

Modular Room Control (MRC) Central Water Temperature (CWT) Broadcast Sensor

Application

Note: This sensor is provided with the MRC19-CWT software package.

Central Water Temperature (CWT) Broadcast is an add-on feature for the MRC series of controls. In a typical system, the MRC System controls the temperature and other aspects of the room operation. In systems where a Fan Coil Unit (FCU) controls the room temperature, running cold or hot water through a heat exchanger achieves the cooling or heating. A fan blows the air over the heat exchanger into the room.

Some FCUs use a two-pipe system where the water running through the FCU is either cold or hot. In a four-pipe system, there are two parallel pipes, and cold and hot water can be run simultaneously through the FCU. In two-pipe systems, the MRC thermostat must know whether the water running through the FCU is cold or hot. If the water is cold and the thermostat calls for heat, the thermostat will keep the water valve closed. If the water is hot, the thermostat will open the water valve, allowing the room to be heated.

The CWT feature allows the thermostat in all rooms to read the current water temperature and make decisions accordingly. A water temperature sensor is attached to the main pipe that feeds all the guestroom FCUs with the cold or hot water. The sensor is wired to a floor bridge, which is part of the MRC Central Interface Network (CINET) in the building. The bridge broadcasts the water temperature to all the room thermostats, which in turn use this information to apply proper temperature control algorithms to maintain the desired room temperature.

Another application for the CWT is to monitor the central chilled/hot water supply for the Energy Transfer Monitoring (ETM) system. The ETM system is an on-line monitoring system that measures the actual energy consumed and saved by the MRC energy management system. The Central Interface Server (CIS) logs the water temperature, and a historical presentation can be summoned via the HMS/AQR/HISTORY option.

Refer to the *CIT5 User's Guide* for additional technical information.

Installation

The CWT sensor measures the pipe water temperature. It is a two-wire, thermistor sensor, which is fully encapsulated. The sensor is attached to the pipe using suitable insulated tape, which allows the thermistor to measure only the pipe temperature, rather than an average of the pipe and air temperature.

Mounting

Mount the sensor as shown in Figure 1 below.

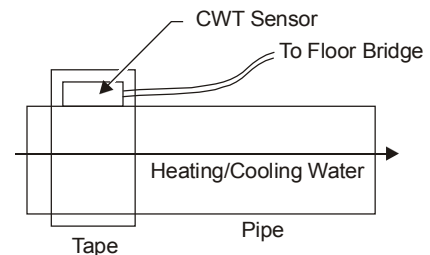


Figure 1: Mounting of Sensor

Wiring



CAUTION: Risk of Electrical Shock.

Before applying power, make all wiring connections and check the connections. Short-circuited or improperly connected wires may result in permanent damage to the unit.

IMPORTANT: Make all wiring connections in accordance with the National Electrical Code (NEC) and all local regulations.

The sensor requires a two-wire, minimum 22-gage conductor. If the distance from the sensor exceeds 20 ft. (6.1 m), use a shielded wire. The sensor is connected to Header H6, Pins 1 and 4. Pin 1 is common, and if a shielded wire is used, terminate the shield at this pin. The shield should be taped back and insulated from ground at the sensor location. Refer to Figure 2 for details.

Setup and Adjustments

For the CWT feature to work, the MRC System requires that the MRC19-CWT software package be loaded. This is typically ordered and loaded at the factory on the MRC19-CIS5 Central Interface Server.

The CWT sensor is not functional until it has been enabled in the floor bridge software. The command must be sent to the specific floor bridge where the CWT sensor has been installed.

Using Floor Bridge 3 on Riser 1 as an example, use the command below to enable the CWT sensor:

From the dialog window:

Technical Address: 1:3:80

Device is: R239/F239

Command: AQUASTAT\EX6

Next Command: SYSAPP0\EX5 to reset the floor bridge.

To disable the CWT sensor: AQUASTAT\EX7

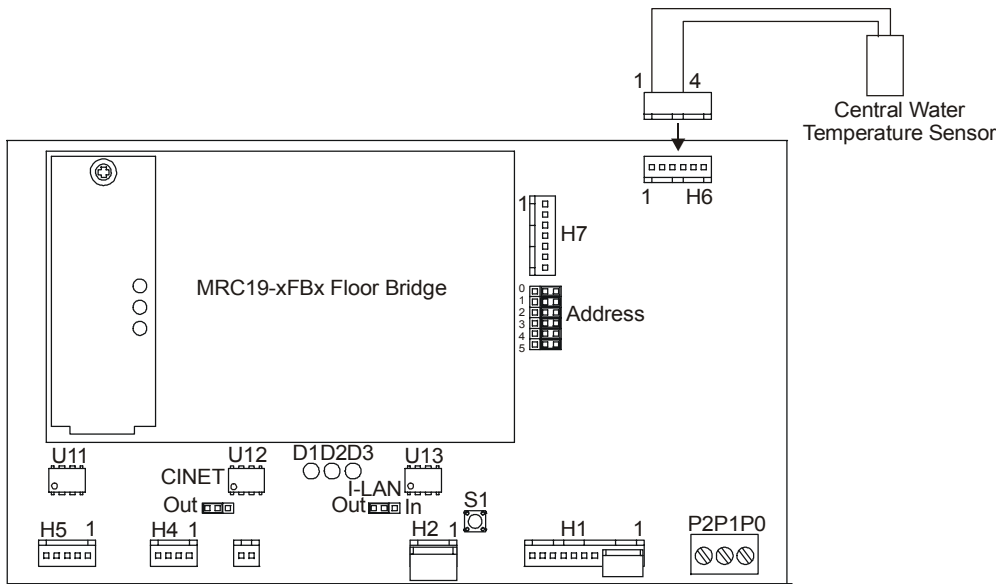


Figure 2: Typical Connection to Floor Bridge

Technical Specifications

Product	Modular Room Control (MRC) Central Water Temperature (CWT) Broadcast Sensor
Power Requirements	24 VAC at 50/60 Hz (Floor Bridge)
Agency Listings	FCC UL CSA
Sensor Range	0 to 149°F (-18 to 65°C)
Ambient Operating Conditions	-20 to 149°F (-29 to 65°C), 0-95% RH non-condensing
Ambient Storage Conditions	-20 to 149°F (-29 to 65°C)
Shipping Weight	0.5 lb (0.22 kg)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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