

T6 Pro Programmable Thermostat Installation Instructions



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Package Includes:

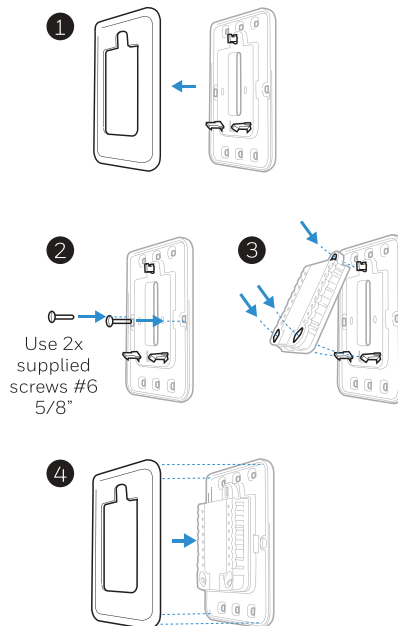
- T6 Pro Thermostat
 - UWP Mounting System
 - Honeywell Standard Installation Adapter (J-box adapter)
 - Honeywell Decorative Cover Plate – Small; size 4-49/64 in x 4-49/64 in x 11/32 in (121 mm x 121 mm x 9 mm)
 - Screws and anchors
 - 2 AA Batteries
 - Installation Instructions and User Guide
-

Optional Cover Plate installation

NOTE: If Optional Cover Plate is not required, see “UWP Mounting System installation” on next page.

Use the **Optional Cover Plate** when:

- Mounting the thermostat to an electrical junction box
 - Or when you need to cover paint gap from old thermostat.
1. Separate the Junction Box Adapter from the Cover Plate. See Figure 1.
 2. Mount the Junction Box Adapter to the wall or an electrical box using any of the eight screw holes. Insert and tighten mounting screws supplied with Cover Plate Kit. Do not overtighten. See Figure 2. Make sure the Adapter Plate is level.
 3. Attach the UWP by hanging it on the top hook of the Junction Box Adapter and then snapping the bottom of the UWP in place. See Figure 3.
 4. Snap the Cover Plate onto the Junction Box Adapter. See Figure 4.



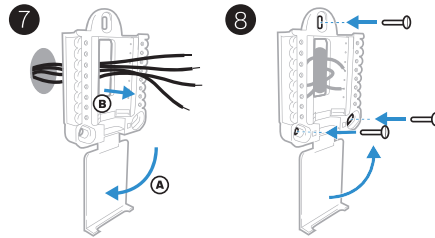
UWP Mounting System installation

5. Before starting, turn the power off at the breaker box or switch. Open package to find the UWP. See Figure 5.
6. Position the UWP on wall. Level and mark hole positions. See Figure 6.

Drill holes at marked positions, and then lightly tap supplied wall anchors into the wall using a hammer.

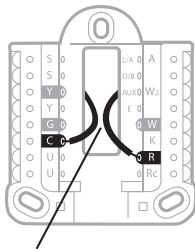
- Drill 7/32" holes for drywall.

7. Pull the door open and insert the wires through wiring hole of the UWP. See Figure 7.
8. Place the UWP over the wall anchors. Insert and tighten mounting screws supplied with the UWP. Do not overtighten. Tighten until the UWP no longer moves. Close the door. See Figure 8.

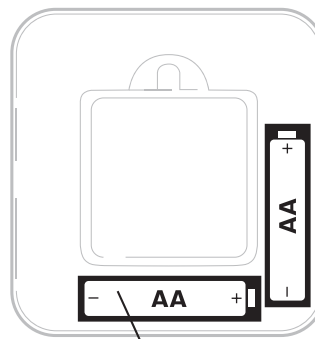


Use 3x supplied screws #8 1-1/2"

Power options



Insert **R** and **C** wires into designated terminals for primary AC power (C terminal is optional if batteries are installed, but it is recommended). Remove wires by depressing the terminal tabs.



Insert AA batteries for primary or backup power.

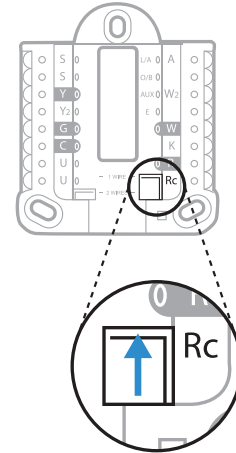
Setting Slider Tabs

Set R Slider Tab.

- Use built-in jumper (**R Slider Tab**) to differentiate between one or two transformer systems.
- If there is only one R wire, and it is connected to the **R**, **Rc**, or **RH** terminal, set the slider to the up position (**1 wire**).
- If there is one wire connected to the **R** terminal and one wire connected to the **Rc** terminal, set the slider to the down position (**2 wires**).

NOTE: Slider Tabs for U terminals should be left in place for T6 Pro models.

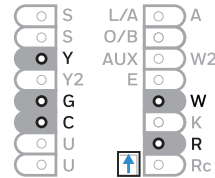
UWP Mounting System



R/Rc slider tab

Wiring terminal designations

S	Universal input for wired indoor or outdoor sensors	L/A - A	Heat Pump fault input (most common case)
S		O/B	Changeover valve
Y	Compressor contactor (stage 1)	AUX - W2	Auxiliary heat relay Heat relay (stage 2)
Y2	Compressor contactor (stage 2)	E	Emergency Heat relay
G	Fan Relay	W	Heat relay (stage 1)
C	24VAC common. For 2 transformer systems, use common wire from cooling transformer.	K	Connect to K on Wire Saver Module**
U	Unused	R	24VAC power from heating transformer*
U		Rc	24VAC power from cooling transformer*



Note: Not all terminals may be used, depending on the system type that is being wired. The most commonly used terminals are shaded.

* Terminal can be jumped using Slider Tab. See "Setting Slider Tabs" above.

** The THP9045A1023 Wire Saver Module is used on heat/cool systems when you only have four wires at the thermostat, and you need a fifth wire for a common wire. Use the K terminal in place of the Y and G terminals on conventional or heat pump systems to provide control of the fan and the compressor through a single wire—the unused wire then becomes your common wire. See THP9045 instructions for more information.

Wiring conventional systems: forced air and hydronics

Shaded areas below apply only to TH6320U/TH6220U or as otherwise noted.

1H/1C System (1 transformer)

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
Y	Compressor contactor
C	24VAC common [3]
W	Heat relay
G	Fan relay

1H/1C System (2 transformers)

R	Power (heating transformer) [1]
Rc	Power (cooling transformer) [1]
Y	Compressor contactor
C	24VAC common [3, 4]
W	Heat relay
G	Fan relay

Heat-only System

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
C	24VAC common [3]
W	Heat relay

Heat-only System with Fan

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
C	24VAC common [3]
W	Heat relay
G	Fan relay

Heat-only System (Series 20) [5]

R	Series 20 valve terminal "R" [1]
Rc	[R+Rc joined by Slider Tab] [2]
Y	Series 20 valve terminal "W"
C	24VAC common [3]
W	Series 20 valve terminal "B"

Cool-only System

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
Y	Compressor contactor
C	24VAC common [3]
G	Fan relay

Heat-only System

(power open zone valve) [5]

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
W	Valve
C	24VAC common [3]

2H/2C System (1 transformer) [6]

R	Power [1]
Rc	[R+Rc joined by Slider Tab] [2]
Y	Compressor contactor (stage 1)
C	24VAC common [3]
W	Heat relay (stage 1)
G	Fan relay
W2	Heat relay (stage 2)
Y2	Compressor contactor (stage 2)

NOTES

Wire specifications: Use 18- to 22-gauge thermostat wire. Shielded cable is not required.

- | | |
|--|---|
| [1] Power supply. Provide disconnect means and overload protection as required. | [4] Common connection must come from cooling transformer. |
| [2] Move R-Slider Tab on UWP to the R setting. For more information, see "Setting Slider Tabs" on page 3 | [5] In ISU set Heat system type to Radiant Heat. Set number of cool stages to 0. |
| [3] Optional 24VAC common connection. | [6] In Installer Setup, set system type to 2Heat/2Cool Conventional. |

Wiring heat pump systems

Shaded areas below apply only to TH6320U/TH6220U or as otherwise noted.

1H/1C Heat Pump System

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
Y Compressor contactor
C 24VAC common [3]
O/B Changeover valve [7]
G Fan relay

2H/1C Heat Pump System [8]

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
Y Compressor contactor
C 24VAC common [3]
O/B Changeover valve [7]
G Fan relay
Aux Auxiliary heat
E Emergency heat relay
L Heat pump fault input

2H/2C Heat Pump System [9]

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
Y Compressor contactor (stage 1)
C 24VAC common [3]
O/B Changeover valve [7]
G Fan relay
Y2 Compressor contactor (stage 2)
L Heat pump fault input

3H/2C Heat Pump System

(TH6320U only) [10]

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
Y Compressor contactor (stage 1)
C 24VAC common [3]
O/B Changeover valve [7]
G Fan relay
Aux Auxiliary heat
E Emergency heat relay
Y2 Compressor contactor (stage 2)
L Heat pump fault input

Dual Fuel System

R Power [1]
Rc [R+Rc joined by Slider Tab] [2]
Y Compressor contactor (stage 1)
C 24VAC common [3]
O/B Changeover valve [7]
G Fan relay
Aux Auxiliary heat
E Emergency heat relay
Y2 Compressor contactor (stage 2 - if needed)
L Heat pump fault input
S Outdoor sensor
S Outdoor sensor

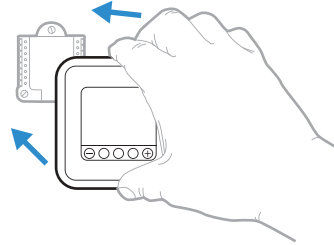
NOTES

Wire specifications: Use 18- to 22-gauge thermostat wire. Shielded cable is not required.

- [1] Power supply. Provide disconnect means and overload protection as required.
- [2] Move R-Slider Tab on UWP to the **R** setting. For more information, see "Setting Slider Tabs" on page 3
- [3] Optional 24VAC common connection.
- [6] In Installer Setup, set system type to 2Heat/2Cool Conventional.
- [7] In Installer Setup, set changeover valve to O (for cool changeover) or B (for heat changeover).
- [8] In ISU set Heat system type to Heat pump. 1 compressor and 1 stage of backup heat.
- [9] In ISU set Heat system type to Heat pump. 2 compressors and 0 stage of backup heat.
- [10] In ISU set Heat system type to Heat pump. 2 compressors and 1 stage of backup heat.

Thermostat mounting

1. Push excess wire back into the wall opening.
2. Close the UWP door. It should remain closed without bulging.
3. Align the UWP with the thermostat, and push gently until the thermostat snaps in place.
4. Turn the power on at the breaker box or switch.



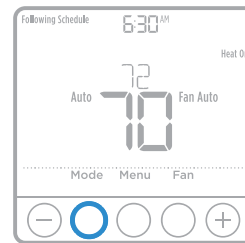
System operation settings

- 1 Press the **Mode** button to cycle to the next available System mode.
- 2 Cycle through the modes until the required System mode is displayed and leave it to activate.

NOTE: Available System modes vary by model and system settings.

System modes:

- **Auto**
- **Heat**
- **Cool**
- **Em Heat**
- **Off**



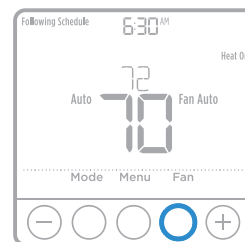
Fan operation settings

- 1 Press the **Fan** button to cycle to the next available Fan mode.
- 2 Cycle through the modes until the required Fan mode is displayed and leave it to activate.

NOTE: Available Fan modes vary with system settings.

Fan modes:

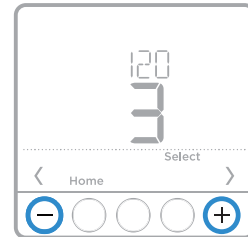
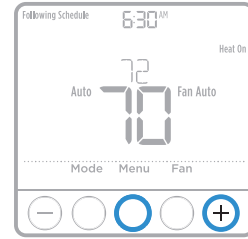
- **Auto:** Fan runs only when the heating or cooling system is on.
- **On:** Fan is always on.
- **Circ:** Fan runs randomly about 33% of the time.



Installer setup (ISU)

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Press **Select** to enter **ISU**.
- 3 Press **Select** to cycle through menu setup options.
- 4 Press **+** or **-** to change values or select from available options.
- 5 Press **Select** and confirm your settings or press **Back** to ignore changes and return to ISU menu screen to continue editing another setup option.
- 6 To finish setup process and save your setting, press **Home** and return to Home screen.

NOTE: A complete list of all setup (ISU) parameters and options starts below and continues through page 10.



Advanced setup options (ISU)

NOTE: Depending on system settings, not all options may be available.

# ISU	ISU Name	ISU Options (factory default in bold)
120	Scheduling Options	0 = Non-Programmable 2 = 5-2 Programmable 3 = 5-1-1 Programmable 4 = 7-Day Programmable
125	Temperature Indication Scale	0 = Fahrenheit 1 = Celsius
130	Outdoor Sensor (TH6320 / TH6220 only)	0 = None 1 = Wired Outdoor Sensor
200	Heating System Type	1 = Conventional Forced Air Heat 2 = Heat Pump 3 = Radiant Heat 5 = None (Cool Only)
205	Heating Equipment Type	<i>Conventional Forced Air Heat:</i> 1 = Standard Efficiency Gas Forced Air 2 = High Efficiency Gas Forced Air 3 = Oil Forced Air 4 = Electric Forced Air 5 = Hot Water Fan Coil <i>Heat Pump:</i> 7 = Air to Air Heat Pump 8 = Geothermal Heat Pump <i>Radiant Heat:</i> 9 = Hot Water Radiant Heat 12 = Steam
218	Reversing Valve O/B	0 = O (O/B in Cool) 1 = B (O/B in Heat)
220	Cool Stages / Compressor Stages 200=Conv / 200=HP (TH6320 / TH6220 only*)	0, 1 , 2*

Advanced setup options (ISU)

# ISU	ISU Name	ISU Options (factory default in bold)
221	Heat Stages / Backup Heat Stages	Heat Stages: 1, 2 Backup Heat Stages: 0, 1
230	Fan Control in Heat	1 = Equipment Controls Fan 2 = Thermostat Controls Fan
253	Aux/E terminal control (TH6320 only)	0 = Drive both Aux & E together 1 = Aux and E independent
255	Backup Heat Source (Heat Pump Only)	1 = Electric Forced Air 2 = Gas/Oil Forced Air (or Fossil Forced Air)
256	Emergency Heat Source (TH6320 only)	1 = Electric Forced Air 2 = Gas/Oil Forced Air (or Fossil Forced Air)
260	External Fossil Fuel Kit (TH6320 / TH6220 only)	0 = Thermostat Controls Backup Heat 1 = External Fossil Fuel Kit Controls Backup Heat
270	Backup Heat Fan	1 = Equipment Controls Fan 2 = Thermostat Controls Fan Note: Setting only active with TH6320 in Heat Pump mode.
271	Emergency Heat Fan	1 = Equipment Controls Fan 2 = Thermostat Controls Fan Note: Setting only active with TH6320 in Heat Pump mode.
300	System Changeover	0 = Manual 1 = Automatic
303	Auto Changeover Differential	0 °F to 5 °F 0.0 °C to 2.5 °C Note: Differential is NOT deadband. Differential means how far past the setpoint before switching to the mode selected. Deadband setup is not an option. Honeywell uses an advanced algorithm that fixes deadband at 0 °F. This is more advanced than previous thermostats.
340	Backup Heat Droop	0 = Comfort 2 = 2 °F 3 = 3 °F 4 = 4 °F 5 = 5 °F 6 = 6 °F 7 = 7 °F 8 = 8 °F 9 = 9 °F 10 = 10 °F 11 = 11 °F 12 = 12 °F 13 = 13 °F 14 = 14 °F 15 = 15 °F
350	Upstage Timer for Backup Heat	0 = Off 1 = 30 minutes 2 = 45 minutes 3 = 60 minutes 4 = 75 minutes 5 = 90 minutes 6 = 2 hours 7 = 3 hours 8 = 4 hours 10 = 5 hours
355	Compressor Lockout / Balance Point	-- = Off 5 °F to 60 °F (in 5 °F increments) -15.0 °C to 15.5 °C (in 2.5 °C or 3.0 °C increments) Note: Use a wired sensor to set compressor lockout / balance point on TH6320 / TH6220.
356	Outdoor Lockout Backup Heat	-- = Off 5 °F to 65 °F (in 5 °F increments) -15.0 °C to 18.5 °C (in 2.5 °C or 3.0 °C increments)
365	Compressor Cycle Rate (Stage 1)	1 - 6
366	Compressor Cycle Rate (Stage 1)	1 - 6
370	Heating Cycle Rate (Stage 1)	1 - 12
371	Heating Cycle Rate (Stage 2)	1 - 12

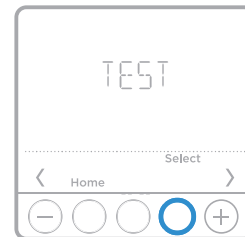
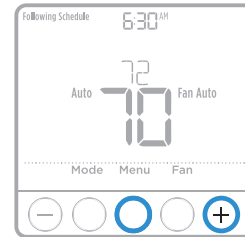
Advanced setup options (ISU)

# ISU	ISU Name	ISU Options (factory default in bold)																				
375	Heating Cycle Rate Auxiliary Heat	1 - 12																				
378	Heating Cycle Rate Emergency Heat (TH6320 only)	1 - 12																				
387	Compressor Protection	0 = Off 1 - 5 minutes																				
425	Adaptive Intelligent Recovery	0 = No 1 = Yes <i>Note: Adaptive Intelligent Recovery (AIR) is a comfort setting. Heating or cooling equipment will turn on earlier, ensuring the indoor temperature will match the setpoint at the scheduled time.</i>																				
430	Minimum Cool Setpoint	50 °F to 99 °F (50 °F) 10.0 °C to 37.0 °C (10.0 °C)																				
431	Maximum Heat Setpoint	40 °F to 90 °F (90 °F) 4.5 °C to 32.0 °C (32.2 °C)																				
435	Keypad Lockout	0 = None 1 = Partial 2 = Full																				
500	Is Indoor Temperature Sensor WIRED to your system? (TH6320 / TH6220 only)	0 = No 1 = Yes																				
515	Indoor Sensor type (TH6320 / TH6220 only)	0 = 10k 1 = 20k																				
520	Which Sensors will be used for TEMPERATURE Control? (Multiple Sensors are Averaged) (TH6320 / TH6220 only)	1 = Thermostat Only 2 = Wired Only 3 = Average																				
702	Number of Air Filters	0 - 2																				
711	Air Filter 1 Replacement Reminder	<table border="0"> <tr> <td>0 = Off</td> <td>10 = 45 Calendar Days</td> </tr> <tr> <td>1 = 10 Run Time Days</td> <td>11 = 60 Calendar Days</td> </tr> <tr> <td>2 = 20 Run Time Days</td> <td>12 = 75 Calendar Days</td> </tr> <tr> <td>3 = 30 Run Time Days</td> <td>13 = 3 Calendar Months</td> </tr> <tr> <td>4 = 45 Run Time Days</td> <td>14 = 4 Calendar Months</td> </tr> <tr> <td>5 = 60 Run Time Days</td> <td>15 = 5 Calendar Months</td> </tr> <tr> <td>6 = 90 Run Time Days</td> <td>16 = 6 Calendar Months</td> </tr> <tr> <td>7 = 120 Run Time Days</td> <td>17 = 9 Calendar Months</td> </tr> <tr> <td>8 = 150 Run Time Days</td> <td>18 = 12 Calendar Months</td> </tr> <tr> <td>9 = 30 Calendar Days</td> <td>19 = 15 Calendar Months</td> </tr> </table>	0 = Off	10 = 45 Calendar Days	1 = 10 Run Time Days	11 = 60 Calendar Days	2 = 20 Run Time Days	12 = 75 Calendar Days	3 = 30 Run Time Days	13 = 3 Calendar Months	4 = 45 Run Time Days	14 = 4 Calendar Months	5 = 60 Run Time Days	15 = 5 Calendar Months	6 = 90 Run Time Days	16 = 6 Calendar Months	7 = 120 Run Time Days	17 = 9 Calendar Months	8 = 150 Run Time Days	18 = 12 Calendar Months	9 = 30 Calendar Days	19 = 15 Calendar Months
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1400	Backlighting	0 = On Demand 1 = Continuous <i>Note: Common wire needed for continuous.</i>																				
1401	Backlight brightness	1 - 5 <i>Note: Only displayed if continuous backlight selected.</i>																				
1410	Clock Format	12 / 24																				
1415	Daylight Saving Time	0 = Off 1 = On																				
1420	Temperature Display Offset	-3 to 3F (0) -1.5 to 1.5C (0)																				

Installer system test

To perform a System Test:

- 1 Press and hold **CENTER** and **+** buttons for approximately 3 seconds to enter advanced menu.
- 2 Use **+** to go to **TEST**. Press **Select** to enter System Test.
- 3 Use **+** to change between Heat, Cool, Fan, Em Heat, or Ver (thermostat version information). Press **Select**.
- 4 Press **+** to turn stages on one at a time, and press **-** to turn them off.
- 5 Use the **Home** button to exit the System Test.



System test System status

Shaded areas below apply only to **TH6320U/TH6220U** or as otherwise noted.

	0	All Off
Heat	1	Heat Stage 1 on
	2	Heat Stage 2 also on
	3	Heat Stage 3 also on
	0	All Off
Cool	1	Cool Stage 1 on
	2	Cool Stage 2 also on
	0	All Off
Em Heat	1	Em Heat on
	0	Fan Off
Fan	1	Fan On

Specifications

Temperature Ranges

Heat: 40 °F to 90 °F (4.5 °C to 32.0 °C)

Cool: 50 °F to 99 °F (10.0 °C to 37.0 °C)

Working Ambient Temperature

32 °F to 120 °F (0 °C to 48.9 °C)

Operating Ambient Temperature

37 °F to 102 °F (2.8 °C to 38.9 °C)

Shipping Temperature

-20 °F to 120 °F (-28.9 °C to 48.9 °C)

Operating Relative Humidity

5% to 90% (non-condensing)

Physical Dimensions in inches (mm) (H x W x D)

4-1/16" H x 4-1/16" W x 1-5/32" D

103.5 mm H x 103.5 mm W x 29 mm D

Electrical Ratings

Terminal	Voltage (50/60Hz)	Running Current
W Heating	20-30 Vac	0.02-1.0 A
(Powerpile)	750 mV DC	100 mA DC
W2 (Aux) Heating	20-30 Vac	0.02-1.0 A
E Emergency Heat	20-30 Vac	0.02-0.5 A
Y Compressor Stage 1	20-30 Vac	0.02-1.0 A
Y2 Compressor Stage 2	20-30 Vac	0.02-1.0 A
G Fan	20-30 Vac	0.02-0.5 A
O/B Changeover	20-30 Vac	0.02-0.5 A
L/A Input	20-30 Vac	0.02-0.5 A



CAUTION: ELECTRICAL HAZARD

Can cause electrical shock or equipment damage. Disconnect power before beginning installation.



CAUTION: EQUIPMENT DAMAGE HAZARD

Compressor protection is bypassed during testing. To prevent equipment damage, avoid cycling the compressor quickly.



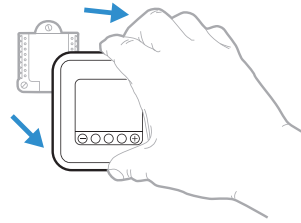
CAUTION: MERCURY NOTICE

If this product is replacing a control that contains mercury in a sealed tube, do not place the old control in the trash. Contact your local waste management authority for instructions regarding recycling and proper disposal.

Customer assistance

For assistance with this product, please visit customer.honeywell.com.

Or call Honeywell Customer Care toll-free at **1-800-468-1502**.



Pull to remove the thermostat from the UWP.

Automation and Control Solutions

Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN 55422

customer.honeywell.com

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