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CC200 ZONE DIFFERENTIAL (CC200-SM-DIFF)

(REV 20.1.6+)

CRIOSU CONTROLS



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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

Module Configuration

 Relay Config (CC200-SM-RC) Relay Config Ext (CC200-SM-RCE) Relay Timers & Cycling (CC200-SM-RTC) Cooling (CC200-SM-CL) PV (CC200-SM-PV) PV Adv (CC200-SM-PV_ADV) VRF (CC200-SM-VRF) Modbus Slave (CC200-SM-MBS) Alarms (CC200-SM-ALM) Digital Input Functions (CC200-SM-IF) Zone Differential (CC200-SM-DIFF) DHW Priority (CC200-SM-DHW-P) Relative Humidity (CC200-SM-RH-DP)

Configuration Code: 139604124101216957290073


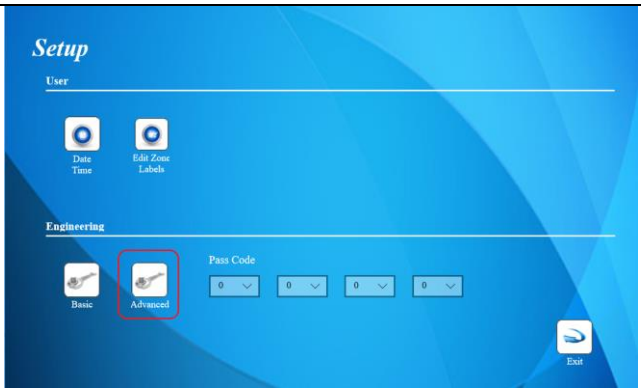
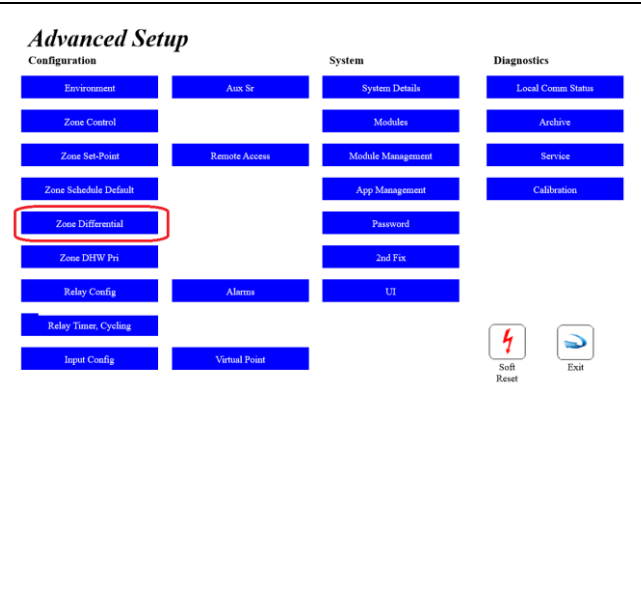


Help



Exit

Access Zone Differential Configuration

<p>Step 1.</p>	<p>Press “Setup” on the Home Screen</p>	 <p>The Home Screen displays system status and navigation options. The 'Setup' icon, located in the bottom left area below 'Vacation' and 'System', is highlighted with a red box. Other visible elements include 'Status' (Mode: Schedule, Schedule: Summer), 'Master' (Mode, Season), 'Alarms' (None), 'Zone' (Set-Point), and a date/time display for 15 January 2018 at 11:40:08 AM.</p>
<p>Step 2.</p>	<p>Press “Advanced” on the Setup Screen</p>	 <p>The Setup screen is divided into 'User' and 'Engineering' sections. Under the 'Engineering' section, the 'Advanced' option is highlighted with a red box. Other options include 'Date Time', 'Edit Zone Labels', and 'Basic'. A 'Pass Code' field with four input boxes is also visible.</p>
<p>Step3</p>	<p>Press “Zone Differential” in the Advanced Setup Screen</p>	 <p>The Advanced Setup screen is organized into three columns: Configuration, System, and Diagnostics. The 'Zone Differential' option in the Configuration column is highlighted with a red box. Other options include Environment, Zone Control, Zone Set-Point, Zone Schedule Default, Zone DHW Ppt, Relay Config, Relay Times, Cycling, Input Config, Aux Sr, Remote Access, Alarms, and Virtual Point. The System column includes System Details, Modules, Module Management, App Management, Password, and 2nd Fix. The Diagnostics column includes Local Comm Status, Archive, Service, and Calibration. 'Soft Reset' and 'Exit' buttons are located at the bottom right.</p>

Zone Differential Screen

Zone Differential


Zn	Label	Source	Idx	Port	High	Low	Algorithm
1	Zone 1	Zone	Zn15	Ch1	7	2	Algor_1
2	Zone 2	AuxSensor	Sr9	Ch1	0	0	Algor_1
3	Zone 3	IO	IO1	P1	0	0	Algor_1
4	Zone 4	None					
5	Zone 5	None					
6	Zone 6	None					
7	Zone 7	None					
8	Zone 8	None					

1-8

9-16

17-24

25-32



Exit

Select Zone Block

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

Zone Differential

Zn	Label	Source	Idx	Port	High	Low	Algorithm
1	Zone 1	Zone	Zn15	Ch1	7	2	Algor_1
2	Zone 2	AuxSensor	Sr9	Ch1	0	0	Algor_1
3	Zone 3	IO	IO1	P1	0	0	Algor_1
4	Zone 4	None					
5	Zone 5	None					
6	Zone 6	None					
7	Zone 7	None					
8	Zone 8	None					

1-8 9-16 17-24 25-32  Exit

Select Zone Block

T_Diff
 Zone Zone 1-32, Channel 1 or Channel 2
 Sensor Sensor 1-9, Channel 1 or Channel 2
 IO Module 1-8, Probe input 1-18

HysHi
HysLo

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

Zone Differential flag for zone #3

Relay Configuration

Activate_1_8 Activate_9_13 Enable Override

1	zHt	zDiff	Unused	Unused	Unused	Unused	Unused	Unused
1		3						
2	zHt	Unused	Unused	Unused	Unused	Unused	Unused	Unused
2								
3	zHt	Unused	Unused	Unused	Unused	Unused	Unused	Unused
3								
4	zHt	Unused	Unused	Unused	Unused	Unused	Unused	Unused
4								

I/O #1 x I/O #2 x I/O #3 ✓ I/O #4 ✓ 1-4 5-8 Basic and Advanced Exit

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

PV Config

Status Initial Heatup

Output DAC: 0

Max DAC Max
 Min DAC Min

Reference Zone #1/T 0°C/LLI Active

Min Max Source
 Type Type Idx

PV Module Comms x
IO Module Comms x

Pv **Switch**
Interval (sec)

Enable Cutoff Hi Enable Dec Pt
 Enable Cutoff Lo Nt Low Limit
 Emulate Cal
 Enable Flow Reverse DAC for Cold Water

Exit

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