MODELS:

HTW51: No display or adjustment
HTW58C: Celsius model with display, setpoint adjustment and override
HTW58F: Fahrenheit model with display, setpoint adjustment and override

HTW5x
Wall Mounted Temperature and Relative Humidity Detector

Overview

The *HTW5x Temperature and Relative Humidity detector* is a wall mounted sensing element used for the monitoring of temperature & humidity in a controlled space.

HTW51

Features

- Icon based backlit Liquid Crystal Display (LCD)
- Modern, attractive enclosure design
- Wall mounted
- Displays Temperature and Humidity at a glance
- Onboard temperature sensor
- Onboard humidity sensor
- Displays Celsius (°C) or Fahrenheit (°F)
- Push button interface for:
  a. Temperature setpoint adjustment
  b. Occupancy override

- Display available on HTW58 model only
- Temperature setpoint adjustment and override available on HTW58 model only.

Applications

The Innotech *HTW5x detector* range of products are designed to provide simple but accurate sensing of air-conditioned spaces.

The *detector* provides an easy to read visual display of temperature and/or humidity, and allows programming modifications using the intuitive LCD and push button interface. (HTW58 model only)

HTW58C

Installation / Wiring

The *HTW5x detector* should be installed in an environment that does not exceed the maximum operating parameters of the device. It should be mounted in a clean and dry environment free of vibration, and properly ventilated.

The *HTW5x* should be mounted with a standard vertical C-Clip, or on a standard wall enclosure. Maximum terminal cable entry is 2.5mm^2 (stranded conductor).

Wiring should be done in accordance with Innotech connection diagrams and local bylaws or refer to your local distributor.

Connect the power supply to the correct terminals on the *detector*, observing the correct polarity of the connections.

Specifications

POWER SUPPLY REQUIREMENTS	
Power Input	24VDC or 24VAC ±10% @ 50/60Hz
Power Consumption	10mA @24VDC (80mA w/ backlight on)

Polarity MUST be observed when connecting power.

If using 24VAC, the data and power cabling should be segregated and data run in screened cable (as shown on page 5).

ENVIRONMENTAL	
Operating Temperature	0°C to 40°C (32°F to 104°F) non-condensing
Storage Temperature	0°C to 50°C (32°F to 122°F) non-condensing

ENCLOSURE	
Housing is moulded from flame retardant plastics recognised by UL as UL94-V0. The housing is designed to maximise airflow to the onboard sensors. It should be mounted with a standard vertical C-Clip, or on a standard wall enclosure.	
Colour	Grey / White
Dimensions(Maximum)	(W)70mm x (H)121mm x (D)41mm [2.76" x 4.76" x 1.6"]

APPROVALS
EN61326-1:2013 for CE Marking and RCM Labelling
Title 47 CFR, Part 15, Subpart B, Class A for FCC Verification

Onboard Sensors

% RELATIVE HUMIDITY (RH)	
Combination RH Capacitive Polymer & Temperature PTAT Solid State	
RH Accuracy @ 25°C (77°F)	±2.0% from 20 to 80% ±3.0% from 10 to 19% and 81 to 90%
RH Linearity	Less than ±2.0% RH
RH Hysteresis	Less than ±1.3% RH
Temperature Range Accuracy	±0.2°C (0.36°F) from 0 to 60°C (32 to 140°F)

TEMPERATURE SENSOR	
Resistance	NTC 10,000Ω thermistor (10K-2)
Accuracy	±0.2°C (0.36°F) from 0 to 70°C (32 to 158°F)

Inputs and Outputs

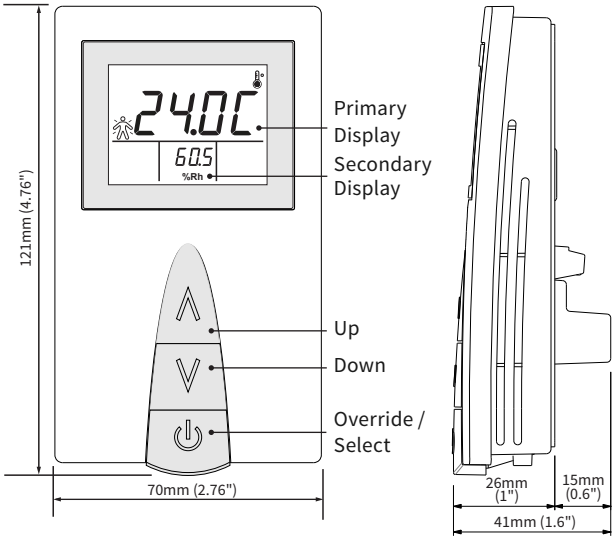
AVAILABLE OUTPUTS	
Temperature	Temperature (Temp) Resistance, 10K-2 thermistor (Isolated)
Humidity (RH)	0 to 10VDC = 0 to 100% RH signal output (ref. to power GND)
Setpoint (STPT)	0 to 10VDC = configurable setpoint signal (ref. to power GND)

OCCUPIED INPUT	
Occupancy (OVR)	Occupied = 10VDC ("Man" displayed) Unoccupied = 0VDC ("Man" not displayed) (ref. to power GND)

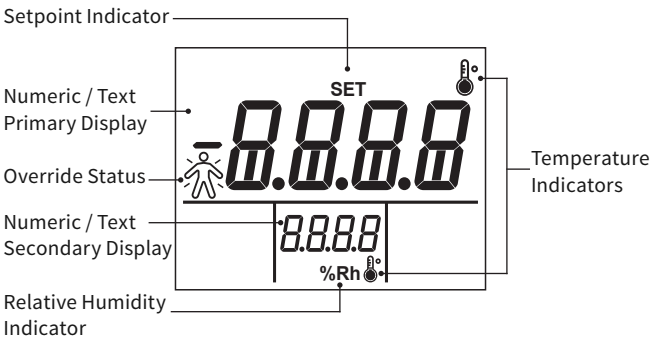
Controls and Display

CONTROLS (HTW58 Only)	
Setpoint	Up and Down Buttons
Override / Select	Single Button

DISPLAY (HTW58 Only)	
Backlit LCD for Temperature, Relative Humidity, Setpoint and Override	
Primary Display	Four Numeric Digits 19mm (0.75") high with one selectable decimal
Secondary Display	Four Numeric Digits 12.7mm (0.5") high with one selectable decimal
Icons	%Rh / SET /
Display Size (Width x Height)	40mm x 30mm (1.6" x 1.2")
Digit Resolution	0.1, 0.5 or 1
Units	°C, °F, %Rh
Offset Range (HTW58 only)	±10 for RH and Temperature



HTW5x Dimensions and Identification
(HTW58C shown)



HTW58 LCD Display

Operation Sequence and Display

Power

- The *HTW5x* is powered by 24VDC or 24VAC ±10% from terminals (VIN) and (GND).
- Terminal (GND) is common for power, RH and setpoint outputs , and reference for the 0/10VDC input for override.
- A Display segment test is performed by **pushing and holding** the **Override** button during power-up. This action will latch all the segments ON until the override is released.

Sensors

- Temperature is measured by a 10K-2 type thermistor.
- Temperature is viewed on the Primary Display. (HTW58)
- The humidity output is via a 0 to 10VDC output, and is viewed on the Secondary Display. (HTW58)

Temperature Setpoint

- The setpoint is adjusted by the **Up** and **Down** buttons. A 0 to 10VDC signal is produced from terminal (STPT). The range may be adjusted (HTW58 only), unless configured for "Setpoint Lockout"
- The setpoint is viewed on the primary display.
- The setpoint ranges from 12°C (55°F) to 35°C (95°F) absolute temperature or as a relative temperature from ±5° (C or F). The setpoint range is dependent on the settings for P3 and P4.
- The primary display shows the temperature setpoint during adjustment. It will revert back to the temperature 5 seconds after the last button activity.
- 0.1° increments for HTW58C model.
- 0.5° increments for HTW58F model.

Override

- The override is activated by the **Override** pushbutton on the front of the HTW58 detector. When pressed, the temperature sensor will short circuit for 5 seconds, unless configured for "Occupancy Lockout"
- When the temperature input on the Innotech Maxim/Genesis controller registers the fault from the HTW58 sensor short circuit, the analogue output from the controller changes from 0VDC (off) to 10VDC (on).
- When the HTW58 detector registers 10VDC from the controller, the "🚶" is displayed to represent "Occupied" mode.
- When the HTW58 detector registers 0VDC from the controller, the "🚶" is not displayed to represent "Unoccupied" mode.

Display

- Primary Display - Indicates Temperature in °C or °F depending on the version of detector. This also displays the setpoint when the **Up**/**Down** buttons are pressed. (This may be adjusted to toggle between Temp and Setpoint on the HTW58 model - P7)
- Secondary Display - Indicates Humidity %Rh. (This may be adjusted to toggle between %RH and Temperature on the HTW58 model - P8)
- The display can be adjusted for resolutions of 0.1, 0.5 or 1. (HTW58 only)
- The backlit display has two modes, “Active” and “Inactive”.
  - Active - When a button press is detected the display will illuminate.
  - Inactive - When no button activity is detected for 5 seconds the display will become dull.
- The "🚶" is displayed on the HTW58 model to indicate "Occupied" or "Unoccupied" modes. (Refer to the Typical Configuration)
- "E" will be displayed if there is an error with the HTW detector.

Parameters

The HTW is factory set, as per the Parameters on page 4. These may only be adjusted on the HTW58 model via the **Up**/**Down** and **Select** buttons.

- Where [**°C Default**] or [**°F Default**] is indicated, this is the default for the respective Celsius or Fahrenheit models.
- Where [**Factory Default**] is specified, it is the default setting regardless of the model.

Enter the Parameter Menu

The parameter menu is accessed by a two step procedure.

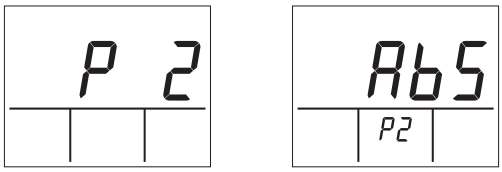
1. Simultaneously press and hold the **Up** and **Down** buttons for 3 seconds. Prog will be displayed.
2. Continue to hold the **Up** and **Down** buttons and also hold the **Select** button for 3 seconds.

After successfully entering the Parameter Menu, the initial parameter displayed will be P1.

You may modify multiple parameters before returning to the normal mode of operation.

Setting Parameters

1. Press the **Up**/**Down** Buttons to select a setting from P1 to P14. The parameter number will be displayed in the Primary display (The Parameters are detailed on the next page).
2. Press the **Select** Button to modify the specific parameter. The parameter number will drop to the secondary display and the primary display will be used for parameter changes.
3. Change the parameter value using the **Up**/**Down** buttons.
4. Press the **Select** Button to save the changes.
5. If required, press the **Up**/**Down** Buttons to select the next parameter.



Parameter Menu Parameter 2 Options

Selecting and Modifying a Parameter

Exiting the Parameter Menu

To exit the Parameter menu, press the **Up**, **Down** & **Select** buttons together. (HTW58)

Alternatively the display will automatically revert after button inactivity for 30 seconds. (HTW58)

- Refer to the typical configuration for programming of your Innotech Controller.
- Where used, P# refers to a Parameter number. ie: P1 = Parameter 1.
- All references to setpoint are for temperature setpoint only. Humidity setpoints are not available on the HTW5x.

Parameter 1: Set Temperature Display Units

This parameter determines whether the temperature is displayed in °C or °F.

- F Sets output in °F
- C Sets output in °C **[°C Default]**
- F dS Sets the display and outputs to read in °F **[°F Default]**
- C dS Sets the display and outputs to read in °C

- Selecting dS will display the C or F beside the temperature.
- The setting used in P1 determines the units used globally (°C or °F).

Parameter 2: Temperature Setpoint Type

This parameter sets the setpoint display to either absolute (xx to yy°) or Relative (±x°) on the display.

- Abs Absolute value (xx° - yy°) **[Factory Default]**
- rEL Relative value (±xx)
- eg. ABS = 22.5°C
  REL = -2.2°C

The setting used in P2 determines the SP Type used in P3 & P4.

Parameter 3: Temperature Setpoint Minimum Value

This parameter sets the minimum value for the setpoint.

Eng Units	SP Type	Function
F	Abs	Adjust value from 55.0 to 69.0°F, (increments of 0.5°F), Default = 65°F **[°F Default]**
C	Abs	Adjust value from 12.0 to 20.0°C, (increments of 0.1°C), Default = 18°C **[°C Default]**
F or C	rEL	Adjust value from -5° to 0°, (increments of 0.1°C/0.5°F), Default = -3°

- This setting is dependent on the values selected in P1 and P2.
- If altering P3, you must alter the setpoint range minimum in your software programming.

Parameter 4: Temperature Setpoint Maximum Value

This parameter sets the maximum value for the setpoint.

Eng Units	SP Type	Function
F	Abs	Adjust value from 69.0 to 95.0°F (increments of 0.5°F), Default = 85°F **[°F Default]**
C	Abs	Adjust value from 20.0 to 35.0°C (increments of 0.1°C), Default = 29°C **[°C Default]**
F or C	rEL	Adjust value from 0° to +5°, (increments of 0.1°C/0.5°F), Default = +3°

- The setting is dependent on the values selected in P1 and P2.
- If altering P4, you must alter the setpoint range maximum in your software programming.

Parameter 5: Temperature Setpoint Lockout

This parameter enables or disables the adjustment of the setpoint.

- LOcK This setting locks the setpoint at the current value and disables the Up/Down buttons
- ULOc This setting enables the setpoint to be changed by the user using the Up/Down buttons **[Factory Default]**

Parameter 6: Occupancy Lockout

This parameter enables or disables the override button function.

- LOcK This setting disables the Override button
- ULOc This setting enables the Override button so the user can request occupancy override **[Factory Default]**

Parameter 7: Set Primary Display Mode

This parameter determines what is shown on the primary display.

- nonE The primary display is not used
- t Room temperature value only **[Factory Default]**
- t SP Room temperature and setpoint values alternate every 5 seconds
- SP Room temperature setpoint value only

Parameter 8: Set Secondary Display Mode

This parameter determines what is shown on the secondary display.

- nonE The secondary display is not used
- rh Room relative humidity value only **[Factory Default]**
- rh t Room RH and room temperature values alternate every 5 seconds
- t Room temperature value only

Parameter 9: Display Resolution

This parameter sets the resolution for the digital display.

- 0.1 Sets a 0.1 resolution (xx.1) **[Factory Default]**
- 0.5 Sets a 0.5 resolution (xx.5)
- 1 Sets whole number resolution (1)

Parameter 10: Backlight Duration

This parameter selects the backlight duration.

- 1-10 Adjust the setting using the Up or Down buttons **[Factory Default = 5 seconds]**

Parameter 11: Temperature Sensor Calibration

This parameter adjusts the temperature display value ±10°.

- -10 to +10 Adjust value ±10° in 0.1° increments **[Factory Default is 0°]**

Calibration of the display and the sensor input (at the controller) is required when using HTW58 models.

Parameter 12: Humidity Sensor Calibration

This parameter adjusts the humidity display and output value ±10%.

- -10 to +10 Adjust value ±10% in 0.1% increments **[Factory Default is 0%]**

Calibration of the display and the sensor input (at the controller) is required when using HTW58 models.

Parameter 13: Sensor Firmware Version

This parameter displays the current firmware in the HTW58.

- 1.0 Example of firmware version

Parameter 14: Reset to Factory Defaults

The HTW58 may be reset to factory defaults.

1. Select P14, no will be displayed.
2. Press the **Up** button, YES will be displayed.
3. Press the **Select** button, RESt will be displayed and the sensor program will revert to the factory default values. Normal operation will begin after the reset is complete.

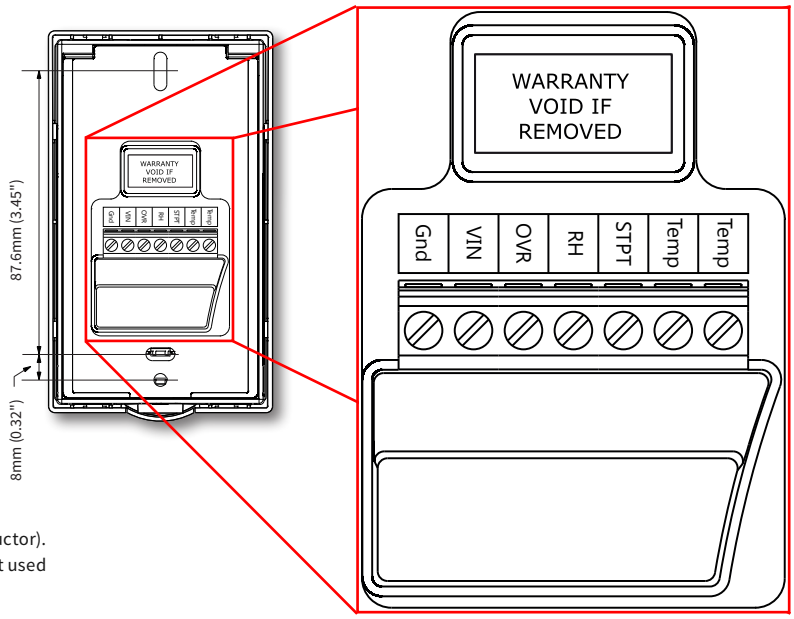
- The HTW sensors are factory calibrated, and adjustable only on the HTW58 model.
- All references to setpoint are for temperature setpoint only. Humidity setpoints are not available on the HTW5x.

HTW5x Detector Connection Identification

HTW5x Detector

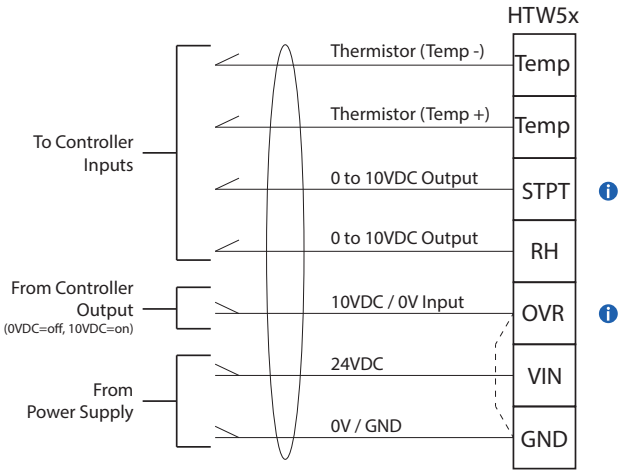
CONNECTOR INFORMATION

Connector	Description
Gnd	Power Common / Neutral
VIN	+ Power 24VDC or 24VAC ±10%
OVR	Override Input (10VDC = Occupied, 0VDC = Unoccupied)
RH	Relative Humidity Signal Output 0 to 10VDC (Ref. to GND Common)
STPT	Setpoint Output 0 to 10VDC (Ref. to GND Common)
Temp	Temperature Sensor (Isolated)
Temp	



- Maximum terminal cable entry is 2.5mm² (stranded conductor).
- HTW58 model shown. The OVR and STPT terminals are not used on the HTW51 model.

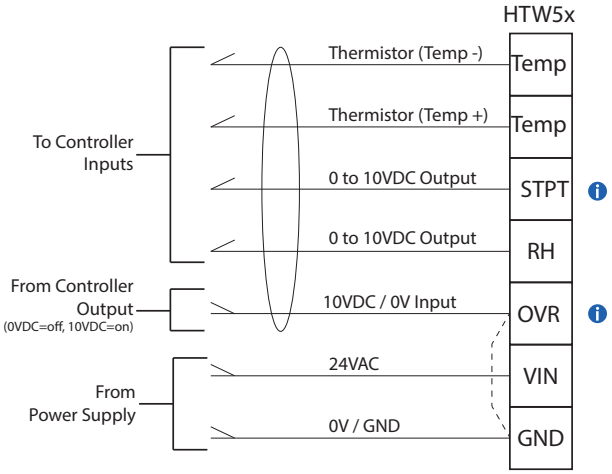
HTW5x Connection Diagram - 24VDC



Polarity MUST be observed when connecting power.
Earth screens at controller only.

- When using 24VDC to power the device, a single shielded cable may be used for power and control signals.
- Link is required if override is not used.
- Maximum terminal cable entry is 2.5mm² (stranded conductor).
- The OVR and STPT terminals are not used on the HTW51 model.

HTW5x Connection Diagram - 24VAC



Polarity MUST be observed when connecting power.
Earth screens at controller only.

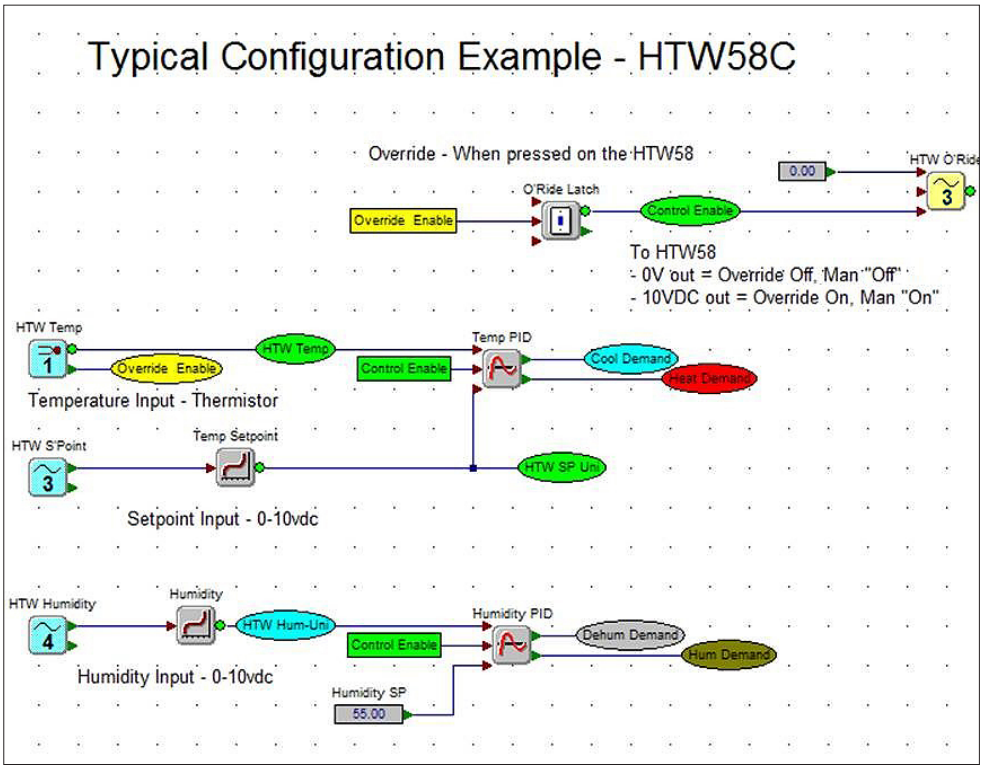
- When using 24VAC to power the device, separate cables must be used for power and control signals.
- Link is required if override is not used.
- Maximum terminal cable entry is 2.5mm² (stranded conductor).
- The OVR and STPT terminals are not used on the HTW51 model.

FCC Class A Notice

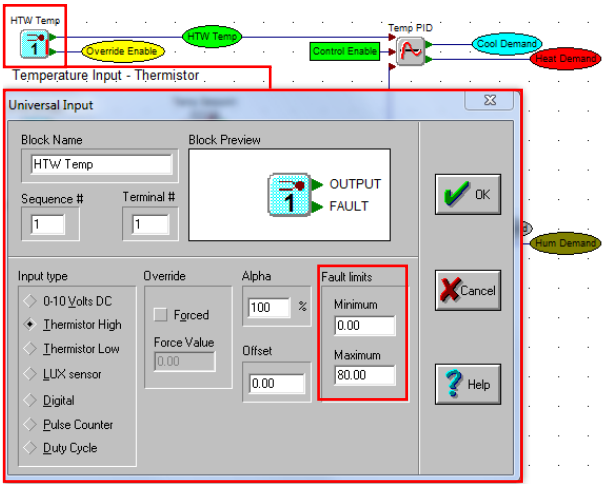
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

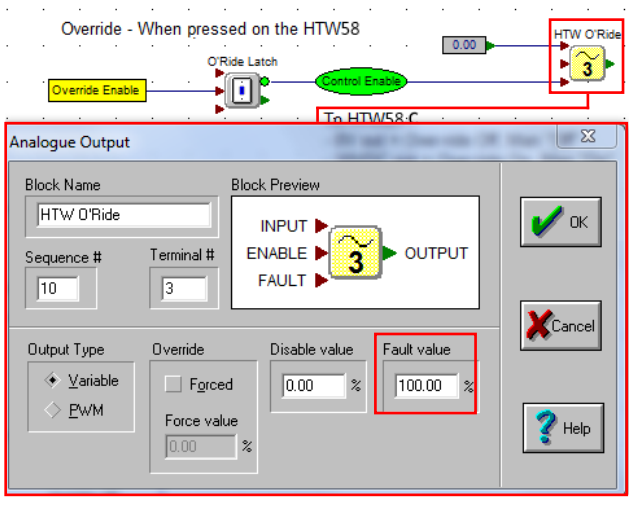
Note – *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.*
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.



Configurations are available from the Innotech Website by clicking here.



Please note that the Fault Limits should be set as shown.



Please note that the Fault Value should be set as shown.

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