MANUAL
CPS-2C

Varifan®

2 AIR INLETS / CURTAINS
temperature / static pressure

1   2
OPEN CLOSE MAN   OPEN CLOSE MAN

73.3

1   2
PRB   PRB

DIFF / MAN   DIFF / MAN
DELAY   DELAY
OPEN   OPEN
DELAY   DELAY
CLOSE   CLOSE
HI REC   HI REC
ALM HI   ALM HI
ALM LO / #   ALM LO
LO REC   LO REC

12 1 2 3 4 5 6 7 8 9 10 11

− +

F2

SET CLR
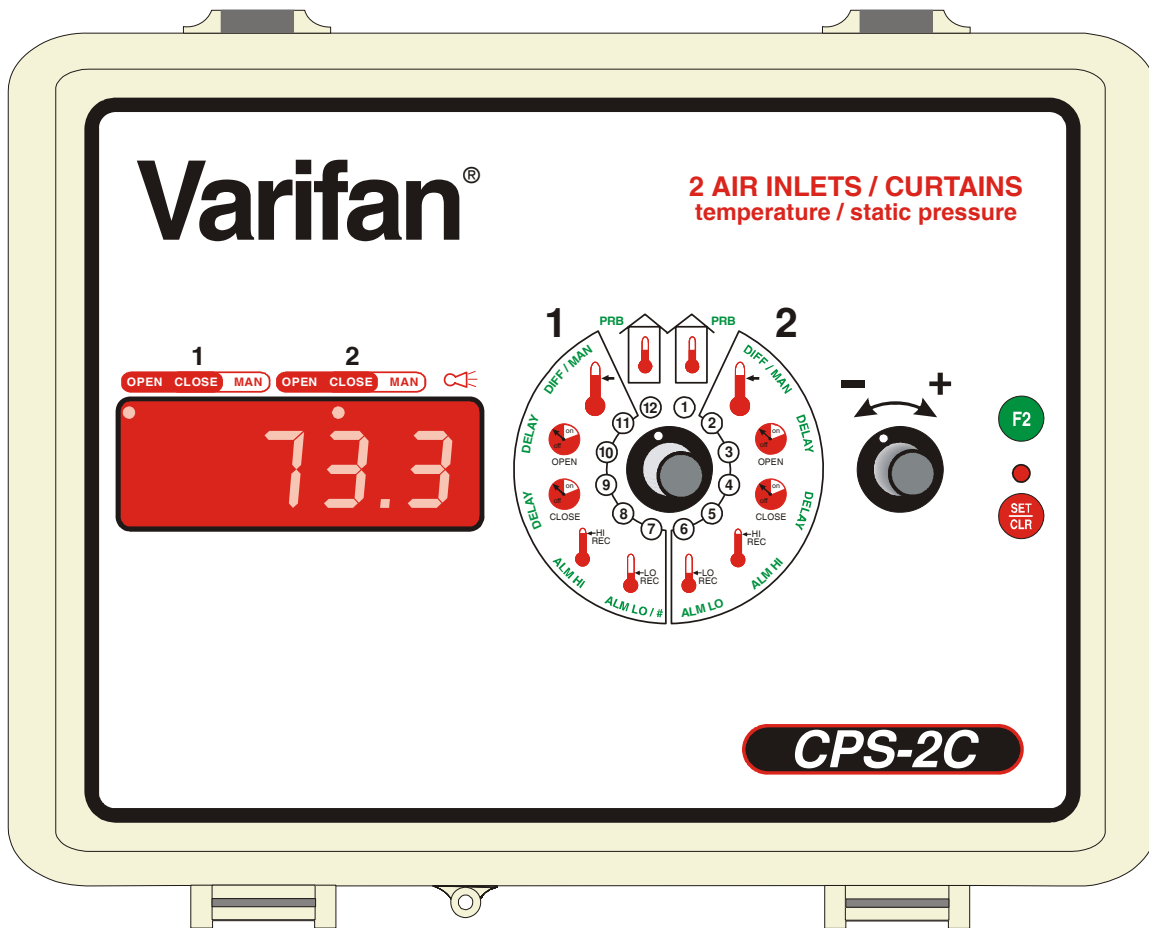
CPS-2C

Installation / User's Guide

ATTENTION ELECTRICIAN
SEE WIRE DETAILS ON PAGES A-3 TO A-6 AND
ADDITIONAL INFORMATION IN SECTION B

SECTION A

WARNINGS AND PRECAUTIONS

Although the manufacturer has made every effort to ensure the accuracy of the information contained herein, this document is subject to change without notice due to ongoing product development.

WARNINGS AND PRECAUTIONS

Equipment, probe failure, blown fuses and/or tripped breakers may prove harmful to the contents of the building. Therefore it is strongly recommended to install backup devices and alarm or warning devices. Spare equipment should also be available at the owner's site. Equipment manufactured by the manufacturer is protected against normal line surges. High surges caused by thunderstorms or power supply equipment may damage this equipment. For added security against line voltage surges it is recommended that surge and noise suppression devices be installed at the electrical distribution panel. Use of shielded cable for probes is recommended for protection against lightning. These devices are available from most electrical supply distributors.
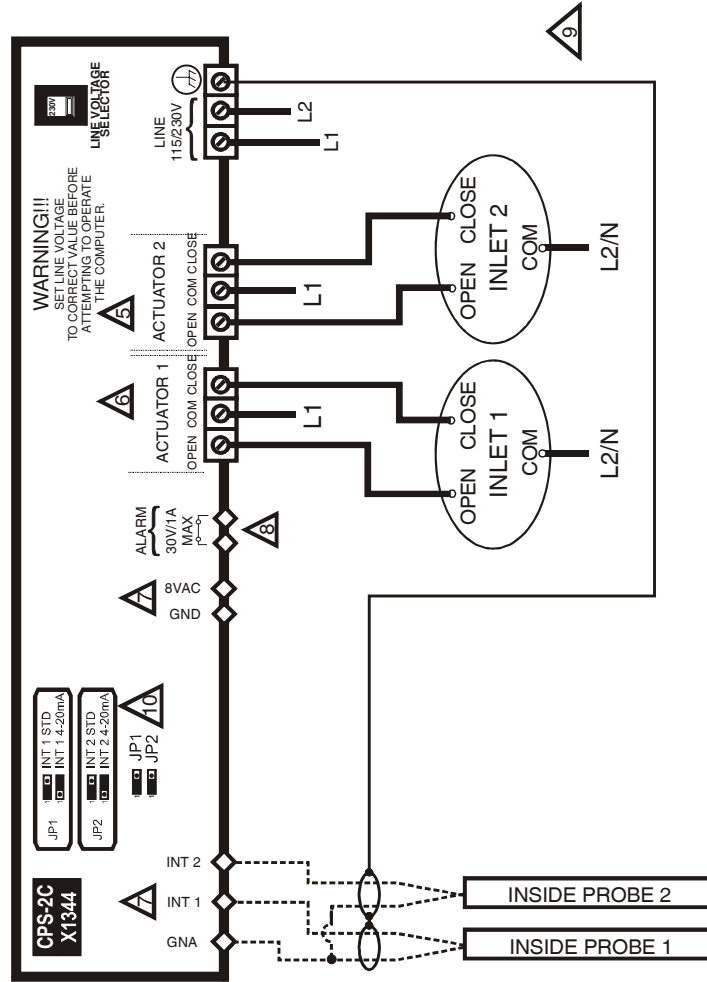
RECOMMENDATIONS

The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends testing all the functions and equipment connected to the CPS-2C, including the alarm system and backup devices, after installation, after changes to the installation and every month after that.

Fuse verification and replacement, as well as the proper setting of control values shall be the responsibility of the owner of this equipment.

WIRING DIAGRAM CPS-2C SECTION A
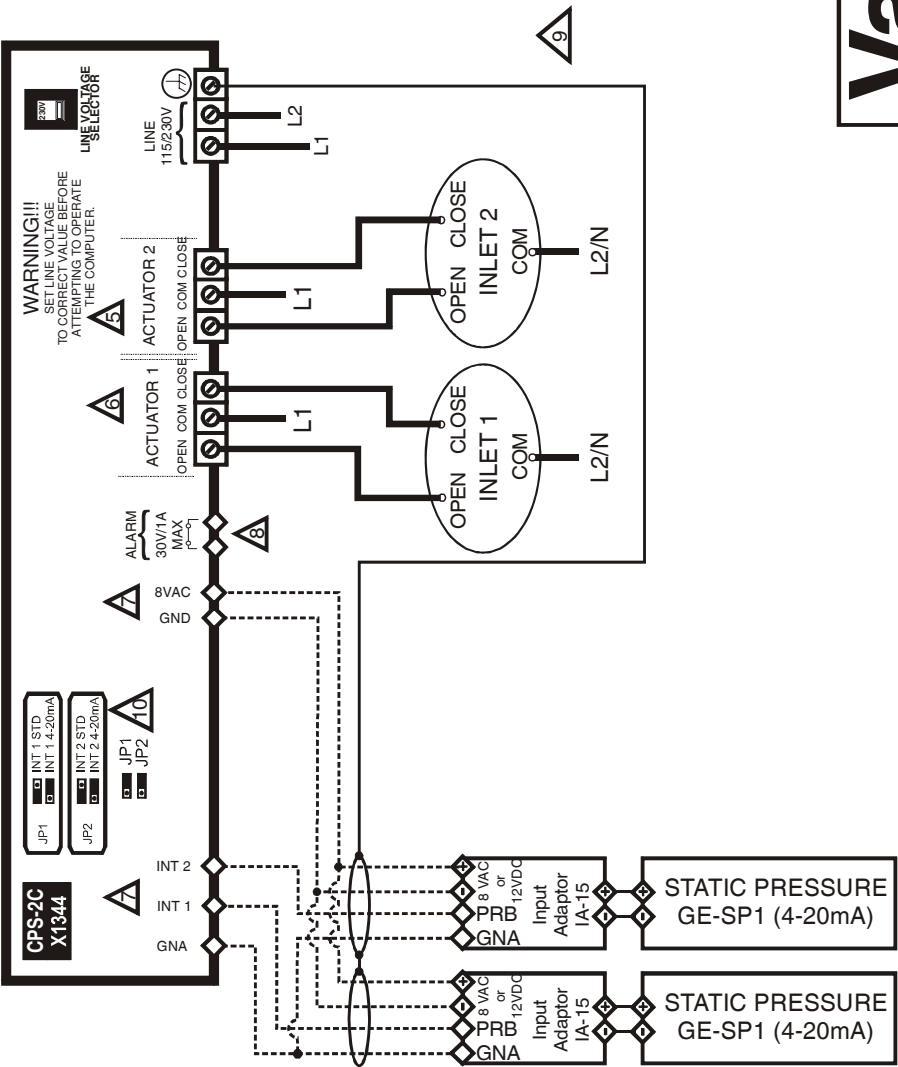
SECTION A

WIRING DIAGRAM CPS-2C TEMPERATURE MODE

CPS-2C
X1344

JP1 — INT 1 STD / INT 1 4-20mA
JP2 — INT 2 STD / INT 2 4-20mA
JP1 / JP2 — △10

△4 INT 2
INT 1
GNA

INSIDE PROBE 2
INSIDE PROBE 1

ALARM 30V/1A MAX — △8
8VAC △7
GND

△6 ACTUATOR 1
OPEN COM CLOSE
L1

△5 ACTUATOR 2
OPEN COM CLOSE
L1

WARNING!!!
SET LINE VOLTAGE TO CORRECT VALUE BEFORE ATTEMPTING TO OPERATE THE COMPUTER.

230V
LINE VOLTAGE SELECTOR

LINE 115/230V
L2
L1

OPEN CLOSE
INLET 2
COM
L2/N

OPEN CLOSE
INLET 1
COM
L2/N

△9

SEE NOTES ON PAGE 6

Varifan ®
WIRING DIAGRAM
18/11/11 | CPS-2C | WIR | REV 0

WIRING DIAGRAM CPS-2C STATIC PRESSURE MODE

CPS-2C
X1344

JP1 INT 1 STD / INT 1 4-20mA
JP2 INT 2 STD / INT 2 4-20mA
JP1
JP2

INT 2
INT 1
GNA

8VAC
GND

ALARM 30V/1A MAX

ACTUATOR 1   OPEN COM CLOSE
ACTUATOR 2   OPEN COM CLOSE

L1

LINE VOLTAGE SELECTOR
230V

WARNING!!!
SET LINE VOLTAGE TO CORRECT VALUE BEFORE ATTEMPTING TO OPERATE THE COMPUTER.

LINE 115/230V
L2
L1

OPEN CLOSE
INLET 2
COM
L2/N

OPEN CLOSE
INLET 1
COM
L2/N

8 VAC or 12VDC
PRB
GNA
Input Adaptor IA-15
STATIC PRESSURE GE-SP1 (4-20mA)

8 VAC or 12VDC
PRB
GNA
Input Adaptor IA-15
STATIC PRESSURE GE-SP1 (4-20mA)

SEE NOTES ON PAGE 6

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WIRING DIAGRAM
CPS-2C
WIR
REV 0
18/11/11

SECTION A

CPS-2C

Electrician's notes

1 ------------- (PROBE WIRING) SHIELDED WIRE AWG #22 WITH 16/30 STRANDING, 500ft (150m) MAXIMUM LENGTH (Ex.: DECA 73-310).
For other probe, refer to specific probe manual for appropriate maximum length and wire size or use AWG #22, 500ft (150m) MAXIMUM LENGTH.

2 ——————— (COMMUNICATION WIRING) SHIELDED LOW CAPACITANCE WIRE, (Capacitance between conductors @ 1Khz = 24pF/ft), TWISTED PAIR (8 twist/ft), AWG #22, 820ft (250m) MAX LENGTH (Ex.: BELDEN 8761).

3 ▬▬▬▬▬▬ HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.

4 INSTALL LOW VOLTAGE WIRES (PROBES OR COMPUTER LINK) AT LEAST 12in. (30cm) AWAY FROM HIGH VOLTAGE WIRES (120/230VAC, 24VDC). ALWAYS CROSS HIGH AND LOW VOLTAGE WIRES AT A 90-DEGREE ANGLE.

△5 RELAYS: 10A @ 240VAC RESISTIVE, MOTOR 1HP @ 240VAC, 1/2HP @ 120VAC AT EACH OUTPUT.

△6 MAXIMUM 2 WIRES OF SAME SIZE PER BLACK TERMINAL, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #22.

△7 1 WIRE ONLY PER GREEN TERMINAL. USE WIRE CONNECTOR IF YOU WANT TO CONNECT MORE THAN 1 WIRE, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #28.

△8 CHECK INSTALLATION GUIDE FOR ALARM WIRING.

△9 USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT THE SHIELD TO GROUND PLATE⊕. NEVER LEAVE THE SHIELD UNCONNECTED AT BOTH ENDS. NEVER CONNECT BOTH ENDS OF THE SHIELD TO GROUND PLATE⊕. THE USE OF A SHIELD FOR ALL PROBES IS **MANDATORY**.

△10 FOR THE TEMPERATURE MODE, THE JUMPERS MUST BE SET TO STD (STANDARD). FOR STATIC PRESSURE MODE, THE JUMPERS MUST BE SET TO 4-20MA.

INSTALLATION CPS-2C SECTION B

CPS-2C INSTALLATION

This section will inform the electrician on proper wiring and installation procedures for the CPS-2C.

The manufacturer recommends that the following installation instructions to be followed as closely as possible, and that all work be performed by a certified electrician. Failure to do so may void the warranty.

Unpacking

Unpack the CPS-2C and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor to return the equipment.

The package should contain the following standard items:
1 CPS-2C Control
4 Brackets / 4 Screws
2 2004-10K Temperature Probe
1 Installation / User's Guide

Mounting Hardware Required

This is the list of the mounting hardware needed, which is not included with the product:

Shielded two-wire cable, AWG #22 (to extend probes)
Shielded two-wire twisted pair cable, AWG #22 (used for communication) see electrician note for capacitance selection.
4 screws (to hang the unit onto the wall)
Screwdrivers
Soldering iron kit or approved sealed connectors.
Drill and hole saw kit

General installation guidelines

CPS-2C Control

- It is recommended to install the unit in a hallway to limit the CPS-2C exposure to noxious gases.
- In order to avoid condensation problems inside the controller, it is recommended to install the CPS-2C on an inside wall. If it is not possible, use spacers to have an air gap between the wall and the CPS-2C.
- It is required to install the CPS-2C side up with the cable entry holes facing down.
- The enclosure is watertight, but do not spray water or immerse the CPS-2C in water. Cover it carefully with plastic when cleaning the room.
- The CPS-2C should be installed in easy access location but away from damaging elements (heat, cold, water, direct sunlight, …).
- Do not drill the face, the side, the top or the rear of the control.
- Do not install the CPS-2C control near high voltage equipment, power supply or transformer.

Electrical Cables

- All electrical cables must be installed according to local wiring codes.
- All cable shields must be connected to the CPS-2C power ground only, except for the cable connected to the optional PC interface. The shield is needed to protect the CPS-2C and the modules against any electromagnetic interference generated by lightning or nearby operating machinery.
- Never use the shield as a conductor.
- Connect only one end of the shield to the ground of the CPS-2C.
- Use separate conduit for the low voltage cables (communication and probes) and the high voltage cables. There must be at least 1 foot (30 cm) between low voltage and high voltage conduits.
- If a low-voltage cable has to cross over a high voltage cable, make this crossing at 90°.
- All cable connections must be soldered or done with approved sealed connectors.
- Probe cables must be 500' (150m) or less.
- Communication cables must be 820' (250m) or less.
- It is prohibited to use overhead cables outside the building.
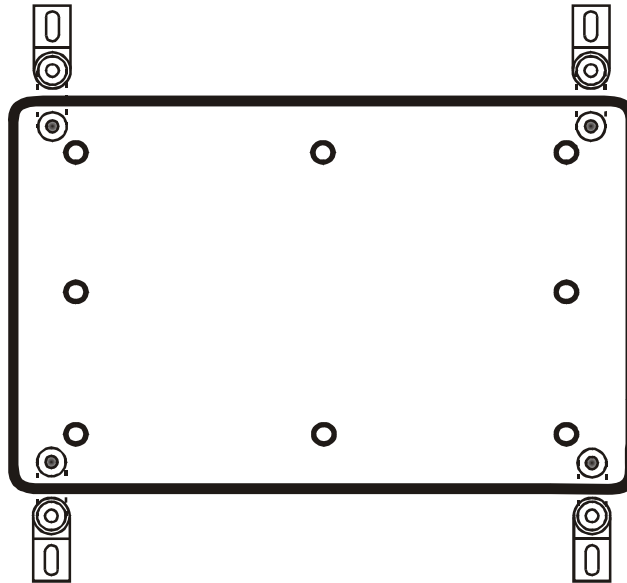
SECTION B

Electrical Power

- Protection from electrical surge should be included in the planning of each installation.
- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 4).
- The backup system and alarm must be thoroughly tested and verified as working properly before using the ventilation system.

Mounting

- The enclosure must be mounted in a location that will allow the cover to be completely opened right up against the wall.
- Fasten the four brackets to the four mounting holes on the back of the enclosure, using the four screws provided with the brackets.
- Then mount the enclosure on the wall by inserting screws through the brackets' adjustment slots, into the wall. Make sure to position the enclosure so that all wires extend out of the bottom section of the enclosure.
- The bracket slots also serve to adjust the position of the controller.
- Once you have adjusted the controller position, tighten the four mounting screws.

FIGURE NO. 1 Mounting Position and Devices

Connection Procedure

Detailed Wiring Diagrams

<u>Typical Sensor Wiring for Probes</u>
The inside temperature sensor should be located in the area which gives the most accurate temperature reading to achieve optimum ventilation. The sensor should also be connected to the CPS-2C with a shielded two-wire cable. It should be located in an area protected from operating machinery, animal bites, personnel or anything that could damage the sensor. See also "General installation guidelines".

FIGURE NO. 2 Typical Temperature Probe Wiring
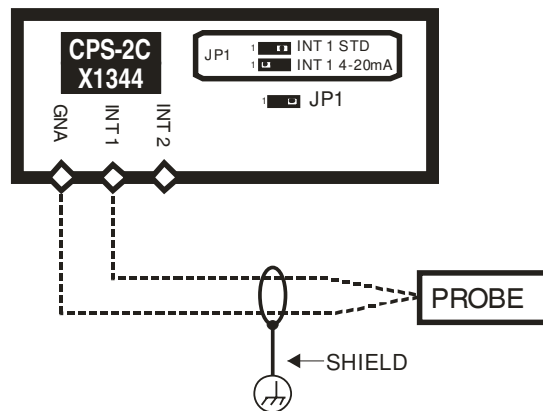
Note: Jumper must be set to STD mode in order to use the temperature mode.

FIGURE NO. 3 Typical Static Pressure Probe Wiring
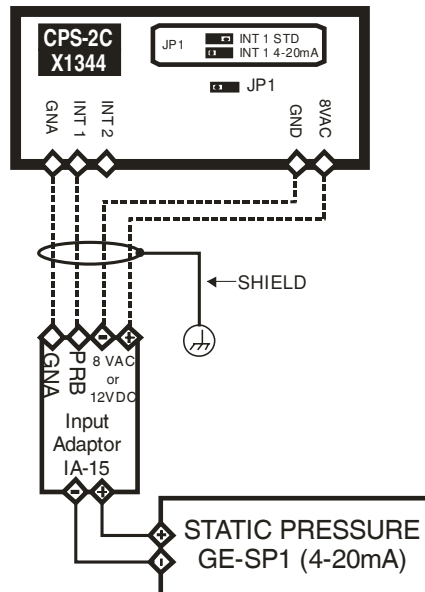
Note: Jumper must be set to 4-20mA mode in order to use the static pressure mode.

SECTION B

CPS-2C INSTALLATION

Typical Power Backup Wiring
A backup relay (DPDT) connects to the power source 1 in normal operation but will switch to the power source 2 if source 1 is disabled. The backup relay should be selected to ensure it is able to support the required power load.

FIGURE NO. 4 Typical Power Backup Wiring

8 PIN RELAY DPDT
(OMRON model MK2EP-UA-AC120)
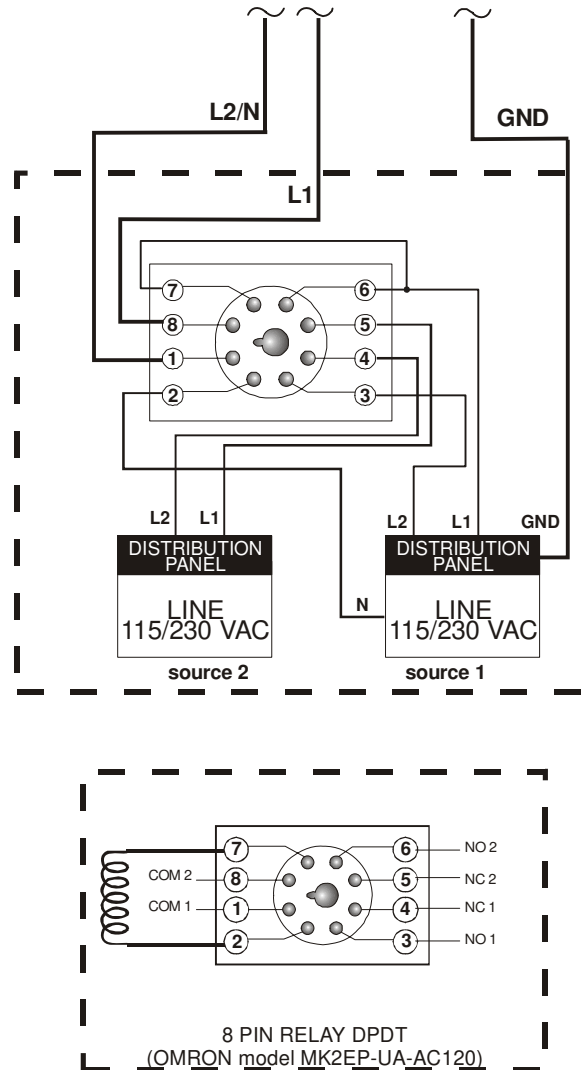
Typical Alarm Connection Wiring
The CPS-2C provides a normally closed dry contact to set off an alarm in case low or high temperature condition occurs. Moreover, this same contact can be used to signal a power failure or other malfunctions. It may be connected to an alarm system or directly to a siren and /or auto-dialer.

The relay will activate 6-8 seconds after an alarm is triggered.

FIGURE NO. 5 Typical Alarm Connection Wiring
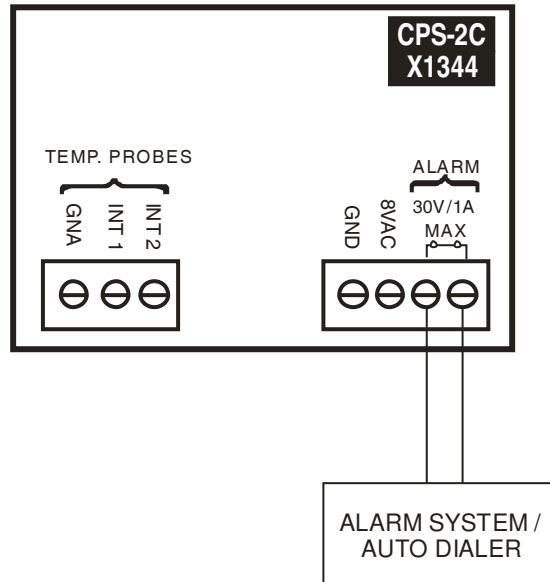
SECTION B

Powering Up Procedure

Once the CPS-2C is properly mounted on the wall and all modules and sensors connected to the terminal block, perform the following step:

Verify all Connections

Seal all cable entry holes.

Hermetically Close the CPS-2C

Close the front panel and the lower access cover.

Put the power on

Secure the front panel with a lock

SECTION B

Downloading the Configuration

When upgrading your system with a new configuration, you will have to download the configuration.

There are two ways to download a configuration in the CPS-2C controller.

1) Downloading by powering down.
   A. Ensure the power source of the CPS-2C is OFF (flip the circuit breaker on the distribution panel).
   B. Remove the faceplate screws and lift up the cover.
   C. Insert the configuration chip (MMX) into the socket of the main board.
   D. Switch on the power source. The display on the front panel should indicate $dnLd$ for approximately 15 seconds. If $dnLd$ is not displayed, try one more time. If $dnLd$ is still not displayed, remove and replace the configuration chip (MMX).
   E. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the CPS-2C starts up and executes the configuration.

2) Downloading while the CPS-2C is powered up.
   A. Remove the faceplate screws and lift up the cover.
   B. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
   C. Adjust the **MMX Detected** parameter to $dnLd$ and press the SET/CLR button. The display on the front panel should indicate $dnLd$ for approximately 15 seconds. If $dnLd$ is not displayed, try one more time. If $dnLd$ is still not displayed, remove and replace the configuration chip (MMX).
   D. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the CPS-2C starts up and executes the configuration.

     WARNING: During this procedure, some components are live and can be dangerous if touched.

SECTION B

SECTION B

Uploading the Configuration

It is possible to upload a configuration into a configuration chip (MMX) in order to save parameters and setup or to backup the configuration.

Here's the procedure to upload a configuration.

    A. Make sure that the CPS-2C powered up.

    B. Remove the faceplate screws and lift up the cover.

    C. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.

    D. Adjust the **MMX Detected** parameter to ⌐UPLd⌐ and press the SET/CLR button. The display on the front panel should indicate ⌐UPLd⌐ for approximately 15 seconds. If ⌐UPLd⌐ is not displayed, try one more time. If ⌐UPLd⌐ is still not displayed, remove and replace the configuration chip (MMX).

    E. When the uploading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the CPS-2C will continue to execute the configuration.

      WARNING: During this procedure, some components are live and can be dangerous if touched.

CPS-2C Compatible Probes

This is the list of all compatible probes that can be connected with CPS-2C control with a short description of their function.

- **Temperature probe 2004-10K (black cap)**

Temperature probe with a temperature range of -58 to 140°F (-50 to 60°C).

- **Static Pressure probe GE-SP1**

Static pressure probe with a measuring range of -0.500"H_2O to 0.500"H_2O.

CPS-2C Compatible Modules

This is the list of all compatible modules that can be connected with CPS-2C control with a short description of their function.

Computer interface
- **NET-IN2 Communication Module** (Module inserted into the controller to communicate with the computer interface)
- **RF-IN Communication Module** (Module inserted into the controller for a wireless communication with the computer interface)

SECTION B

SECTION B

Specifications

|	
Storage temperature	-4°F to 131°F (-20°C to 55°C)
Operating temperature	32°F to 113°F (0°C to 45°C)
Humidity	90% maximum Non-condensing
Weight	2.4 lb (1.1 kg)
Size	8 1/2" x 7" x 4 3/4" (22.6 cm x 17.7 cm x 11.5 cm)
Protection index	IP 66
Warranty	2 years
POWER SUPPLY	
Operational voltage range (SW1 @ 115V)	92 to 125VAC
Operational voltage range (SW1 @ 230V)	184 to 250VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	6 VA
SOURCE 8 VAC	
Voltage range	6.5 to 13VAC
Maximum current allowed	50mA
PROBE INPUTS	
Temperature probe	2004-10K
Static Pressure probe	GE-SP1
Maximum wire length	500 feet (150 m)
Recommended wires	2 conductors, stranded, shielded, AWG #22
ALARM RELAY	
Maximum current	1 A at 30VDC
Delay before activation	Between 6 and 8 seconds
OUTPUT RELAYS	
Maximum Current	1HP @ 240VAC, 1/2HP @ 120VAC, 10A@240VAC
Caution Notice	These relays are rated by UL and CSA at 1HP @ 240VAC, 1/2HP @ 120VAC. However, for outputs requiring frequent activation (ex: inlet working on a timer) it is recommended not to use more than 1/2HP @ 240VAC, 1/4HP @ 120VAC per relay.

Important Notice:
- It is important to have a backup system in case of a system failure.
- Low-voltage and high-voltage wire must be passed through different conducts at least 1 foot (30 cm) apart. If low-voltage and high-voltage conduits must be crossed, the crossing must be at a 90-degree angle.
- All wiring must be made by a certified electrician and conform to local electrical regulations.

Troubleshooting

SYMPTOM	CAUSE	REMEDY
Temperature probe reads *LO*	Temperature is below -58°F (-50°C). Probe is disconnected or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Temperature probe reads *HI*	Temperature is above 140°F (60°C). Probe is short circuited or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Displays are blank	CPS-2C is not powered. Flat cable between the main and top boards of the CPS-2C is disconnected.	Make sure the control is powered. Make sure the fuse is correct. Make sure the flat cable is connected.

SECTION B

SECTION C

USER'S GUIDE
CPS-2C
SECTION C

Control Description

SECTION C
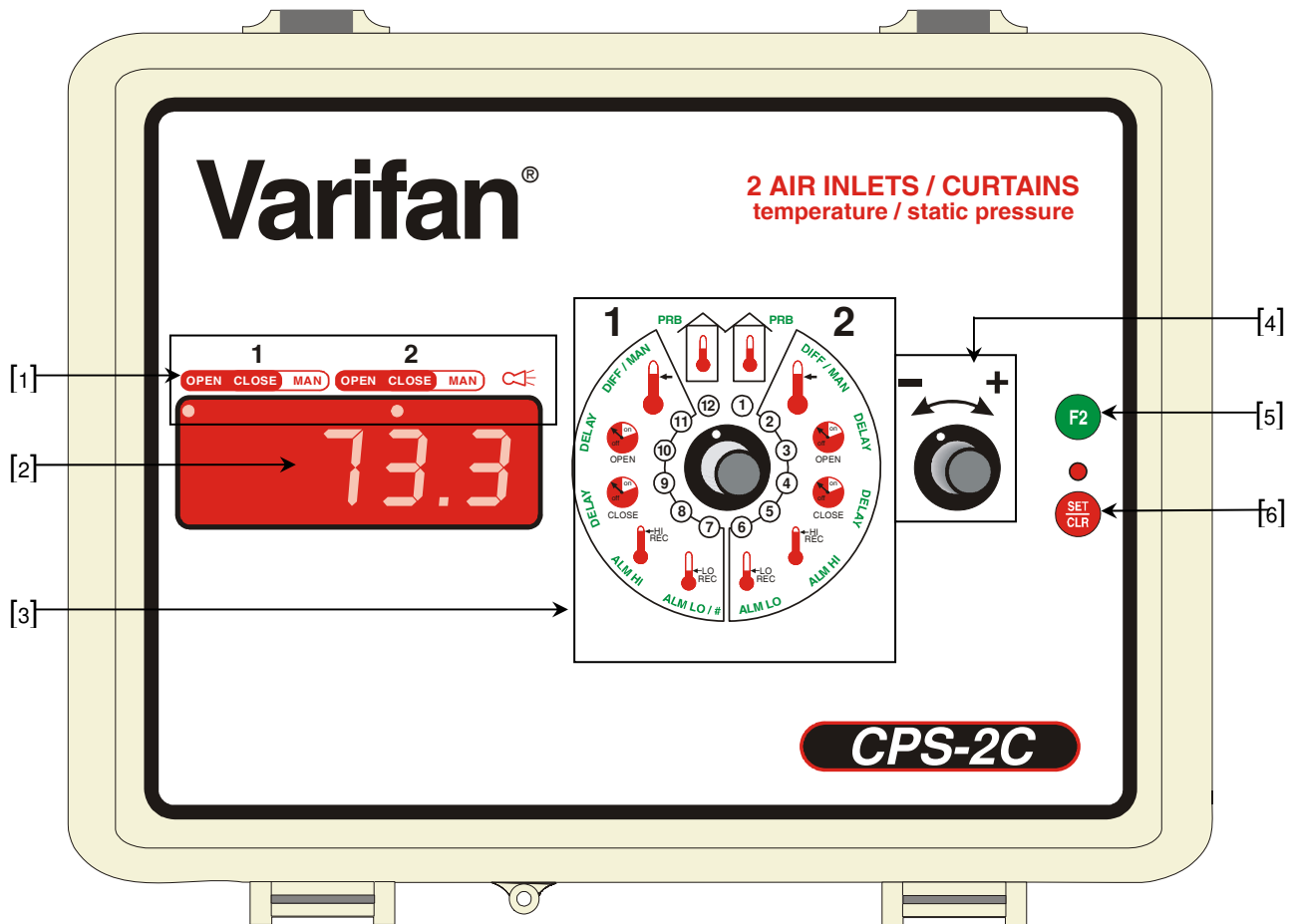
1. Output LED
Those LED indicate the status of an output. A LED comes ON whenever the respective output is active. You can also check if a inlet/curtain is in manual mode.

2. LED Status Windows
The LED status window features a 5 digit LED readout display of temperature in Fahrenheit or Celsius, or other programmable settings. After a setting is selected, its value appears on the LED display. If the value is flashing, it can be changed with the value setting buttons (⊟ and ⊞).

3. Parameter Dial
This button is used to select parameters or parameter groups.

4. Value Setting Button
This button is used to increase or decrease the value on the LED window. Turn it clockwise to increase the value. Turn it counter clockwise to decrease the value.

5. F2 Button
This button is used to access to secondary function of a parameter group (appears in green around the parameter dial).

6. SET/CLR Button
This button is used to acknowledge a function, set a value (clock) or to clear values (min/max).

SECTION C

Input/Output Table

Inputs	Qty	Outputs	Qty
Inside Temperature	0 or 2	Inlets	2
Static Pressure	0 or 2	Alarm	1

Equipment

Item	Description	Qty
CPS-2C	2 Air Inlets/Curtains	1
2004-10k	Temperature Sensor - Black (-58°F to 140°F) (-50°C to 60°C)	0 or 2
GE-SP1	Static Pressure Sensor – (-0.500''H_2O to 0.500''H_2O)	0 or 2

Configuration Versions

Version	Date	Min. Proc Version	Modification
V0	05/05/2010	3	New.
V1	11/29/2010	3	Corrections made to probe mode logic.
V2	11/15/2011	5	Wireless communication support added.

SECTION C

Ventilation system overview

The CPS-2C uses 2 probes, which can be set to temperature mode, static pressure mode or sensitive static pressure mode. The 2 probes are use to operate 1 inlet each.

When a temperature probe is defective (short-circuited or unplugged), the CPS-2C controller the alarm will sound. An alarm check will be made to check for high/low temperature/static pressure.

SECTION C

Normal Mode Settings

🌡	**Probe 2 (POS 1)**

Probe 2 Readout

This parameter displays the actual probe 2 temperature/static pressure. This parameter may display $\boxed{Err}$ if probe 2 is defective or unplugged. **Probe 2 Readout** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500''H_2O to 0.500''H_2O to the nearest 0.001''H_2O.

🌡	**Main Set Point 2 (POS 2)**

Main Set Point 2

This parameter is the temperature/static pressure goal for inlet 2 and the reference for all settings relative to inlet 2. The **Main Set Point 2** is adjusted in 0.1° increments from -40.0°F to 100.0°F (-40.0°C to 37.8°C) or from 0.000''H_2O to 0.500''H_2O by 0.001''H_2O increments.

Differential 2 $\boxed{di FF}$

This parameter is used to establish the temperature/static pressure below which inlet 2 will close. When **Probe 2 Readout** is below **Main Set Point 2** – **Differential 2**, inlet 2 will close according to its timer. When **Probe 2 Readout** is above **Main Set Point 2** – **Differential 2** and below **Main Set Point 2**, inlet 2 will not move. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C) or from 0.000''H_2O to 0.050''H_2O by 0.001''H_2O increments.

Inlet 2 Manual Operation

This parameter is used to override the controller's calculated demands and move the inlet in a given direction. If this parameter is set to $\boxed{AUtO}$ (Auto), the inlet will follow the demand the controller has calculated according to temperature readings. If this parameter is set to $\boxed{HOLd}$ (Hold), the inlet will not move. If this parameter is set to $\boxed{OPEn}$ (Open), the inlet will open continuously. If this parameter is set to $\boxed{CLOSE}$ (Close), the inlet will close continuously.

SECTION C

Open Time 2 (POS 3)

Open Time 2

This parameter is used to establish the duration of the run time for inlet 2 when it receives an opening demand. When **Probe 2 Readout** is above **Main Set Point 2**, inlet 2 will wait for **Open Delay 2** before opening for **Open Time 2**. This parameter is adjusted in 1-second increments from 1 to 120 seconds.

Open Delay 2 `OFF d`

This parameter is used to establish the duration of the idle time for inlet 2 when it receives an opening demand. When **Probe 2 Readout** is above **Main Set Point 2**, inlet 2 will wait for **Open Delay 2** before opening for **Open Time 2**. This parameter is adjusted in 1-second increments from 5 to 600 seconds.

Close Time 2 (POS 4)

Close Time 2

This parameter is used to establish the duration of the run time for inlet 2 when it receives a closing demand. When **Probe 2 Readout** is below **Main Set Point 2** – **Differential 2**, inlet 2 will wait for **Close Delay 2** before closing for **Close Time 2**. This parameter is adjusted in 1-second increments from 1 to 120 seconds.

Close Delay 2 `OFF d`

This parameter is used to establish the duration of the idle time for inlet 2 when it receives a closing demand. When **Probe 2 Readout** is below **Main Set Point 2** – **Differential 2**, inlet 2 will wait for **Close Delay 2** before closing for **Close Time 2**. This parameter is adjusted in 1-second increments from 5 to 600 seconds.

Probe 2 Max (POS 5)

Probe 2 Maximum

This parameter displays the highest value reached by **Probe 2** since the CPS-2C was powered up or since this parameter was last cleared. To reset this value to the actual **Probe 2 Readout**, press the SET/CLR button. The **Probe 2 Maximum** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500"H_2O to 0.500"H_2O to the nearest 0.001"H_2O.

SECTION C

High Alarm 2 $\boxed{Hi\ AL}$

This parameter is used to establish the relative temperature/static pressure at which a high alarm condition will occur. When **Probe Readout 2** is above the **Main Set Point** + **High Alarm 2**, a high alarm condition will occur. This parameter is adjusted in 0.1° increments from 0.5°F to 40.0°F (0.3°C to 22.2°C) or from 0.000"H_2O to 0.500"H_2O in 0.001"H_2O increments.

	Probe 2 Min (POS 6)

Probe 2 Minimum

This parameter displays the lowest value reached by **Probe 2** since the CPS-2C was powered up or since this parameter was last cleared. To reset this value to the actual **Probe 2 Readout**, press the $\boxed{\text{SET/CLR}}$ button. The **Probe 2 Minimum** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500"H_2O to 0.500"H_2O to the nearest 0.001"H_2O.

Low Alarm 2 $\boxed{Lo\ AL}$

This parameter is used to establish the relative temperature/static pressure at which a low alarm condition will occur. When **Probe Readout 2** is below the **Main Set Point** + **Low Alarm 2**, a low alarm condition will occur. This parameter is adjusted in 0.1° increments from -40.0°F to -0.5°F (-22.2°C to -0.3°C) or from -0.500"H_2O to 0.000"H_2O in 0.001"H_2O increments.

	Probe 1 Min (POS 7)

Probe 1 Minimum

This parameter displays the lowest value reached by **Probe 1** since the CPS-2C was powered up or since this parameter was last cleared. To reset this value to the actual **Probe 1 Readout**, press the $\boxed{\text{SET/CLR}}$ button. The **Probe 1 Minimum** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500"H_2O to 0.500"H_2O to the nearest 0.001"H_2O to the nearest 0.001"H_2O.

Low Alarm 1 $\boxed{Lo\ AL}$

This parameter is used to establish the relative temperature/static pressure at which a low alarm condition will occur. When **Probe Readout 1** is below the **Main Set Point** + **Low Alarm 1**, a low alarm condition will occur. This parameter is adjusted in 0.1° increments from -40.0°F to -0.5°F (-22.2°C to -0.3°C) or from -0.500"H_2O to 0.000"H_2O in 0.001"H_2O increments.

Alarm Code $\boxed{ACOdE}$

This setting displays the alarm condition. This parameter displays 0 when no errors have been detected. This indicates that the controller is operating properly. The alarm LED (☊) on the faceplate will be lit up if an alarm code is actually displayed. The alarm code refers to the following table.

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Alarm Code List:

Alarm Code	Description
1	Probe 1 Too Low
2	Probe 2 Too Low
3	Probe 1 Too High
4	Probe 2 Too High
5	Probe 1 Defective
6	Probe 2 Defective
101	The controller has reset 10 times and each reset was less than 15 minutes apart from the last one.
102	If this alarm code appears, contact your distributor
103	If this alarm code appears, contact your distributor

Probe 1 Max (POS 8)

Probe 1 Maximum

This parameter displays the highest value reached by **Probe 1** since the CPS-2C was powered up or since this parameter was last cleared. To reset this value to the actual **Probe 1 Readout**, press the $\boxed{\text{SET/CLR}}$ button. The **Probe 1 Maximum** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500''H_2O to 0.500''H_2O in 0.001''H_2O increments.

High Alarm 1 $\boxed{Hi \quad AL}$

This parameter is used to establish the relative temperature/static pressure at which a high alarm condition will occur. When **Probe Readout 1** is above the **Main Set Point** + **High Alarm 1**, a high alarm condition will occur. This parameter is adjusted in 0.1° increments from 0.5°F to 40.0°F (0.3°C to 22.2°C) or from 0.000''H_2O to 0.500''H_2O in 0.001''H_2O increments.

Close Time 1 (POS 9)

Close Time 1

This parameter is used to establish the duration of the run time for inlet 1 when it receives a closing demand. When **Probe 1 Readout** is below **Main Set Point 1** – **Differential 1**, inlet 1 will wait for **Close Delay 1** before closing for **Close Time 1**. This parameter is adjusted in 1-second increments from 1 to 120 seconds.

Close Delay 1 $\boxed{OFF \quad d}$

This parameter is used to establish the duration of the idle time for inlet 1 when it receives a closing demand. When **Probe 1 Readout** is below **Main Set Point 1** – **Differential 1**, inlet 1 will wait for **Close Delay 1** before closing for **Close Time 1**. This parameter is adjusted in 1-second increments from 5 to 600 seconds.

Open Time 1 (POS 10)

Open Time 1
This parameter is used to establish the duration of the run time for inlet 1 when it receives an opening demand. When **Probe 1 Readout** is above **Main Set Point 1**, inlet 1 will wait for **Open Delay 1** before opening for **Open Time 1**. This parameter is adjusted in 1-second increments from 1 to 120 seconds.

Open Delay 1 `OFF d`
This parameter is used to establish the duration of the idle time for inlet 1 when it receives an opening demand. When **Probe 1 Readout** is above **Main Set Point 1**, inlet 1 will wait for **Open Delay 1** before opening for **Open Time 1**. This parameter is adjusted in 1-second increments from 5 to 600 seconds.

Main Set Point 1 (POS 11)

Main Set Point 1
This parameter is the temperature/static pressure goal for inlet 1 and the reference for all settings relative to inlet 1. The **Main Set Point 1** is adjusted in 0.1° increments from -40.0°F to 100.0°F (-40.0°C to 37.8°C) or from 0.000''H_2O to 0.500''H_2O by 0.001''H_2O increments.

Differential 1 `di FF`
This parameter is used to establish the temperature/static pressure below which inlet 1 will close. When **Probe 1 Readout** is below **Main Set Point 1** – **Differential 1**, inlet 1 will close according to its timer. When **Probe 1 Readout** is above **Main Set Point 1** – **Differential 1** and below **Main Set Point 1**, inlet 1 will not move. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C) or from 0.000''H_2O to 0.050''H_2O by 0.001''H_2O increments.

Inlet 1 Manual Operation
This parameter is used to override the controller's calculated demands and move the inlet in a given direction. If this parameter is set to `AUtO` (Auto), the inlet will follow the demand the controller has calculated according to temperature readings. If this parameter is set to `HOLd` (Hold), the inlet will not move. If this parameter is set to `OPEn` (Open), the inlet will open continuously. If this parameter is set to `CLOSE` (Close), the inlet will close continuously.

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	Probe 1 (POS 12)

Probe 1 Readout

This parameter displays the actual probe 1 temperature/static pressure. This parameter may display Err if probe 1 is defective or unplugged. **Probe 1 Readout** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C) or from -0.500"H_2O to 0.500"H_2O to the nearest 0.001"H_2O.

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System Mode Settings

(POS 1)

Clock `Hour`

This parameter gives the time of day in the format chosen in **Clock Format**. To adjust the time of day, press the SET/CLR button. At this moment, the minutes will be adjustable. Press the F2 button to toggle between hour and minute adjustments. Press the SET/CLR button once again or change parameters with the parameter selection knob once the adjustments are finished.

Clock Format `Hr Fr`

This parameter is used to set the format in which the time of day will be displayed. Is this parameter is set to `24H`, the **Clock** parameter will be displayed in the 24-hour format. Is this parameter is set to `A-P`, the **Clock** parameter will be displayed in the AM/PM format.

(POS 2)

Growth Day `9 day`

This parameter is use to adjust the growth day of the ECS-3C controller. The **Growth Day** is used for the PC interface's history. The **Growth Day** is adjusted in 1-day increments from `OFF`, day -10 to day 365.

(POS 9)

Display Language `LAng`

This parameter is used to select the language used by the CPS-2C. Is this parameter is set to `Eng`, the configuration will use the English language. Is this parameter is set to `FrA`, the configuration will use the French language.

(POS 10)

RF Channel `rF cH`

This parameter is used to select one of the 16 frequencies of the WiFarm network or deactivates wireless communication mode. If this parameter is set to `OFF`, other wireless communication parameters will disappear. This parameter can be adjusted to `OFF`, 1 to 16.

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RF Network `rF nt`

This parameter is used to identify a WiFarm network. A WiFarm network is formed when the **RF Network** is set to the same value as the RF Address of the RF communication card of the controller designated to be the network master (ex. WebGate in most installations). Other controllers can join the existing network by adjusting RF Network to the RF Address of that same network. This parameter is adjusted digit-by-digit, allowing faster modification for very high numbers. Press the SET/CLR button so that the parameter's first digit blinks. Modify that digit using the adjustment knob. Press the F2 button to navigate through the different digits. Press the SET/CLR button once again to end parameter modification. This parameter can be adjusted to any value from 0 to 32767.

RF Address `rF Ad`

This parameter displays the number (address) associated to the RF card inserted in the controller. A unique number is given to each RF card of the WiFarm network. There is a unique RF Address associated to each RF card. The RF Address also appears on the sticker present on the RF card. The address can be any value from 0 to 32767.

Tech Param Display `tPdi S`

This parameter is reserved for the manufacturer's technical support personnel.

Tech Param Result `tPrES`

This parameter is reserved for the manufacturer's technical support personnel.

Unit ID `U I d`

This parameter is used to select the identification number that will be used when communicating with the remote access software. Each controller must have a unique PC identification number. This parameter may be adjusted to any value from 1 to 250.

(POS 11)

Configuration Version `COnF`

This parameter displays the version of the configuration actually used.

Processor Version `Proc`

This parameter displays the version of the processor actually used.

(POS 12)

System Parameters `SYStn`

This parameter indicates that the CPS-2C is in system parameter mode.

Parameter Table

Normal Mode Settings (Accessible when SW2 is set to OFF)			
	Parameters	**Default**	**Range**
(POS 1) PROBE 2	Probe 2 Readout	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H$_2$O to 0.500''H$_2$O
(POS 2) MAIN SET POINT 2	Main Set Point 2	67.0°F (19.4°C) **Or** 0.070''H$_2$O	-40.0 to 100.0°F (-40.0 to 37.8°C) **Or** 0.000''H$_2$O to 0.500''H$_2$O
	[F2] – $diFF$ – Differential 2	2.0°F (1.1°C) **Or** 0.020''H$_2$O	0.5 to 20.0°F (0.3 to 11.1°C) **Or** 0.000''H$_2$O to 0.050''H$_2$O
	[F2] – Inlet 2 Manual Operation	AUTO	AUTO, HOLD, CLOSE, HOLD, OPEN
(POS 3) OPEN TIME 2 TIMER	Open Time 2	3 seconds	1 to 120 seconds
	[F2] – $OFF~d$ – Open Delay 2	120 seconds	5 to 600 seconds
(POS 4) CLOSE TIME 2 TIMER	Close Time 2	3 seconds	1 to 120 seconds
	[F2] – $OFF~d$ – Close Delay 2	120 seconds	5 to 600 seconds
(POS 5) PROBE 2 MAX HI REC	Probe 2 Maximum	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H$_2$O to 0.500''H$_2$O
	[F2] – $Hi~AL$ – High Alarm 2	10.0°F (5.6°C) **Or** 0.100''H$_2$O	0.5 to 40.0°F (0.3 to 22.2°C) **Or** 0.000''H$_2$O to 0.500''H$_2$O
(POS 6) PROBE 2 MIN LO REC	Probe 2 Minimum	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H$_2$O to 0.500''H$_2$O
	[F2] – $Lo~AL$ – Low Alarm 2	-10.0°F (-5.6°C) **Or** -0.100''H$_2$O	-40.0 to -0.5°F (-22.2 to -0.3°C) **Or** -0.500''H$_2$O to 0.000''H$_2$O

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(POS 7) PROBE 1 MIN ←LO REC	Probe 1 Minimum	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H_2O to 0.500''H_2O
	[F2] – $Lo\ AL$ – Low Alarm 1	-10.0°F (-5.6°C) **Or** -0.100''H_2O	-40.0 to -0.5°F (-22.2 to -0.3°C) **Or** -0.500''H_2O to 0.000''H_2O
	[F2] – $ACodE$ – Alarm Code	—	See parameter description
(POS 8) PROBE 1 MAX ←HI REC	Probe 1 Maximum	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H_2O to 0.500''H_2O
	[F2] – $Hi\ AL$ – High Alarm 1	10.0°F (5.6°C) **Or** 0.100''H_2O	0.5 to 40.0°F (0.3 to 22.2°C) **Or** 0.000''H_2O to 0.500''H_2O
(POS 9) CLOSE TIME 1 on off TIMER	Close Time 1	3 seconds	1 to 120 seconds
	[F2] – $OFF\ d$ – Close Delay 1	120 seconds	5 to 600 seconds
(POS 10) OPEN TIME 1 on off TIMER	Open Time 1	3 seconds	1 to 120 seconds
	[F2] – $OFF\ d$ – Open Delay 1	120 seconds	5 to 600 seconds
(POS 11) MAIN SET POINT 1	Main Set Point 1	67.0°F (19.4°C) **Or** 0.070''H_2O	-40.0 to 100.0°F (-40.0 to 37.8°C) **Or** 0.000''H_2O to 0.500''H_2O
	[F2] – $diFF$ – Differential 1	2.0°F (1.1°C) **Or** 0.020''H_2O	0.5 to 20.0°F (0.3 to 11.1°C) **Or** 0.000''H_2O to 0.050''H_2O
	[F2] – Inlet 1 Manual Operation	AUTO	AUTO, HOLD, CLOSE, HOLD, OPEN
(POS 12) PROBE 1	Probe 1 Readout	—	-58.0 to 140.0°F (-50.0 to 60.0°C) **Or** -0.500''H_2O to 0.500''H_2O

System Mode Settings (Accessible when SW2 is set to ON)

	Parameters	Default	Range
(POS 1)	`Hour` – Clock	—	—
	[F2] – `Hr Fr` – Clock Format	24hr	AM-PM, 24hr
(POS 2)	`g dAY` – Growth Day	OFF	OFF, -10 to 365
(POS 3)	—	—	—
(POS 4)	—	—	—
(POS 5)	—	—	—
(POS 6)	—	—	—
(POS 7)	—	—	—
(POS 8)	—	—	—
(POS 9)	`LAng` – Display Language	Eng	Eng, Fra
(POS 10)	`rF CH` – RF Channel	OFF	OFF, 1 to 16
	[F2] – `rF nt` – RF Network	0	0 to 32767
	[F2] – `rF Ad` – RF Address	—	
	[F2] – `tPdiS` – Tech Param Display	OFF	OFF, 1 to 12
	[F2] – `tPrES` – Tech Param Result	—	—
	[F2] – `U Id` – Unit ID	1	1 to 250
(POS 11)	`COnF` – Configuration Version	—	—
	[F2] – `Proc` – Processor Version	—	—
(POS 12)	`SYStn` – System Parameters	—	—

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DIP Switches and Slide Switches Table

	Switches	**Default**	**Settings**
SLIDE SWITCHES	**(SW1)** – Parameters Protected	OFF	ON/OFF
	(SW2) – System Parameters	OFF	ON/OFF
DIP SWITCHES	**(DIPSW1)** – Temperature Unit	ON (˚C)	ON= ˚C / OFF = ˚F
	(DIPSW2) – Static Pressure Mode	Sensitive	ON = Normal OFF = Sensitive
	(DIPSW3) – Probe Mode	Temperature	ON = Static Pressure OFF = Temperature
	(DIPSW4) – Future Use	—	—

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Additional information on parameters

The following is a more detailed description of general-purpose parameters.

Time of Day (time clock)

The CPS-2C comes with its own integrated time clock. This feature is appreciated by users who want to know the current time of day. Note that if a power failure occurs, the clock will not run and will start back at the time the power failure occurred.

The following instructions show how to change the time of day on the control:

The time is displayed in HH:MM format and does not flash. Press the SET/CLR button to access clock adjustment mode. At this moment, the minutes will flash and be adjustable. Press the F2 button to toggle between hour and minute adjustments. Press the SET/CLR button or change the parameter selection knob position to exit the clock adjustment mode.

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Limited Warranty

The manufactured equipment and supplied components have gone through rigorous inspection to assure optimal quality of product and reliability. Individual controls are factory tested under load, however the possibility of equipment failure and/or malfunction may still exist.

For service, contact your local retailer or supplier. The warranty period shall be for two years from manufacturing date. Proof of purchase is required for warranty validation.

In all cases, the warranty shall apply only to defects in workmanship and specifically exclude any damage caused by over-voltage, short circuit, misuse, acts of vandalism, lightning, fortuitous events, acts of God, flood, fire, hail or any other natural disaster. Any unauthorized work, modification or repair on this product automatically voids the warranty and disclaims the manufacturer from all responsibility.

The manufacturer assumes only those obligations set forth herein, excluding all other warranties or obligations. This warranty stipulates that in all cases the manufacturer shall be liable only for the supply of replacement parts or goods and shall not be liable for any personal injury, damages, loss of profits, interrupted operations, fines for infringement of the law or damages to the production of the PURCHASER and the PURCHASER shall take up the defence and hold the manufacturer faultless regarding any legal or extra legal proceedings, notice, or claim by the customer or by a third party, and regarding any legal and extra legal expenses and fees brought forward on by such damages.

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