

## 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.<br>5 amps @ 30 VDC or 250 VAC                                             |
|                                                           | SSR Driver Output                                                                                                                                                                                                                                                                                                                                                       | 24VDC/20mA                                                                                   |
|                                                           | Algorithm                                                                                                                                                                                                                                                                                                                                                               | ON-OFF                                                                                       |
|                                                           |                                                                                                                                                                                                                                                                                                                                                                         | Time Proportional                                                                            |
|                                                           |                                                                                                                                                                                                                                                                                                                                                                         | Three Position Step<br>(mutually exclusive with Alarm 1)                                     |
| Alarm                                                     | Output                                                                                                                                                                                                                                                                                                                                                                  | Dry contact / N.O.<br>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)<br>(See Table 1 for Input Actuations) | Accuracy: ± 0.5% of full scale typical (± 1 digit for display)<br>Sampling Rate: 250 msec (TC), 350 msec (RTD)<br>Temperature Stability: ± 0.01% of Full Scale span / °C change typical<br>Input Impedance: 10 megohms<br>Maximum Lead Wire Resistance:<br>Thermocouples: 50 ohms/leg<br>100 ohm, 200 ohm and 500 ohm RTD: 100 ohms/leg<br>100 ohm Low RTD: 10 ohms/leg |                                                                                              |
| Analog Input Signal Failure Operation                     | Burnout Selections: Upscale, Downscale, Failsafe or None<br>Thermocouple Health: Good, Failing, Failure Imminent or Failed<br>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<br>Low Voltage Directive: EN 61010-1 2010<br>(Both are "Self Declared") |
|                                                           | UL                                                                                                                                                                                                                                                                                                                                                                      | ANSI/UL 61010-1 Third Edition                                                                |
|                                                           | CSA                                                                                                                                                                                                                                                                                                                                                                     | CAN/CSA-C22.2 No. 61010-1-12 Third Edition                                                   |

## Input Actuators

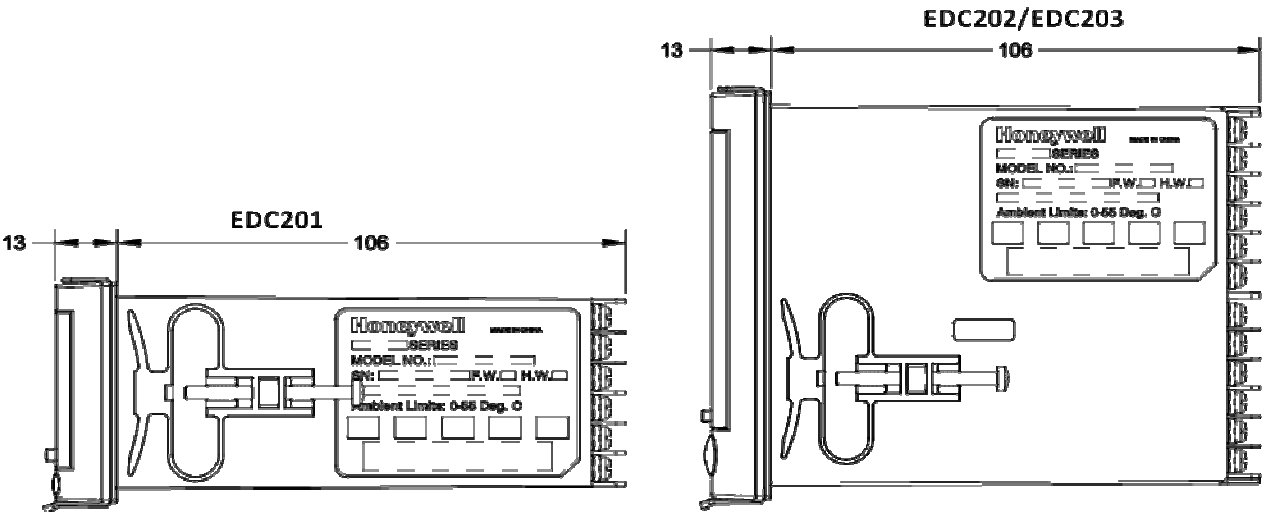
| TC/RTD Type and Range |                               |               |           |           |
|-----------------------|-------------------------------|---------------|-----------|-----------|
|                       | Sensor Type                   | Range (°C)    |           |           |
| TC                    | 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 °C<br>77 ± 5 °F                                                         | 15 to +55°C<br>58 to 131°F               | 0 to +55°C<br>32 to 131°F                | -40 to +66°C<br>-40 to 151°F              |
| Relative Humidity             | 10 to 55% (non condensing) <sup>(*)</sup>                                      | 5 to 90% (non condensing) <sup>(*)</sup> | 5 to 90% (non condensing) <sup>(*)</sup> | 5 to 95%, (non condensing) <sup>(*)</sup> |
| 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)                | 0                                                                              | 0 to 200                                 | 0 to 200                                 | 0 to 200                                  |
| Acceleration (g)              | 0                                                                              | 0.6                                      | 0.6                                      | 0.5                                       |
| Mechanical Shock              |                                                                                |                                          |                                          |                                           |
| Acceleration (g)              | 0                                                                              | 5                                        | 5                                        | 20                                        |
| Duration (ms))                | 0                                                                              | 30                                       | 30                                       | 30                                        |

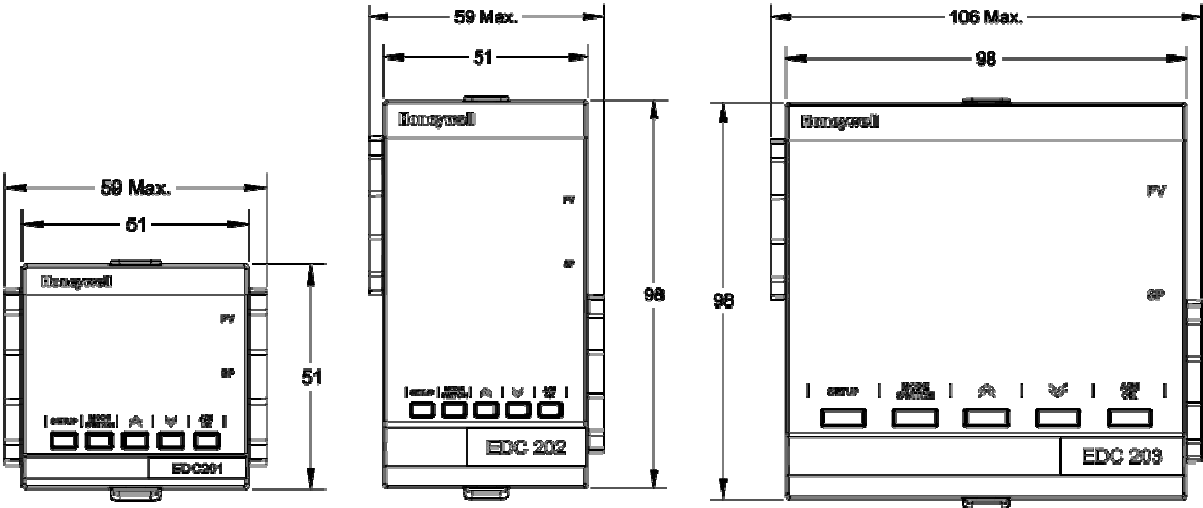
Notes: (\*) The maximum relative humidity spec applies up to 40°C. Above 40°C the RH spec is de-rated to maintain constant moisture content.

Dimensions and Panel Cutout

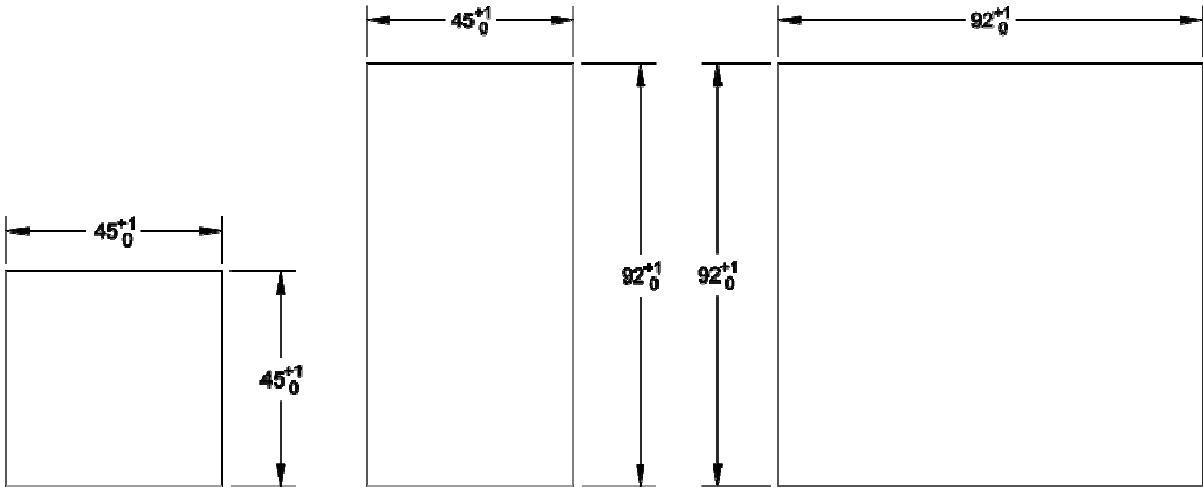
Depth



Front Panel Size



Panel Cutout



Faceplate

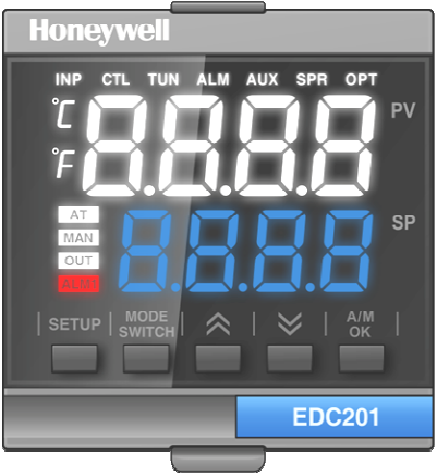
**Navigation Bar:** Setup group name displayed during configuration.

**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.             |
| OUT            | Auto control mode when OFF.              |
| ALM1           | Control output energized when ON.        |
|                | 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:

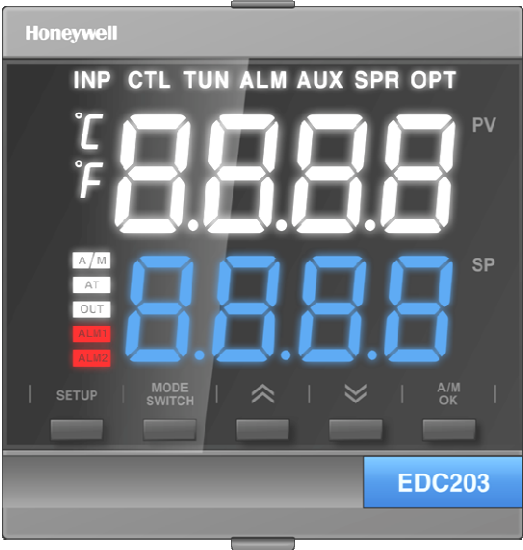
**SETUP:** In Normal Operating Mode, long press enters into Configuration Mode.  
In Configuration Mode, long press returns to Normal Operating Mode, a short press cycles through the menu items.

**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<br>Press and Hold - Cycle through Parameter Groups |
| B    | MODE SWITCH     | Short press - Switch lower display                                                                                                                                                                                       | Short press - Switch parameter;<br>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;<br>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**

EDC20\_ - 

I

 - 

II

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

|                |                                                   |       |   |   |   |
|----------------|---------------------------------------------------|-------|---|---|---|
| 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

|        |      |     |   |   |   |
|--------|------|-----|---|---|---|
| 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.

### ASIA PACIFIC

Honeywell Process Solutions,  
(TAC) [hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

#### Australia

Honeywell Limited  
Phone: +(61) 7-3846 1255  
FAX: +(61) 7-3840 6481  
Toll Free 1300-36-39-36  
Toll Free Fax:  
1300-36-04-70

#### China – PRC - Shanghai

Honeywell China Inc.  
Phone: (86-21) 5257-4568  
Fax: (86-21) 6237-2826

#### Singapore

Honeywell Pte Ltd.  
Phone: +(65) 6580 3278  
Fax: +(65) 6445-3033

#### South Korea

Honeywell Korea Co Ltd  
Phone: +(822) 799 6114  
Fax: +(822) 792 9015

### EMEA

Honeywell Process Solutions,  
Phone: + 80012026455 or  
+44 (0)1202645583

Email: (Sales)

[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)

or

(TAC)

[hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

### AMERICA'S

Honeywell Process Solutions,  
Phone: (TAC) 1-800-423-9883 or  
215/641-3610  
(Sales) 1-800-343-0228

Email: (Sales)

[FP-Sales-Apps@Honeywell.com](mailto:FP-Sales-Apps@Honeywell.com)

or

(TAC)

[hfs-tac-support@honeywell.com](mailto:hfs-tac-support@honeywell.com)

*Specifications are subject to change without notice.*

## For more information

To learn more about Controllers, visit  
[www.honeywellprocess/controllers.com](http://www.honeywellprocess/controllers.com)  
Or contact your Honeywell Account Manager

## Process Solutions

Honeywell

1250 W Sam Houston Pkwy S  
Houston, TX 77042

Honeywell Control Systems Ltd  
Honeywell House, Skimped Hill Lane  
Bracknell, England, RG12 1EB

Shanghai City Centre, 100 Jungi Road  
Shanghai, China 20061

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

The Honeywell logo, consisting of the word "Honeywell" in a bold, red, sans-serif font.

51-52-03-48

July 2015

©2015 Honeywell International Inc.