



ORION ECO TECHNOLOGIES CANADA



SNOW MELTING / DE-ICING CONTROLLING SYSTEM

*Finally, smart & innovative product
for any snow melting challenge!*

Toll Free: 1-888-OrionGo (674-6646)
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Orion Eco Technologies Canada

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Intelligent Snow Melting / De-Icing Controlling system

PYRO_X

A new innovative de-icing system

The ultimate controller for industrial, commercial and residential

Can use a high demand heating system on a limited power supply source

Modular: up to 5 circuits/contactors. Up to 600V, Up to 600A

Sequence of zoning 1/2/3/4/ + auxiliary (such as gutter sensor)

Suitable for parallel, star & triangle connection

North American consideration operating algorithm

- ☑ Simple Installation - "PLUG & PLAY"
- ☑ User friendly programming and adjusting
- ☑ Adjustable cycle time
- ☑ Adjustable delay (Hold on Time)
- ☑ Adjustable on and off
- ☑ Integrated option for Universal gutter de-icing sensor
- ☑ Integrated Fault Detector. GFCI non class A
- ☑ Adjustable trip setting
- ☑ Slab Upper limit adjustable Temperature Sensor
- ☑ Elegant, non obtrusive adjustable snow/ice sensor
- ☑ Logical setting for installer / set up & service
- ☑ Suitable for electrical as well as hydronic de-icing installations

Item	Part #	Description
Snow sensor	PYROSENSE	Outdoor Snow/Ice Sensor
UL Sensor	PYROULS	Upper Limit Temperature Sensor
Main Controller	PYROCON12	Controller and User Interface panel
Power Box 5	PYROBOX5	Power box with 5 contactors (up tp 600V & 600 A)
Power Box 3	PYROBOX3	Power box with 4 contactors (up tp 277V & 240 A)
Power Box 3C	PYROBOX3C	Power box with 2 contactors (up tp 600v & 300 A)
Mounting Bracket	PYROSB	Wall mounting adjustable rust free sensor holding bar



PYROBOX



PYROSENSE

PYROSB



PYROCON12

PYROBOX5 | Power box with 5 contactors (up to 600V & 600A)

Features & Benefits

- Automatic control and power distribution for deicing and snow melting
- Energy Efficient algorithm
- Integrated electronic controller with backlit LCD display
- User friendly interface
- Up to 5 zones activation
- Sequencing option between the zones – Allowing larger snow melting area with less available power on site
- Multiple snow sensors input – optional
- Up to 600A & 600V outputs to heaters
- Integrated adjustable Ground Fault Sensor
- Adjustable Setpoints
- Adjustable Upper and Lower Limit Temperature
- Adjustable Hold-On-OFF Delay and Manual On
- Adjustable splitting time between the zones with multi configurations between zones
- Technician testing / commissioning mode for easy and fast system test all year long (even during summer or at high temp)
- ETL certification





PYROBOX5 | Power box with 5 contactors (up to 600V & 600A)

Description

The outdoor temperature set-point as well as ground Upper limit temperature and ambient lower limit temperature can be easily set.

The Technician Settings mode allows installer or technician to adjust the parameters for customized installations.

The PYROBOX5 is a "Plug and Play" controlled power distribution panel for frost protection, ice and snow melting applications.

When receiving a signal from the snow sensor/s, it activates the contactors energizing the heating elements.

Based on the DIP switches configuration, the zones are activated either continuously or in customized sequencing between the zones.

The adjustable Hold-On timer, keeps the outputs to the zones active to ensure complete snow melting.

The Hold-On (Time delay) is adjustable in the range of 0up to 99 hours.

The PYROBOX5 Built-in Ground Fault interruptor allows settings for the tripping current between 0.1 – 1.0 A.

The GFS adjustable time delay provides a simple and safe protection from nuisance tripping.

The parameters that can be modified are as follow:

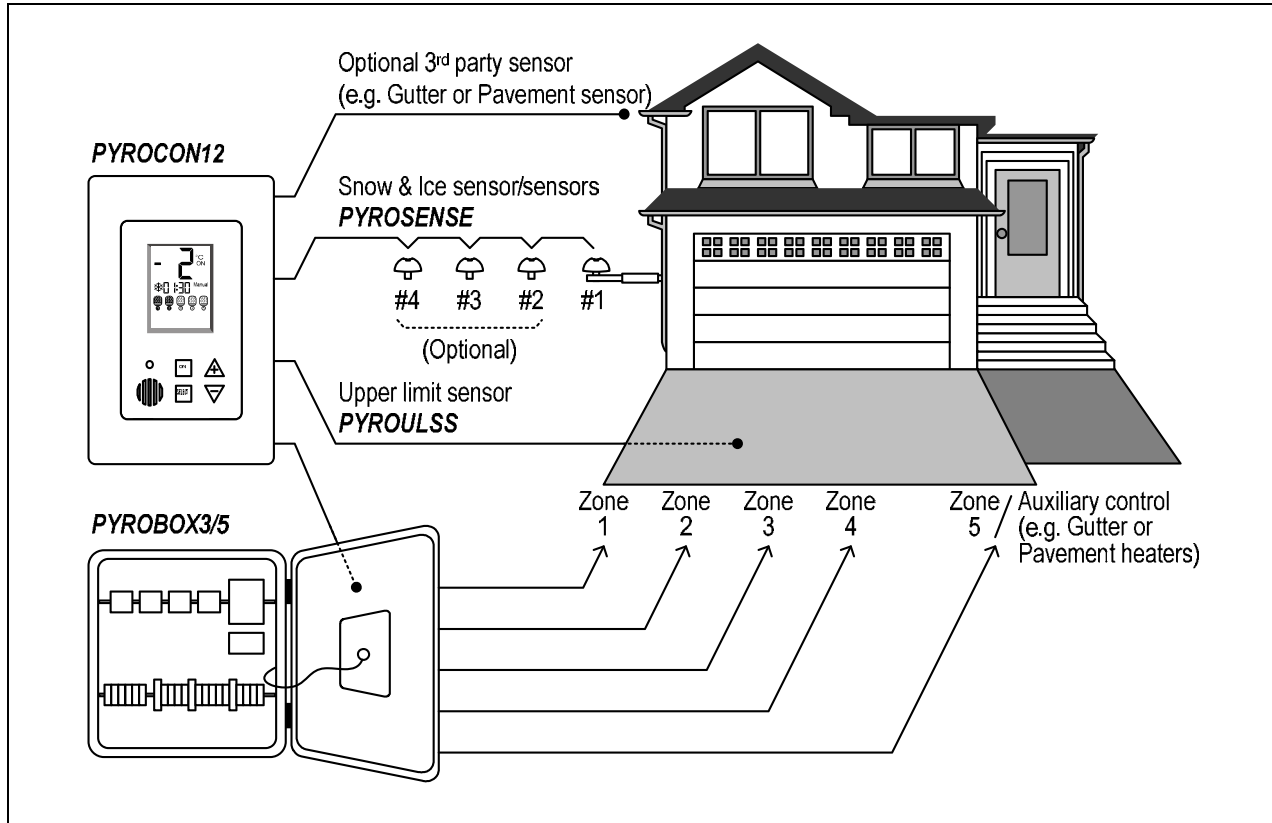
- Temperature set point
 - Lower ambient temperature limit
 - Slab Upper Temperature Limit to deactivate heaters for Energy Efficiency
 - Time delay (Hold-on) before deactivating the heaters
 - ON time for Manual mode
 - Heaters cycle time / Splitting time between zones
 - Number of zones and sequence of operation (Sensors and heaters control logic)
 - Snow sensor RH sensitivity
 - Number of snow sensors connected
-
- DIP Switches located on the controllers provide easy access to technician mode and to the system configuration settings.
 - A 5th output (277 VAC, 30A Max Single Phase) can be used as a stand-alone ice melting zone or be activated simultaneously with zone #4. The Zone #5 offers a simple option for gutter, roof ice-melting or critical zone
 - The PYROBOX5 allows snow sensor input both from the PYROSENSE sensors and also from a 3rd party snow sensors.
 - 3 terminals in the PYROBOX5 are available to connect a CIT-1™, GIT-1™ or SIT-6E™ sensors and use them to control some or all of the zones.
 - Installing the system is a quick and easy task. Apart of mounting the metal box to the wall, the installer needs only to connect the line in and line out wires in the marked terminals and the system is ready to work.

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Orion EcoTech representative. Orion EcoTech shall not be liable for damages resulting from misapplication or misuse of its products.

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PYROBOX5 | Power box with 5 contactors (up to 600V & 600A)

General system layout



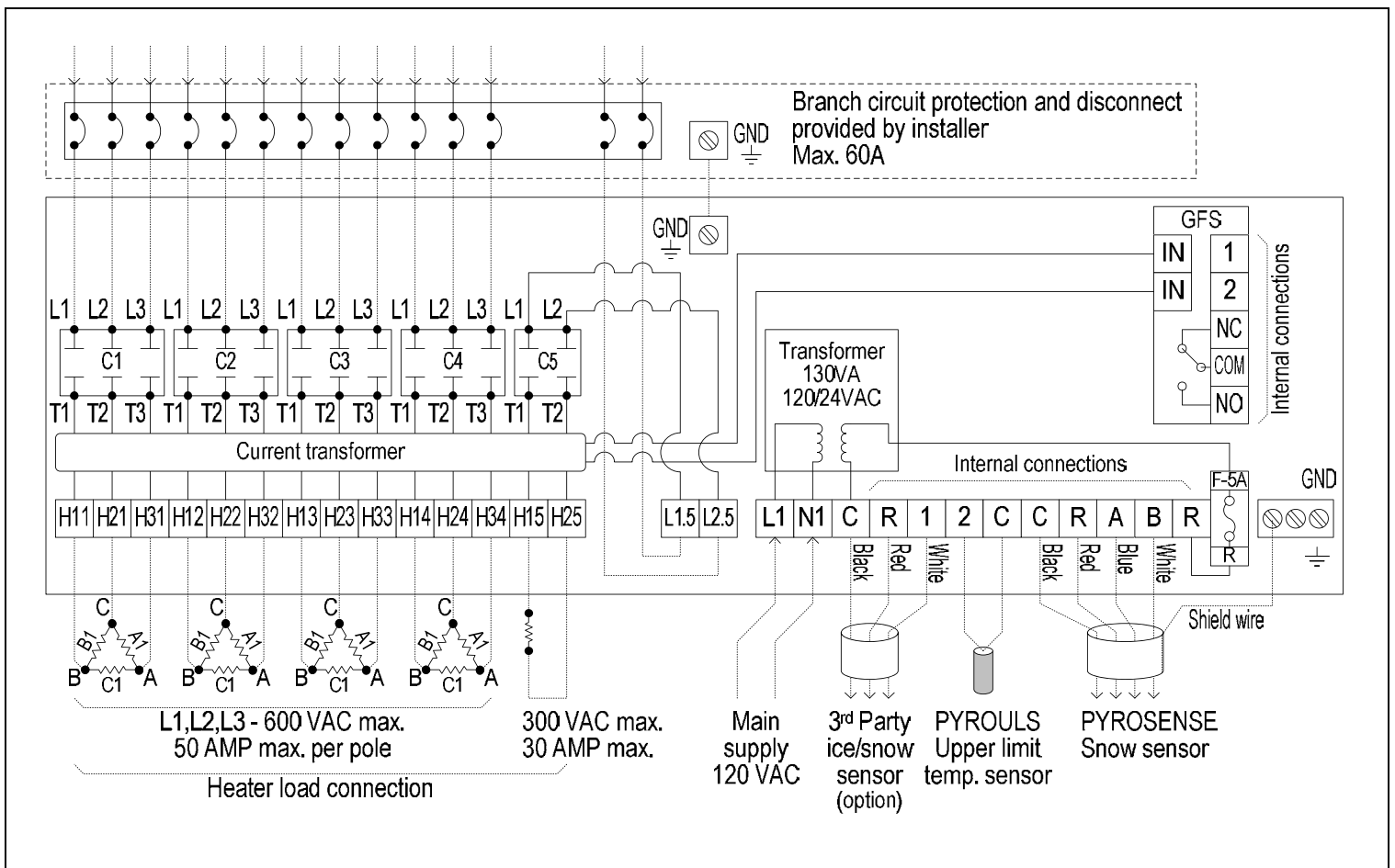
Technical specifications

Approvals	ETL Listed CAN/CSA-C22.2 No. 14 UL-508A	Manual Reset GFS	Push button on Front Panel
Enclosure Protection	IP20, Indoor Mounting	Four Satellite Contactors	600 VACS, 50 A Max (Resistive), 50/60 Hz, 3-Poles
Dimensions	18x18x8 inch (50x50x25 cm)	One Satellite Contactor	277 VAC, 30 A Max (Resistive), 50/60 Hz, 1-Pole 600 VAC / 50 A per pole
Ground Fault Equipment Protection GFS	Adjustable trip current 0.1-1 A (default 0.2A) Adjustable time delay 0.1-1 sec. (default 0.1 sec.)	Terminal blocks	6 mm ² , 10 AWG (max)



PYROBOX5 | Power box with 5 contactors (up to 600V & 600A)

Wiring diagram



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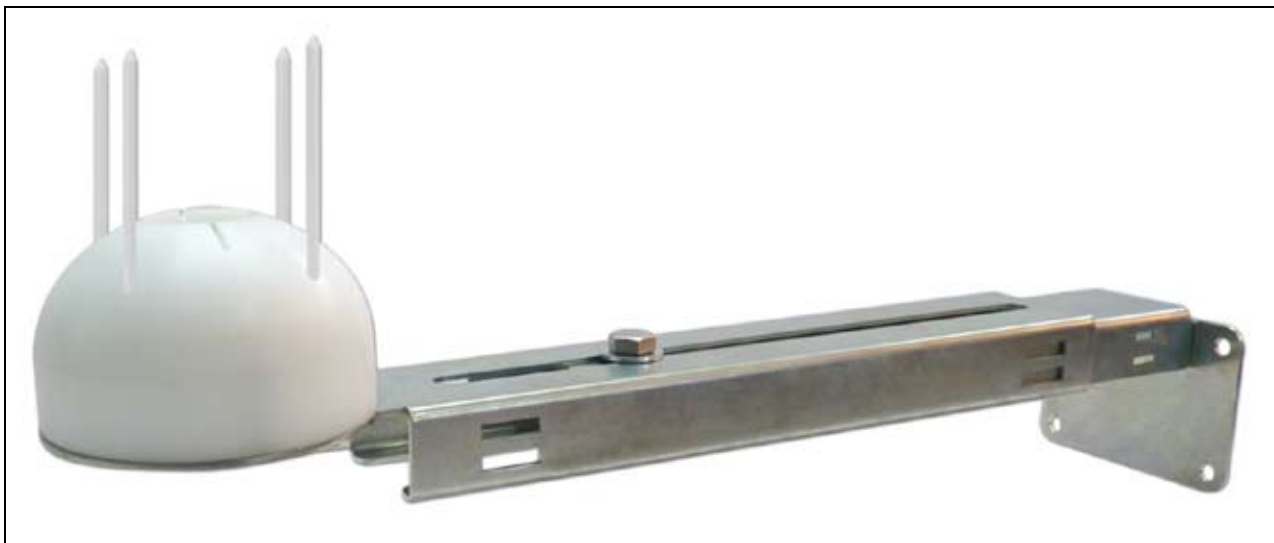
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PYROSENSE | Outdoor Snow Sensor

Features & Benefits

- Automatic Snow and Ice sensor
- Energy Efficient algorithm
- 24VAC operated
- Fits to PYROSB metal rust-free mounting bracket or vertical pole
- Anti bird nesting spikes
- Plastic cap for summer time – protect from dust and dirt
- Up to 4 PYROSENSE sensors can be chained into one PYROCON12 controller
- 4 wires installation – 30 ft. cable supplied with the sensor
- Simple user interface for parameters settings from PYROCON12 controller
- Adjustable RH sensitivity from PYROCON12 controller
- Adjustable set-point
- Technician testing / commissioning mode for easy and fast system test all year long (even during summer or at high temp)





PYROSENSE | Outdoor Snow Sensor

Description

The PYROSENSE is a stylish, smart and reliable Snow and Ice sensor. Installed outdoors it measures the temperature and detects snow, sending the information via the PYROCON12 controller to the heating elements.

The PYROSENSE is connected to the Snow Melting Controller (PYROCON12) with a 30 feet (10 m.), 24V 4 wires cable and communicating with the controller, providing the temperature value and the snow detection based on the adjustable parameters.

The plastic "igloo" shape design helps to assure reliable Snow/Ice detection as it prevents from the snow to accumulate around the sensing area. The 4 holes around the sensors were designed to hold the Anti Nesting spykes, keeping birds away from the sensor.

The sensor cap helps to keep the sensing area clean from dust and dirt during summer time and when the snow melting system is not used.

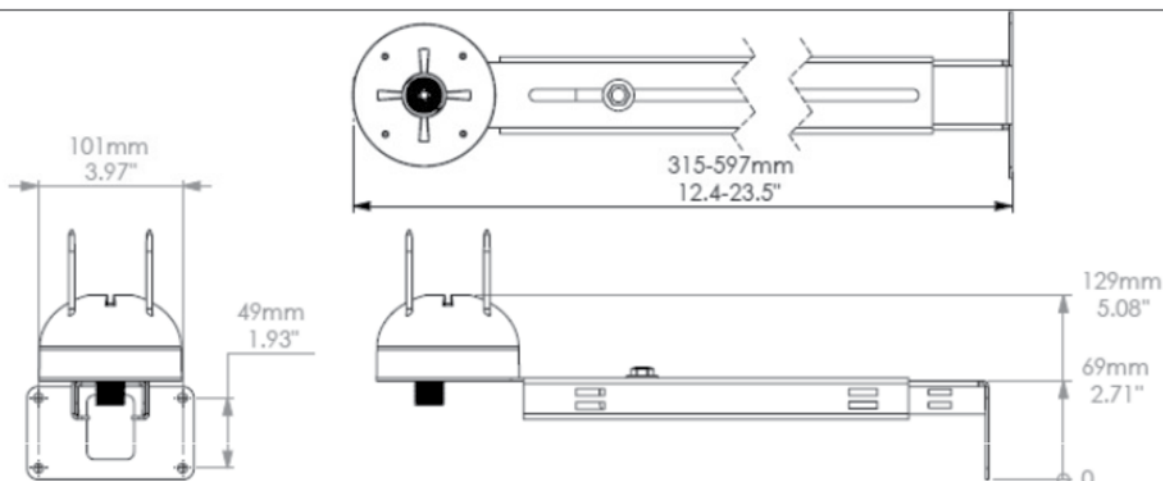
The measured temperature and the snow detection are visible on the backlit LCD display of the PYROCON12 controller.

The PYRO system can work with up to 4 PYROSENSE Snow Sensors chained one after the other and link the 4 output zones of snow melting to the PYROSENSEs. A special sensor with pre-defined address is needed as an additional sensor besides the PYROSENSE who is active as #1.

PYROSENSE2, PYROSENSE3 and PYROSENSE4 are the required sensors when 2, 3 or 4 sensors are needed. Each snow sensors must have different MAC (Media Access Control) address in order to communicate with the main board

For further information, operating & installation manual, please refer to our website at www.orionecotech.com/support

Dimensions



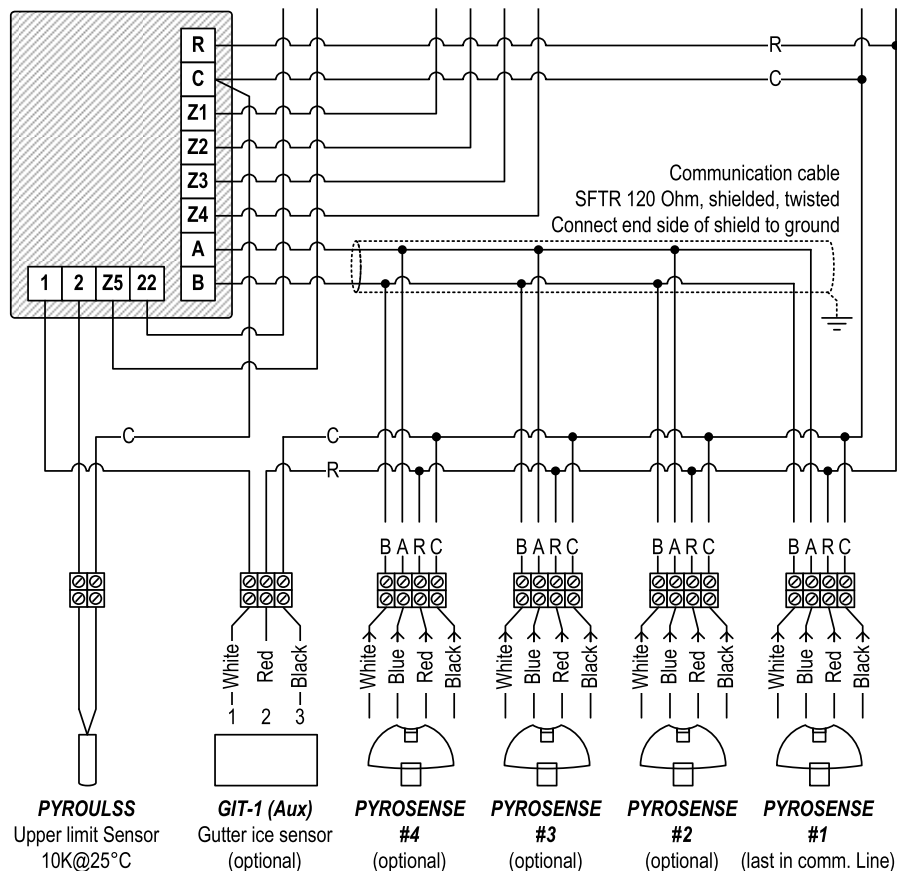


PYROSENSE | Outdoor Snow Sensor

Technical specifications

Enclosure Protection	IP65, Outdoor Mounting	Supply	24VAC±20%,50-60Hz,4W
Entries	33 ft. (10 m) Four wires cable:	Communication	RS485
Material	2x18AWG supply wires 2x22AWG communication wires	Operating temp.	-40°F to 122°F (-40°C to 50°C)
Mounting	Outdoor mounting on PYROSB metal holder (by meitav-tec) or vertical pole NPT ½" Thread	Storage temp.	-50°F to 158°F (-40°C to 70°C)
Material	ASA WR9160		

Wiring diagram



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PYROCON12 | Snow Melt Control

Features & Benefits

- The PYROCON12 offers smart and easy control over the PYRO Snow & Ice Melting system
- Automatic controlling thermostat for snow/ice melting
- Energy Efficient algorithm
- Up to 5 zones activation
- Large backlit LCD display with indication of the active zones
- User friendly interface
- Sequencing option between the zones – Allowing larger snow melting area with less available power @ site
- Multiple snow sensors input – optional
- UL certification
- Adjustable Setpoints
- Adjustable Upper and Lower Limit Temperature
- Adjustable Hold-On-OFF Delay and Manual On
- Adjustable splitting time between the zones with multi configurations between zones
- Technician testing / commissioning mode for easy and fast system test all year long (even during summer or at high temp)



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PYROCON12 | Snow Melt Control

Description

The PYROCON12 is a stylish, user friendly and efficient controller for Ice and snow melting applications.

When receiving a signal from the snow sensor/s, it activates up to 5 electrical heating elements. Based on the DIP switches configuration, the 5 zones are activated either continuously or with customized sequencing between the zones.

The adjustable Hold-On timer keeps the outputs to the zones active to ensure complete snow melting.

The Hold-On (Time delay) is adjustable in the range of 0-99 hours.

The outdoor temperature set-point as well as Slab Upper limit temperature and ambient lower limit temperature can be easily set by a push of a button. The Technician Settings mode allows installer or technician to adjust all the parameters for each installation.

Commissioning mode sets the system in operation condition and simulates low temperatures, allowing testing of the system also during summer time.

The parameters that can be modified are as follow:

- Temperature set point
- Lower ambient temperature limit to stop heaters
- Upper slab temperature limit to stop heaters
- Time delay (Hold-on) before stopping the heaters
- ON time for Manual mode
- Heaters cycle time / Splitting time between zones
- Number of zones and sequence of operation (Sensors and heaters control logic)
- Snow sensor RH sensitivity
- Number of snow sensors connected

DIP Switches located on the PYROCON12 provides easy access to technician mode and to the system configuration settings.

The 5th output can be used as a stand-alone ice melting zone or be activated simultaneously with zone #4. The Zone #5 offers a simple option for gutter or roof ice-melting. The PYROCON12 allows snow sensor input both from the PYROSENSE sensors and also from a 3rd party snow sensors. 3 terminals in the PYROCON12 are available to connect a CIT-1, GIT-1 or SIT-6E sensors and use them to control some or all of the zones.

The PYROCON12 fits into a 2x4 flush mounted box. Installing the thermostat is a quick and easy task. Quick connector terminals are located on the back side and once the wires are connected, the installation is over.

Connect the PYROCON12 to one of the PYROBOX power distribution boxes with integrated Ground Fault Sensor, add a snow sensor (PYROSENSE) and the system will be ready.

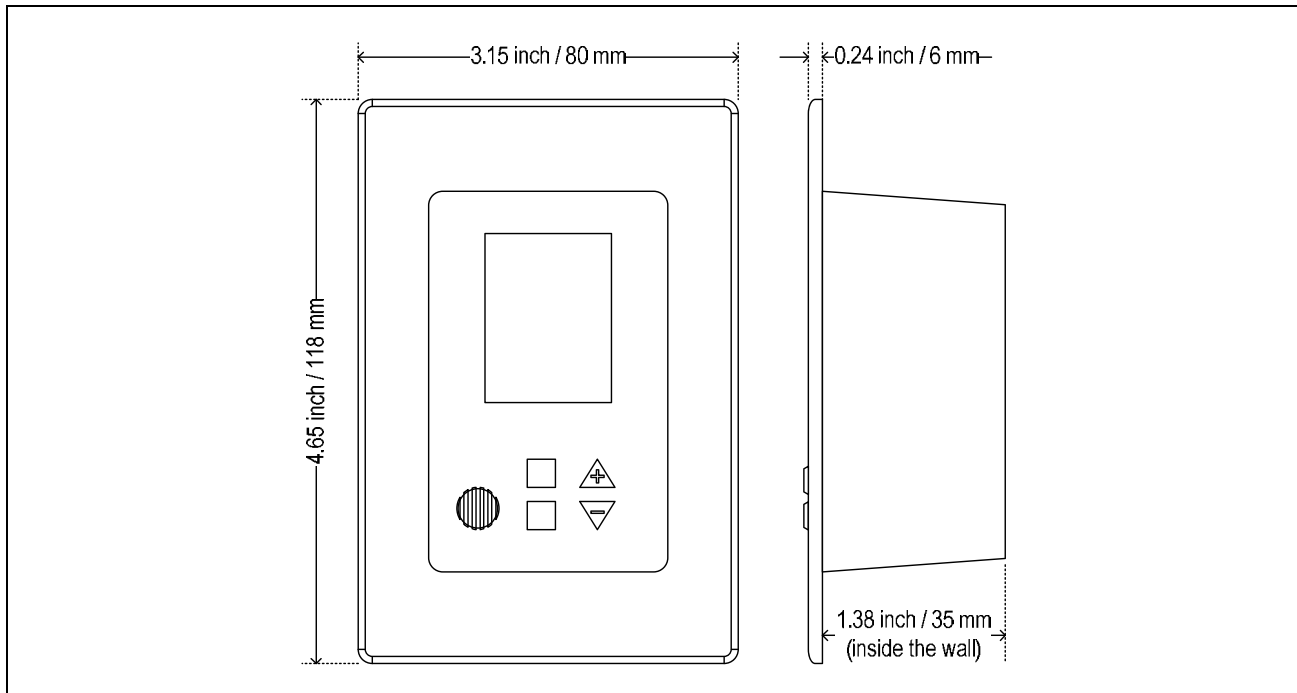


PYROCON12 | Snow Melt Control

Technical specifications

Approvals	UL 873 XAPX2.E362312	Supply	24VAC±20%,50-60Hz,3W
Enclosure Protection	IP20, Indoor Mounting	Outputs	5 outputs 24VAC, 1A (max) each
Material	ABS/PC	Inputs	#1 Snow sensor CIT-1 series #2 up to four PYROSENSE Snow sensors #3 PYROULSS Upper Limit Sensor NTC 10K
Mounting	Flush mount Fitts into standard electrical box (Carlson – B114R or similar)	Communication	RS485 MODBUS to sensor
Terminal blocks	1.5 mm ² , 14 AWG (max)	Operating temp.	-10°F to 122°F (-10°C to 50°C)
		Storage temp.	-40°F to 176°F (-40°C to 80°C)

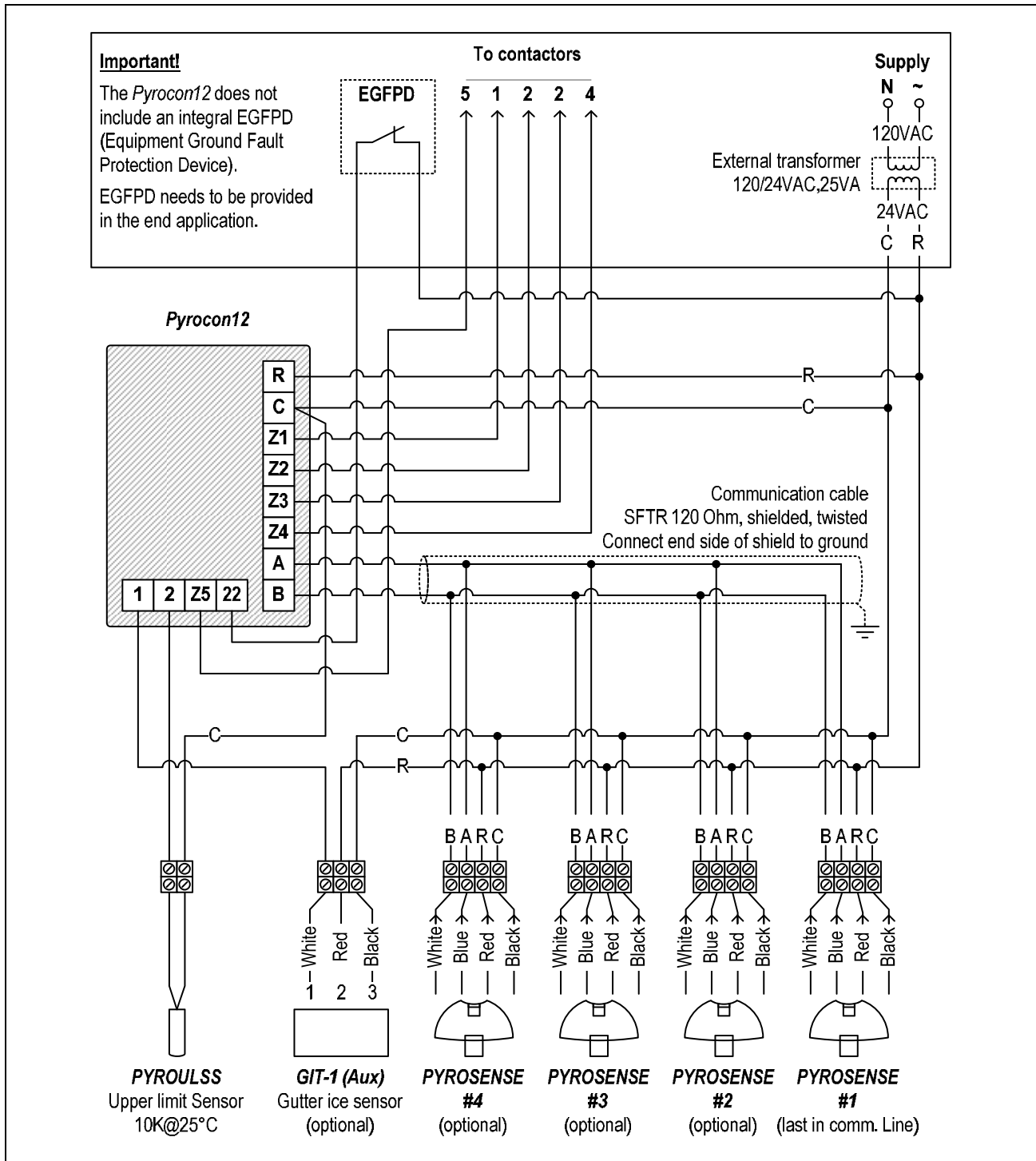
Dimensions





PYROCON12 | Snow Melt Control

Wiring diagram



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PYRO SELF

A new innovative Snow Melting Control system The ultimate "All in One" Snow Sensor & Controller for Light commercial and residential use

For use with a high demand heating system on a regular or limited power supply source
Modular: up to 2 contactors of 30A each, 110-240VAC.

Fully automated operation

Easy configuration by hand held remote control

- ☑ Adjustable temperature settings
- ☑ Variable delay time (Hold ON and OFF Time)
- ☑ User friendly programming and setting adjustment using large LCD display
- ☑ Remote control
- ☑ Adjustable cycle time between zones while staggering
- ☑ Easy and simple 6 wires installation
- ☑ Logical and remote access for installers during set up, commissioning & service
- ☑ Non obtrusive adjustable snow sensor
- ☑ Suitable for all electrical frost protection systems & Apps
- ☑ Automatic/Manual/Off mode selection by switch or by remote control

Item	Part #	Description
Sensor & control	PYROSELF	Snow sensor and controller for Snow/Ice melting
Mounting bracket	PYROSB	Wall mounted, adjusted metal fixture
Remote Control	RT_PYRO	Operation and technical settings interface

PYROSELF



 US &  Listed

PYROSB



RT_PYRO



PYRO SELF

SPECIFICATIONS

General

Area of use Nonhazardous locations.
 Approvals UL and ETL listed

Control

Supply 110-240VAC for the heating elements
 Load Load switching – 2 X 30A
 Max. Ratings
 Voltage 240 VAC. Current: 60 Amps
 Heater hold-on timer 0 to 300 minutes - adjustable
 System test Manual Switching from the remote control, For testing and commissioning mode
 operation status
 Indication 3 Leds (Green, Red, Yellow)

Enclosure

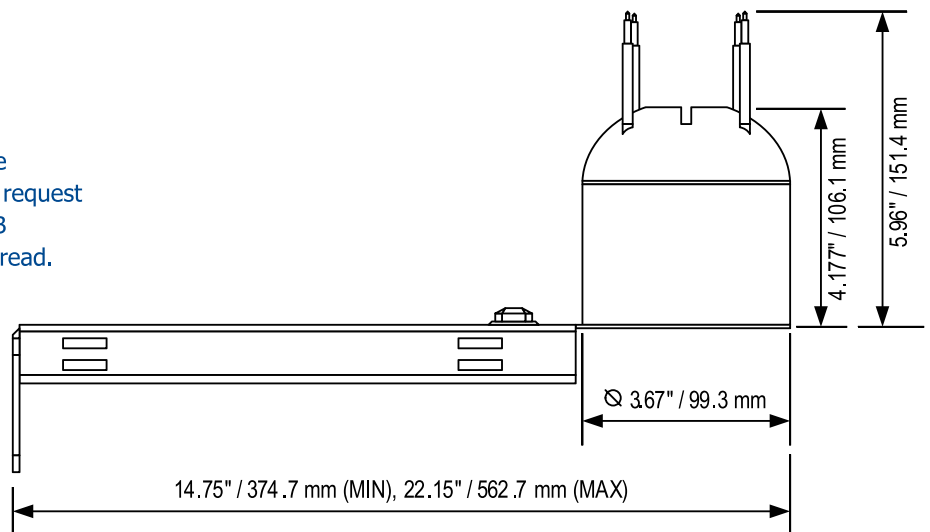
Protection NEMA Type 1 for residential type other enclosures available upon request
 Mounting Wall mounted using the PYROSB or aerial on a pole using 3/4" thread.

Temperature Sensor

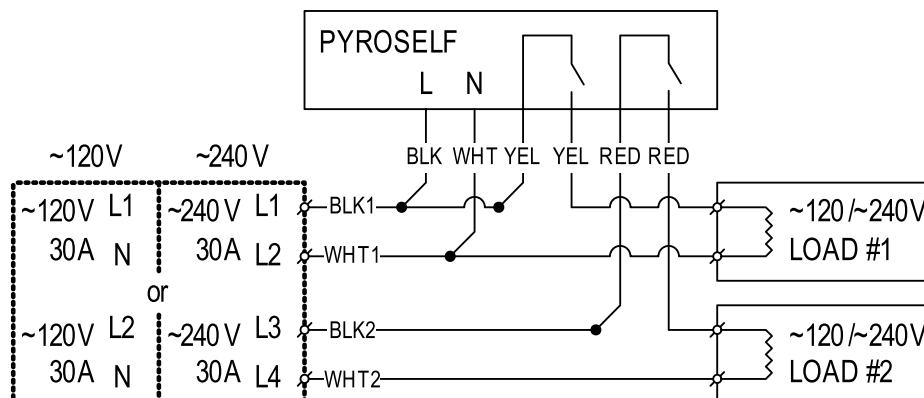
Adjustable range 14°F to 50°F (-10°C to 10°C)
 Sensor type Sealed Thermistor
 Circuit type Class 2
 Supplied length 3' (1m) cables

Remote Control

Display LCD
 Power 2 x AAA Batteries
 Mounting Wall plastic holder (included)



Schematic Diagram





Intelligent Snow Melting / De-Icing Controlling system

PYRO_X SPECIFICATIONS

General

Area of use	Nonhazardous locations HazLoc upon request
Approvals	UL and ETL listed: CAN/CSA-C22.2 No. 14 UL-508A

Enclosure

Protection	NEMA Type 1 for residential type other enclosures available upon request
Mounting	Surface mounted

Control

Supply	24V for controller
Load	Load switching provided by power Panel (POWERBOX)
Maximum Ratings	Voltage: 600 VAC. Current: 600 Amps (tested to 2400V)
Heater hold-on timer	0 to 99 hours; actuated by sensor or manual over ride switch
System test	Manual Switching for simulated conditions and testing and commissioning

Snow/Ice Sensors

Sensor type	Precipitation and temperature hybrid configuration.
Sensor capability:	Up to 4 addressable individual sensors, can be linked to 4 zones
Supplied Lead length	30' (10m) shielded cable of 22 & 18 AWG 4-wire jacketed cable



High Limit Temperature

Adjustable range	40°F to 90°F (4°C to 32°C)
Sensor type	Sealed Thermistor
Circuit type	Class 2

Schematic Diagram

