NOVEMBER 23, 2021

CC200 ZONE DIFFERENTIAL (CC200-SM-DIFF)

(REV 20.1.6+)

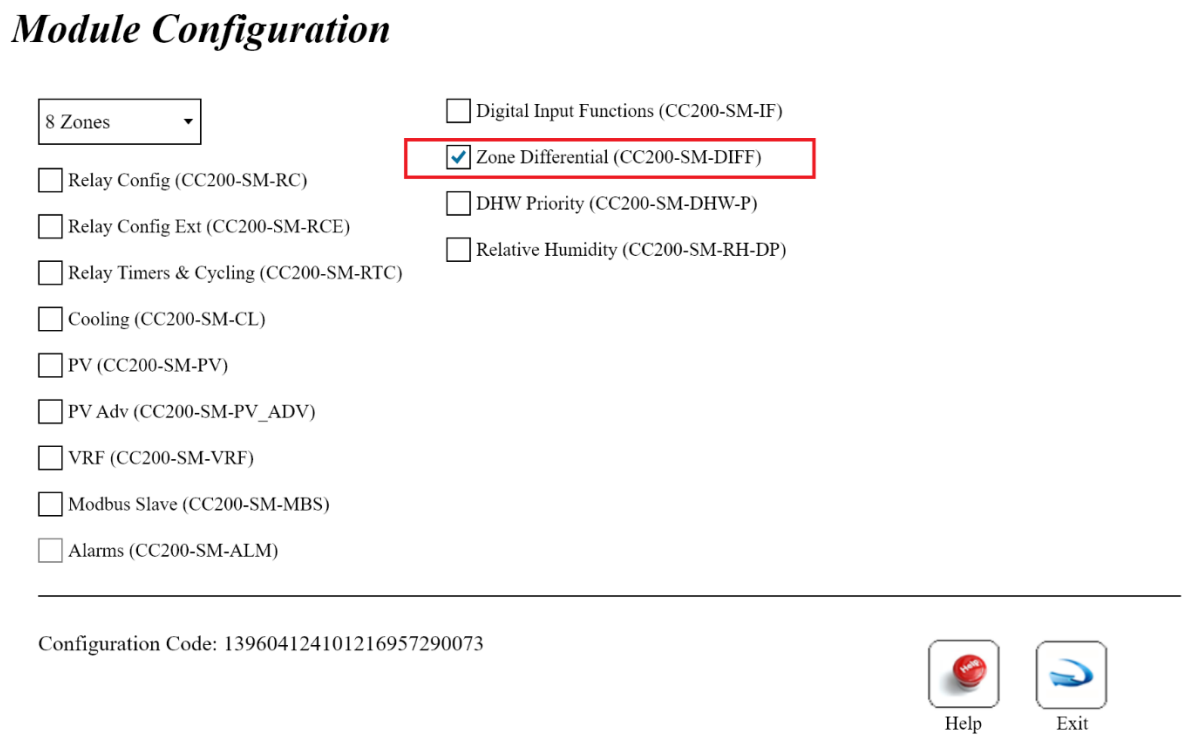
CRIOSU CONTROLS

Table of Contents

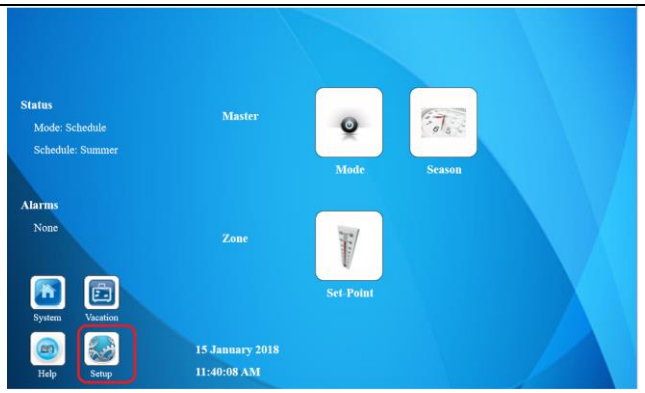
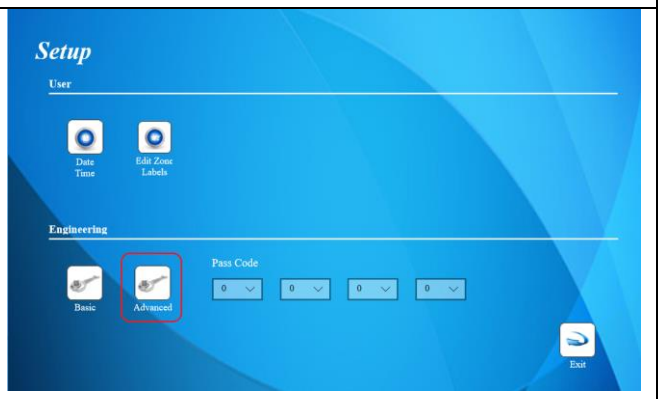
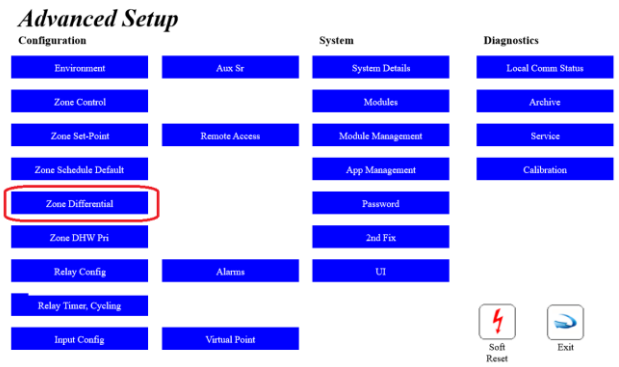
Introduction

Zone differential takes a temperature as input and compares it to a derived reference in order to set a zone differential flag. This flag may be used to control a relay output.

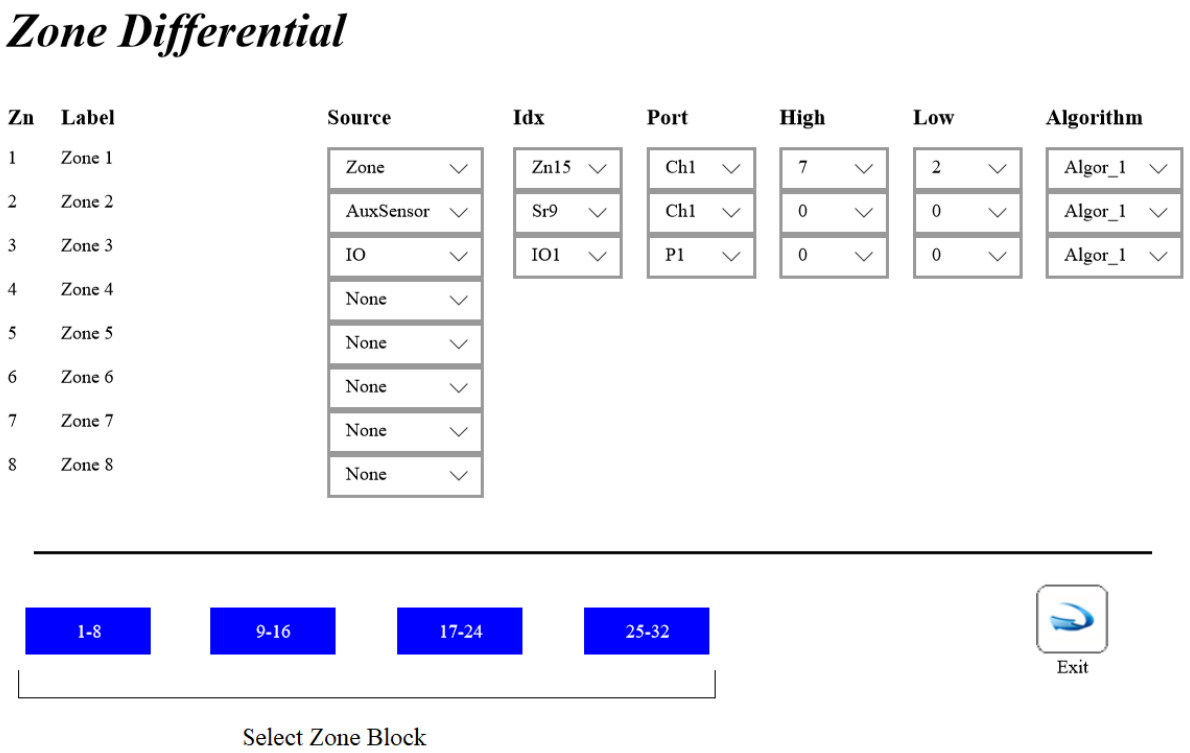
Module Requirements



Access Zone Differential Configuration

Step 1.	Press “Setup” on the Home Screen	
Step 2.	Press “Advanced” on the Setup Screen	
Step3	Press “Zone Differential” in the Advanced Setup Screen	

Zone Differential Screen



Differential Source Temperature (T_Source)

The zone differential temperature source (T_Source)

Source	Description
None	Zone Differential is not in use
Zone	The source temperature is taken from a zone sensor The zone Index is set by the "Idx" selection and the Zone channel is set by the "Port" selection.
AuxSensor	The temperature is taken from an auxiliary sensor. The sensor Index is set by the "Idx" selection and the sensor channel is set by the "Port" selection.
IO	The temperature is taken from IO Logic Box Probe input. The IO Module is set by the "Idx" selection (e.g. IO1) and the Probe input is set by the "Port" selection (e.g. P1).

Differential Algorithm

There are three differential algorithms:

Algorithm #1

```
if T_Source IS GREATER THAN Zone T Channel 1 + HysHi
        zDiff = true;
else if T_ Source IS LESS THAN OR EQUAL TO Zone T  Channel 1  + HysLo
        zDiff = false;
```

Algorithm #2

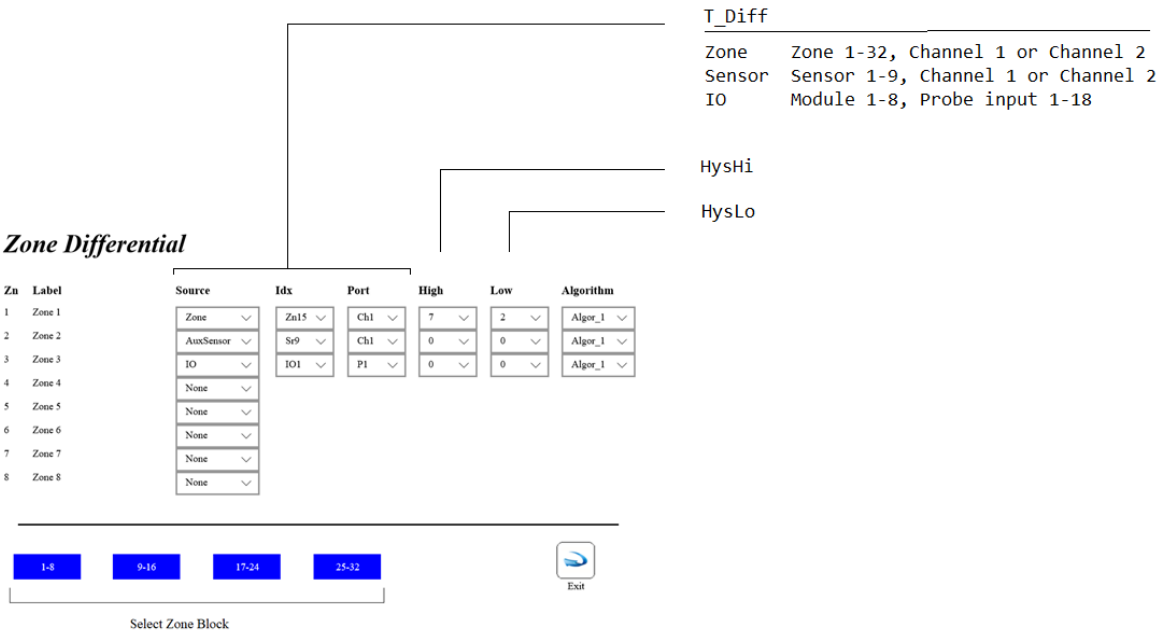
```
if T_Source IS GREATER THAN Zone T Channel 2 + HysHi
        zDiff = true;
else if T_ Source IS LESS THAN OR EQUAL TO Zone T Channel 2  + HysLo
        zDiff = false;
```

Algorithm #3 (ONLY APPLIES to ZONE SOURCE)

Differential Source MUST be set to Zone

```
if T_ Source IS GREATER THAN Zone Setpoint - HysHi
        zDiff = true;
else
        zDiff = false;
```

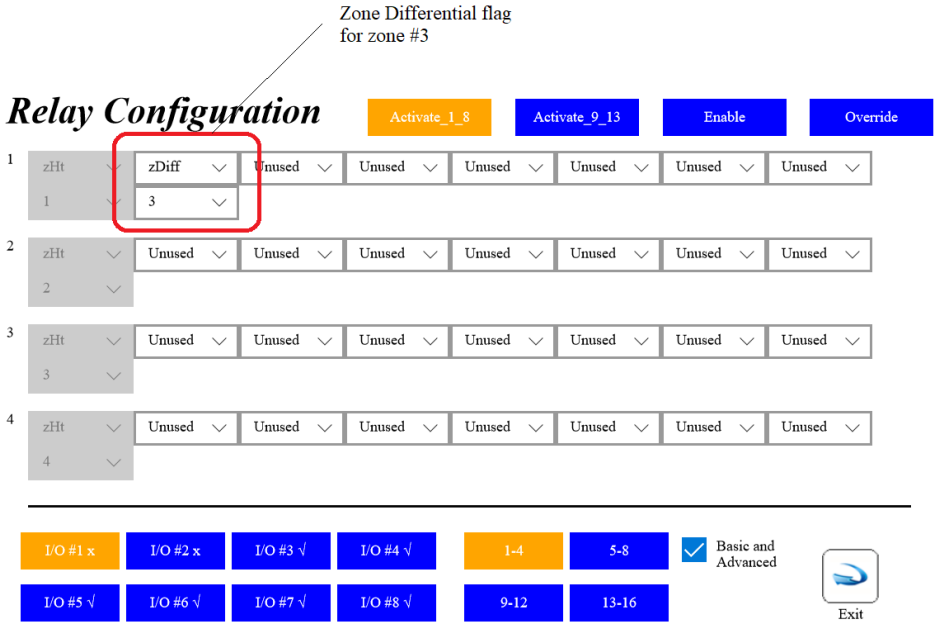
Algorithm Key



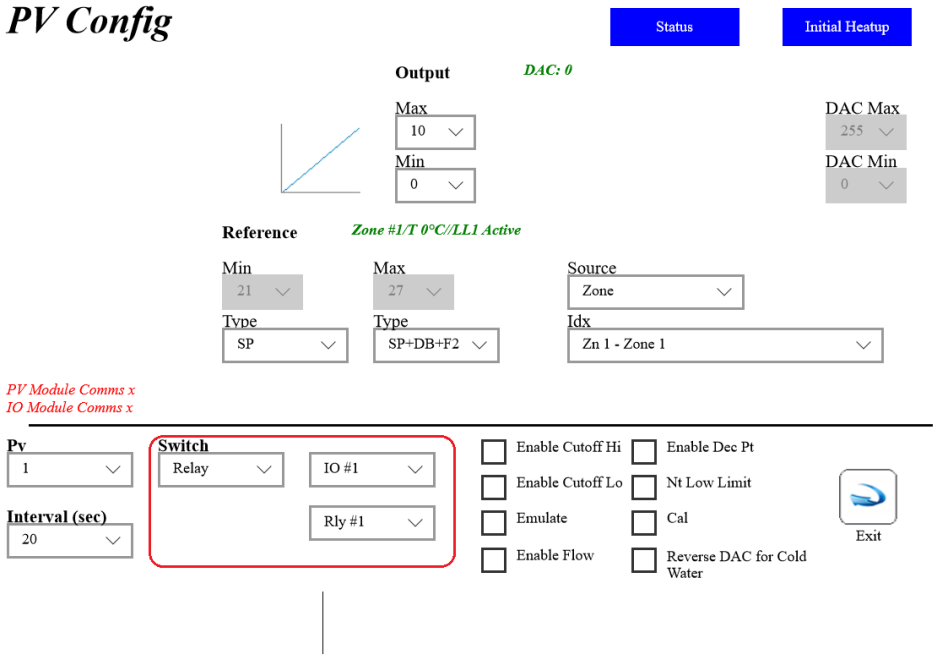
Using Differential Flag (`zDiff`)

An algorithm take a temperature input and compares it to a derived reference in order to set the zone Differential flag. This flag can used to set a Relay output which in turn can be used as the "switch" in the 0-10v proportional valve control.

Relay output Using zDiff flag



Switch in 0-10v proportional Valve output using Relay output Using zDiff flag



Switch from primary to secondary PV algorithm when Relay #1 on I/O Logic box #1 is active.
This relay output is driven from the zDiff flag