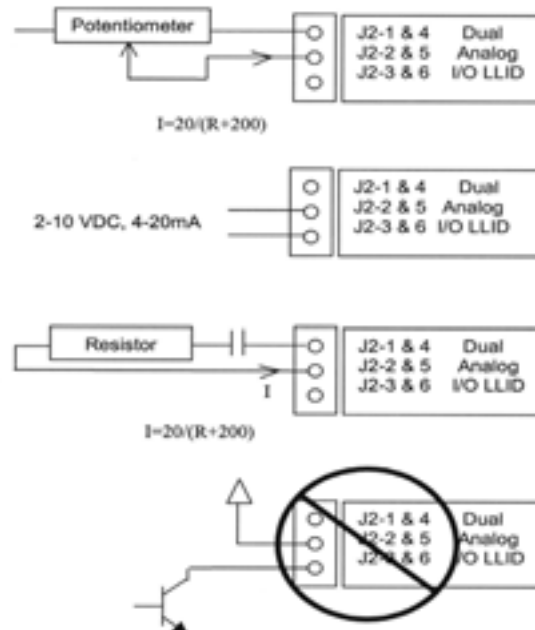


Figure 59. Wiring Examples for ECLS and EDLS



Chilled Water Reset (CWR)

CH530 resets the chilled water temperature set point based on either return water temperature, or outdoor air temperature.

The following shall be selectable:

- One of three Reset Types: None, Return Water Temperature Reset, Outdoor Air Temperature Reset, or Constant Return Water Temperature Reset.
- Reset Ratio Set Points.
- For outdoor air temperature reset there shall be both positive and negative reset ratio's.
- Start Reset Set Points.
- Maximum Reset Set Points.

The equations for each type of reset are as follows:

Return

$$CWS' = CWS + \text{RATIO} (\text{START RESET} - (TWE - TWL))$$

$$\text{and } CWS' \geq CWS$$

$$\text{and } CWS' - CWS \leq \text{Maximum Reset}$$

Outdoor

$$CWS' = CWS + \text{RATIO} * (\text{START RESET} - TOD)$$

$$\text{and } CWS' \geq CWS$$

$$\text{and } CWS' - CWS \leq \text{Maximum Reset}$$

where

CWS' is the new chilled water set point or the "reset CWS"

Installation - Electrical

CWS is the active chilled water set point before any reset has occurred, e.g. normally Front Panel, Tracer, or ECWS

RESET RATIO is a user adjustable gain

START RESET is a user adjustable reference

TOD is the outdoor temperature

TWE is entering evap. water temperature

TWL is leaving evap. water temperature

MAXIMUM RESET is a user adjustable limit providing the maximum amount of reset. For all types of reset, $CWS' - CWS \leq \text{Maximum Reset}$.

Reset Type	Reset Ratio Range	Start Reset Range	Maximum Reset Range	Increment English Units	Increment SI Units	Factory Default Value
Return:	10 to 120%	4 to 30 F (2.2 to 16.7 C)	0 to 20 F (0.0 to 11.1 C)	1%	1%	50%
Outdoor	80 to -80%	50 to 130 F (10 to 54.4 C)	0 to 20 F (0.0 to 11.1 C)	1%	1%	10%

In addition to Return and Outdoor Reset, the MP provides a menu item for the operator to select a Constant Return Reset. Constant Return Reset will reset the leaving water temperature set point so as to provide a constant entering water temperature. The Constant Return Reset equation is the same as the Return Reset equation except on selection of Constant Return Reset, the MP will automatically set Ratio, Start Reset, and Maximum Reset to the following.

RATIO = 100%

START RESET = Design Delta Temp.

MAXIMUM RESET = Design Delta Temp.

The equation for Constant Return is then as follows:

$CWS' = CWS + 100\% (\text{Design Delta Temp.} - (TWE - TWL))$

and $CWS' \geq CWS$

and $CWS' - CWS \leq \text{Maximum Reset}$

When any type of CWR is enabled, the MP will step the Active CWS toward the desired CWS' (based on the above equations and setup parameters) at a rate of 1 degree F every 5 minutes until the Active CWS equals the desired CWS'. This applies when the chiller is running.

When the chiller is not running the CWS is reset immediately (within one minute) for Return Reset and at a rate of 1 degree F every 5 minutes for Outdoor Reset. The chiller will start at the Differential to Start value above a fully reset CWS or CWS' for both Return and Outdoor Reset.

Percent Capacity Output Option

CH530 provides an optional percent capacity output for those customers without a communicating BAS interface. The active unit capacity (AUC) is provided through a 2-10 VDC analog output at 1A25 terminals J2-4 and J2-6 (GND). The active unit capacity value (in %) can be derived from the 2-10 VDC output voltage (OV) using the following calculation:

$$AUC = 100 * (OV - 2.0V) / (10.0V - 2.0V)$$

Note: The percent capacity output is based on the number and size of compressors energized, and is not adjusted for operating conditions. This value cannot be used as an accurate measure of total unit current, power or cooling capacity.