA
B	Type B Thermocouple
J	Type J Thermocouple
K	Type K Thermocouple
L	Type L Thermocouple
N	Type N Thermocouple
R	Type R Thermocouple
S	Type S Thermocouple
T	Type T Thermocouple
P	Pt100
W	Pt1000
Z	Zirconia (HiZ)

20	Input 2 Range (see note 5)
X	Not required
F	Full range
1	0 to 100°C or 32 to 212°F or 273 to 373K
2	0 to 200°C or 32 to 392°F or 273 to 473K
3	0 to 400°C or 32 to 752°F or 273 to 673K
4	0 to 600°C or 32 to 1112°F or 273 to 873K
5	0 to 800°C or 32 to 1472°F or 273 to 1073K
6	0 to 1000°C or 32 to 1832°F or 273 to 1273K
7	0 to 1200°C or 32 to 2192°F or 273 to 1473K
8	0 to 1300°C or 32 to 2552°F or 273 to 1573K
9	0 to 1600°C or 32 to 2912°F or 273 to 1873K
A	0 to 1800°C or 32 to 3272°F or 273 to 2073K

21	CT Input Range
X	Not Used
1	10A
2	25A
5	50A
6	100A
7	1000A

22	Digital Input A Function
X	Not Used
W	Alarm Acknowledge
M	Auto/Manual
R	Programmer Run/Hold
L	Keylock
K	Loop Track
P	Local Setpoint Select
T	Programmer Reset
U	Remote Setpoint Select
V	Recipe Select

23	Digital Input B Function
X	Not Used
W	Alarm Acknowledge
M	Auto/Manual
R	Programmer Run/Hold
L	Keylock
K	Loop Track
P	Local Setpoint Select
T	Programmer Reset
U	Remote Setpoint Select
V	Recipe Select

24	Programmer I/O Configuration (see Note 6)
X	Not Used/fitted
1	D1 to D8 Programmer Event Outputs 1 to 8
2	D1 to D4 = Programmer Event Outputs 1 to 4, D5 to D7 = BCD Inputs 1 t o3, D8 = Programmer Run/Hold. BCD Output to Program Number
3	D1 to D4 = Programmer Event outputs 1 to 4, D5 to D8 Programmer Run, Hold, Reset, Advance respectively
4	D1 to D4 = Programmer Event inputs 1 to 4, D5 to D7 Programmer Run/Hold, Reset, Advance respectively, D8 Not Used. BCD Output to Program Number
5	D1 to D8 = BCD Inputs 1 to 8. BCD Output to Recipe Recall
6	D1 to D4 = BCD Inputs 1 to 4, D5 - D8 = Not used. BCD Output to Recipe Recall
7	D1 to D4 Programmer Run, Hold, Reset, Advance respectively, D5 - D8 = Not used
8	D1 to D3 Programmer Run, Hold, Reset respectively, D4 - D8 = Not Used
9	D1 to D4 = Programmer Event Outputs, D5 to D8 = Not Used

25	Units
X	Use Default (Degrees Celsius)
C	Degrees Celsius
F	Degrees Fahrenheit
K	Kelvin

26	Future
XX	Future

27	Warranty
XX	Standard warranty

28	Certificate of Conformity
XX	None required
CERT1	Supplied with Certificate of Conformity

Note 5. Requires purchase of 2nd Input (Field 8)

Note 6. Requires purchase of Option I/O (Field 8)

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