Technical Information

PrecisionLine Controllers EDC201 / EDC202 / EDC203
EASYSET DIGITAL CONTROLLERS
Specification 51-52-03-48, July 2015

Introduction

The EDC201, EDC202 and EDC203 controllers provide precise temperature control, and are available in standard 1/16 DIN, 1/8 DIN and 1/4 DIN panel size formats. Vivid and large 4-digit displays and keypad buttons enable intuitive product use and configuration.

The controllers are fully dedicated to monitor and control temperatures in a wide range of applications such as environmental chambers, furnaces, ovens, dryers, packaging machines in plastics and the food and beverage industries.

Features

Vivid Display

Large 4-digit displays provide clear and bright viewing of PV, SP, adjustable decimal position, °C or °F and configuration parameters. Additional indicators identify status of control outputs, alarm outputs, A/M mode selection, Autotuning status. Configuration parameters are divided into 7 groups, which are identified by 7 LEDs at the top of the display indicating each group name. During parameter configuration, the related group name LED is visible.

Easier to Configure

Two different configuration levels (Configuration mode and Normal operating mode) provide quick and easy access to parameters. A 4-digit security code prevents unauthorized changes. Selected parameters can also be hidden from the User to prevent mis-configuration.

Moisture Resistant Front

Meets NEMA 3R / IP54 front-face protection against dust and water.

Input Types

A single analog input supports eight different types of thermocouples and a RTD PT100 type input.

Universal Power Supply

The controllers can operate on any line voltage from 90 Vac to 264 Vac at 50/60 Hz. A 19.2 Vdc to 28.8 Vdc power supply model is available as an option.

Control Algorithms

Three control algorithms are available for specific application needs: ON/OFF Control, Time Proportional Control (PIDA or PIDB), Three Position Step Control. Alarm 1 output is set as the second control output when Three Position Step Control is used.

Alarm Capability

Two Alarm outputs are available for the EDC202 and EDC203 models. A single alarm output is available for EDC201. There are 10 configurable alarm modes for each alarm output.

Digital Input

One digital input is provided for remote dry contact closure to select one of the following actions:

- Direct controller action
- Disable keyboard
- Start Timer
- Auto/Manual mode switch
- Start/Stop Autotuning
- Alarm Acknowledge

Manual/Automatic Modes

In the Manual mode of operation, the operator directly controls the controller output level. In Auto mode, the control algorithm will generate the final control output automatically.

Autotune

Automatically determines the optimum PID parameters, which are then used with Accutune III algorithms to achieve a rapid process temperature rise or fall to the desired Set Point value with minimum overshoot and variation – precision in maintained control. Autotune is initiated on-demand, typically at initial process start-up.

Thermocouple Health

Diagnostic for identifying thermocouple input status condition.

Timer

Internal timer provides a configurable time-out period from 0 to 9 hours and 59 minutes. The Timer can be started by actuation of a button, use of a configured Digital Input, or by the output of Alarm2 for EDC202 and EDC203 models. The alarm output activates once the Timer times out. The time-out state can be reset with actuation of a button on the front panel.

Performance Specifications

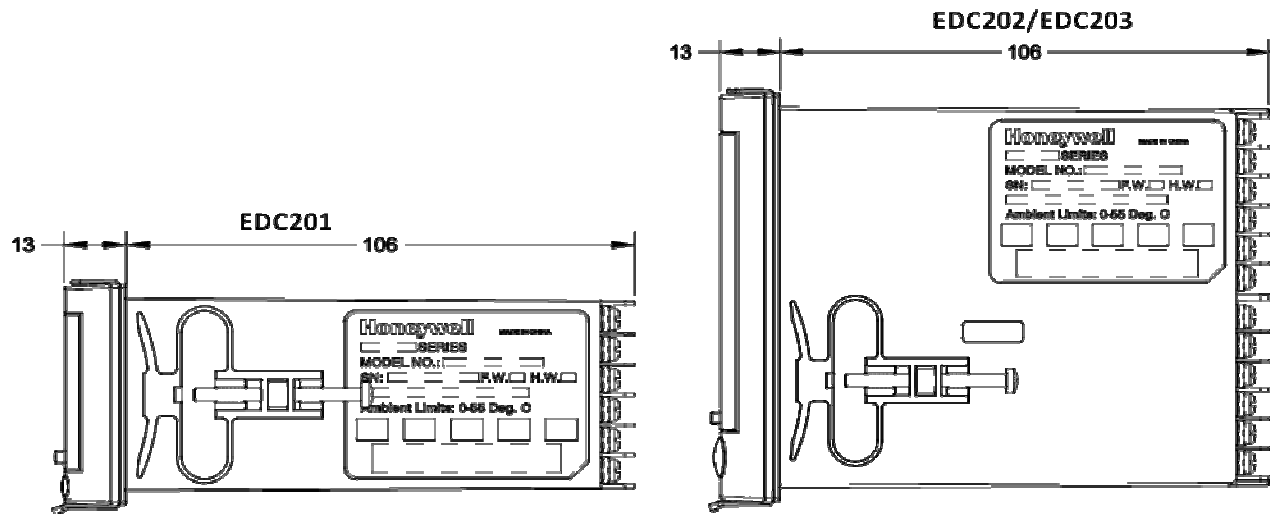| Specification Table		
Control	Relay Output	Dry contact / N.O. 5 amps @ 30 VDC or 250 VAC
	SSR Driver Output	24VDC/20mA
	Algorithm	ON-OFF
		Time Proportional
		Three Position Step *(mutually exclusive with Alarm 1)*
Alarm	Output	Dry contact / N.O. 3 amps @ 30 VDC or 250 VAC
	Mode	PV
		Deviation
		PV Rate of Change
		Control Output
		Digital Input
		Operation Mode
		Thermocouple Warning
		Thermocouple Fail
		Failsafe
		System Diagnostic
Digital Input	ON Sense Voltage	13 VDC
	OFF Sense Voltage	5 VDC
Display	PV/SP Indication	4-digit, 7 segment display

Analog Inputs (One)
(See Table 1 for Input Actuations)
	Accuracy: ± 0.5% of full scale typical (± 1 digit for display)
	
	Sampling Rate: 250 msec (TC), 350 msec (RTD)
	
	Temperature Stability: ± 0.01% of Full Scale span / ˚C change typical
	
	Input Impedance: 10 megohms
	Maximum Lead Wire Resistance:
	        Thermocouples: 50 ohms/leg
	        100 ohm, 200 ohm and 500 ohm RTD: 100 ohms/leg
	        100 ohm Low RTD: 10 ohms/leg	

Analog Input Signal Failure Operation	*Burnout Selections:* Upscale, Downscale, Failsafe or None *Thermocouple Health:* Good, Failing, Failure Imminent or Failed *Failsafe Output Level:* Configurable 0-100% of Output range	
Indicators	Alarm Relay Status	ALM 1 or 2
	Control Mode	Auto or Manual
	Temperature Units	F or C
	Control Relay Status	Output
	Auto Tune Status	Running State
	Menu	7 LED indicators
Approvals	CE	EMC: EN 61326-1 2006 Low Voltage Directive: EN 61010-1 2010 (Both are "Self Declared")
	UL	ANSI/UL 61010-1 Third Edition
	CSA	CAN/CSA-C22.2 No. 61010-1-12 Third Edition

Input Actuations

TC/RTD Type and Range				
	Sensor Type	**Range (℃)**		
TC	E Thermocouple High	-270 to 1,000	-9.835 mV	76.373 mV
	J Thermocouple High	-18 to 871	-0.886 mV	50.060 mV
	K Thermocouple High	-18 to 1316	-0.692 mV	52.952 mV
	Ni-Ni-Moly Thermocouple High	0 to 1371	0.000 mV	71.773 mV
	Platinel II Thermocouple High	0 to 1380	0.000 mV	54.798 mV
	R Thermocouple	-18 to 1704	-0.090 mV	20.281 mV
	S Thermocouple	-18 to 1704	-0.092 mV	17.998 mV
	T thermocouple High	-184 to 371	-5.341 mV	19.097 mV
RTD	PT100(Low)	-184 to 149		
	PT100	-184 to 649		

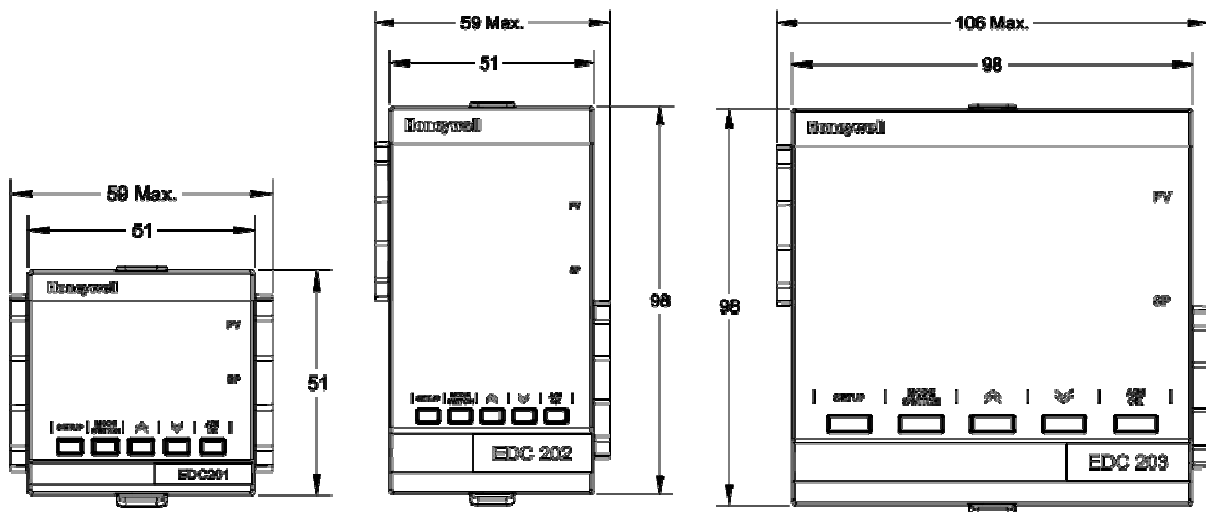| Environmental Characteristics				
Consideration	**Reference**	**Rated**	**Operating Limits**	**Transportation and Storage Limits**
Ambient Temp Range	25 ± 3 ℃ 77 ± 5 ℉	15 to +55℃ 58 to 131 ℉	0 to +55℃ 32 to 131 ℉	-40 to +66℃ −40 to 151 ℉
Relative Humidity	10 to 55% (non condensing) [*]	5 to 90% (non condensing) [*]	5 to 90% (non condensing) [*]	5 to 95%, (non condensing) [*]
Corrosives	G2 Standard - See ISA Standard S71.04 for Corrosive Environment Classification			
Front Protection	IP54 NEMA3R	IP54 NEMA3R	IP54 NEMA3R	IP54 NEMA3R
Vibration Frequency (Hz) Acceleration (g)	0 0	0 to 200 0.6	0 to 200 0.6	0 to 200 0.5
Mechanical Shock Acceleration (g) Duration (ms))	0 0	5 30	5 30	20 30

Notes: (*) The maximum relative humidity spec applies up to 40℃. Above 40℃ the RH spec is de-rated to maintain constant moisture content.
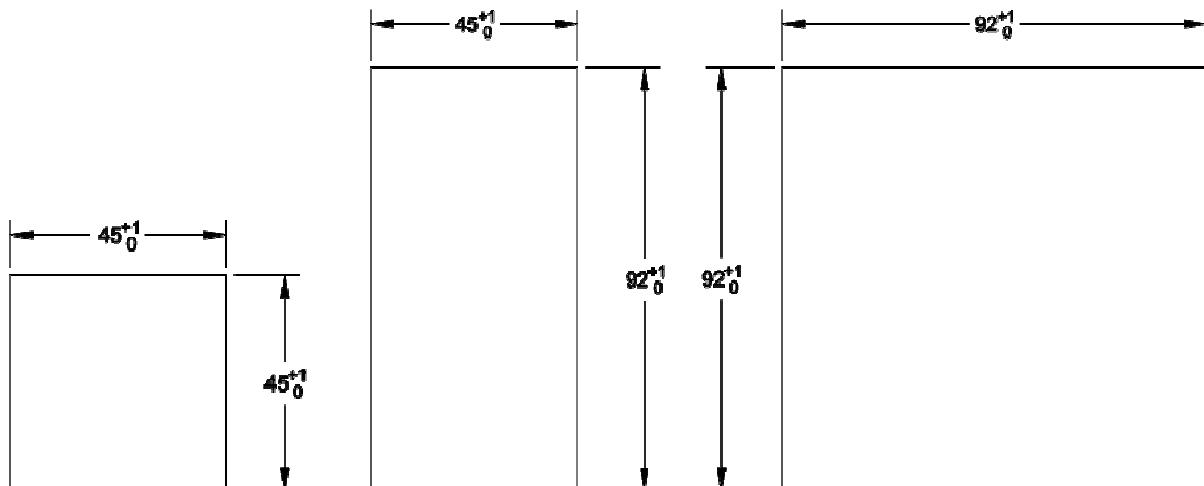
Dimensions and Panel Cutout

Depth

EDC202/EDC203

13 — 106

EDC201

13 — 106

Front Panel Size

59 Max.
51

59 Max.
51

51

106 Max.
98

98

98

EDC201

EDC 202

EDC 203

Panel Cutout

45^{+1}_{0}

92^{+1}_{0}

45^{+1}_{0}

45^{+1}_{0}

45^{+1}_{0}

92^{+1}_{0}

92^{+1}_{0}

Faceplate

Navigation Bar: Setup group name displayed during configuration.

Upper display: 4 digits dedicated to display the Process Variable (PV).
In configuration mode, this display indicates the name of the parameter.

Lower display: 4 digits dedicated to display the Set Point (SP).
In configuration mode, this display indicates the value of the parameter selected.

LEDs:

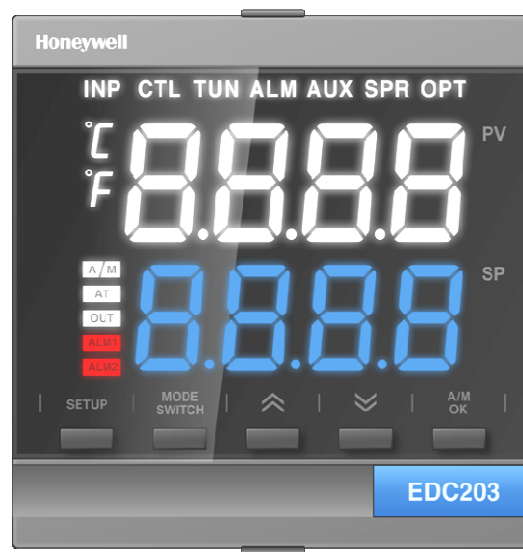| AT | Auto tuning running when ON. |
MAN	Manual control mode when ON.
	Auto control mode when OFF.
OUT	Control output energized when ON.
ALM1	ON when the pre-defined alarm activates.
(EDC202, 203):	
A/M	Auto control mode when "A" is ON.
	Manual control mode when "M" is ON.
ALM2	ON when the pre-defined alarm activates.
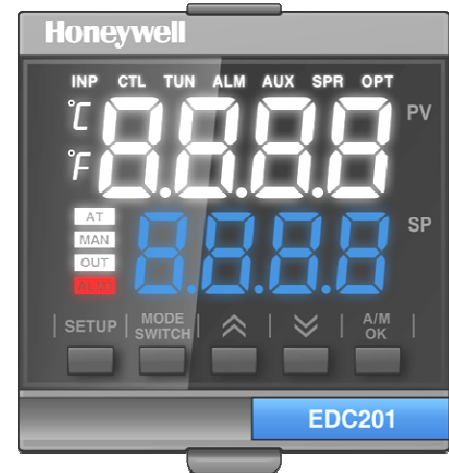
Keys:

SETUP: In Normal Operating Mode, long press enters into Configuration Mode.
In Configuration Mode, long press returns to Normal Operating Mode, a short press cycles through the menu items.

Mode/Switch: In Normal Operating Mode, short press switches the lower display parameters or enables some functions. In Configuration Mode, short press to cycle through parameters in a set up group.

Down: Decrease value of a selected parameter or switch back to the previous item.

Up: Increase value of the selected parameter or switch to the next item.

MAN/OK: In Normal Operating Mode, enables switch of control mode when the value of "SP" or "OUT" is shown on the lower display; Acknowledge alarm or initiate functions when the information shown on the lower display is other than the value of "SP" or OUT". In Configuration Mode, acknowledge actions.

Display and Operation

Area	Display/Button	Normal Operating Mode	Parameter Configuration Mode
1	Menu Navigation	Not display	Current parameter group
2	Temp Unit	Display the unit of current temperature in use	
3	Status Display	Indicate the status of Alarm, control output, control mode and Auto-tuning	
4	Lower Display	Display the value of SP, output and the information of Timer, alarm and auto-tuning	Display the current option or value of the parameter
5	Upper Display	Display the value of process variable	Display the parameter selected
A	SETUP	Press and hold for 3s - Enter into Parameter Configuration Mode	Short press - Switch the Parameter group Press and Hold - Cycle through Parameter Groups
B	MODE SWITCH	Short press - Switch lower display	Short press - Switch parameter; Press and Hold - Cycle through parameters
C	⌃	Increase the value or change the options of selected parameter	
D	⌄	Decrease the value or change the options of selected parameter	
E	A/M OK	Switch control mode when the value of "SP" or "Out" is shown on the lower display; Acknowledge alarm or initiate functions when the information shown on the lower display is other than the value of "SP" or "Out" .	Acknowledge actions

EDC200 Temperature Controller

Model Selection Guide
51-51-16-102   Issue 0.6

Special Features
- **Easyset Digital Controller**
- **Available in three (3) sizes: 1/16 DIN, 1/8 DIN, 1/4 DIN**
- **Analog input (AI) for thermocouples and RTDs**
- **Digital input (DI) and alarm relay outputs**
- **PID control with Honeywell Accutune (single button process tuning)**

Instructions

- Select the desired Key Number. The arrow to the right marks the selections available.
- Make one selection each from Tables I through III using the column below the proper arrow.
  A dot (•) denotes unrestricted availability. A letter denotes restricted availability.

Key Numbers	I	II
EDC20_ -	_ _ _ -	_ _

KEY NUMBER

	Description	Selection	Availability		
Size	48 x 48 mm (1/16 DIN), AI, DI, 1 alarm relay output	EDC201	↓		
	48 x 96 mm (1/8 DIN), AI, DI, 2 alarm relay outputs	EDC202		↓	
	96 x 96 (1/4 DIN), AI, DI, 2 alarm relay outputs	EDC203			↓

TABLE I

		Selection			
Power	90-264 Vac Power	0 _ _	•	•	•
	19-28 VDC Power	1 _ _	•	•	•
Control Output	Relay, Dry Contact / N.O., 5A @ 30 Vdc or 250 Vac	_ 0 _	•	•	•
	SSR Drive, 24 VDC @ 20 mA	_ 1 _	•	•	•
Future	None	_ _ 0	•	•	•

TABLE II

		Selection			
Future	None	0 _	•	•	•
Future	None	_ 0	•	•	•

Sales and Service

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

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Specifications are subject to change without notice.

For more information
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www.honeywellprocess/controllers.com
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