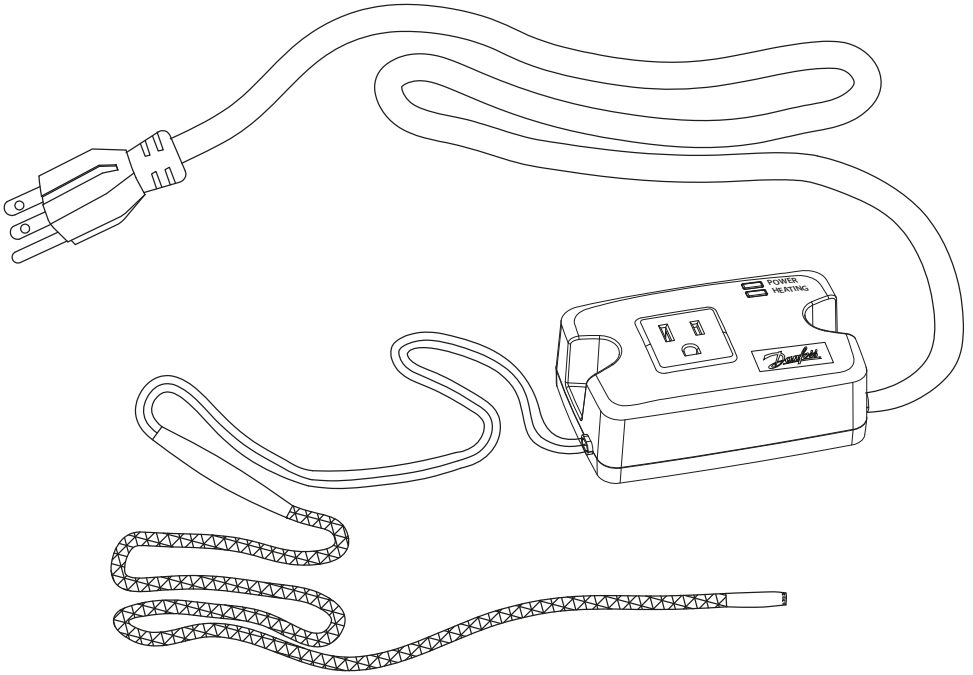


CAUTION: Read all instructions carefully before installation.
Save this Installation and Operation Manual for future reference.

RX1200

ROOF AND GUTTER DE-ICING CONTROLLER INSTALLATION AND OPERATION MANUAL



Danfoss

Danfoss Electric Heating, North America

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General Safety Instructions

**1. THIS UNIT SHOULD BE INSTALLED, OPENED, AND REPAIRED BY QUALIFIED PERSONNEL ONLY!
CETTE UNITÉ DEVRAIT ÊTRE INSTALLÉE, OUVERTE, ET RÉPARÉE PAR LE PERSONNEL QUALIFIÉ SEULEMENT!**

**2. To avoid shock hazard do not open the front cover with power connected to the RX1200 or any controlled equipment.
Pour éviter la décharge électrique déconnectez toute la puissance avant d'ouvrir la couverture du RX1200.**

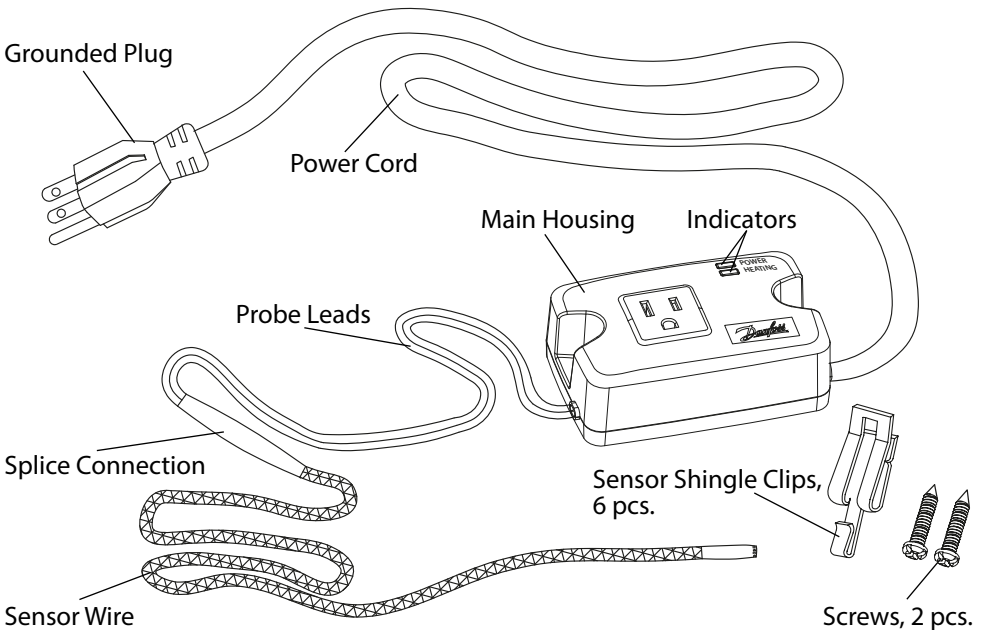
Introduction

The RX1200 controller is designed to use in conjunction with Danfoss roof and gutter de-icing cable for roof, gutter and snow melting applications, such as Danfoss RX cables. The RX1200 sense both moisture and temperature conditions in the gutter or downspouts and turns the roof de-icing cable on and off based upon these readings. By combining the moisture and temperature readings, the controller is able to save up to 75% on energy consumption compared to a controller which only measure temperature.

Danfoss RX products – cables and controls are designed to produce an effective and constant solution to protect your roof from ice dam or related hazards. The quality engineered RX heating cables provide a safe, flexible and economical solution of you snow and ice protection needs.

The RX1200 is rated at a maximum of 10.2 Amps at 120 Volts, which means the maximum cable wattage the can be connected to the controller is 1225 Watts. Only one roof and gutter de-icing cable can be connected to the RX1200 by a grounded plug. Remember that self-regulating cables can get higher effect when turned on in cold weather.

RX1200 Kit Description



RX1200 Specifications

Technical Data	RX1200
Power Supply:	120VAC 50/60Hz
Resistive Load (Output) max.:	10.2A @ 120V (1225W)
Enclosure Type:	Outdoor, under soffit/eave
Turn On/Off Temperatures:	On at 39.2°F, off at 44.6°F (on at 4°C, off at 7°C)
Indicators:	Power and Heating
Mounting:	Under soffit/eave or on wall protected against rain and direct sunlight
Dimensions (H x W x D):	1.73" x 4.57" x 2.84" (44mm x 116mm x 72mm)
Mounting Holes:	Center to Center distance 3.82" (97mm)
Power Cord:	4.9ft (1.5m), 16AWGx3C, with grounded plug, black
Probe Lead:	2.3ft (0.7m), black
Sensor Wire:	9.84ft (3m), moisture sensor, black
Sensor Shingle Clips:	6 pcs., aluminum alloy
Screws:	2 pcs., M4x25

WARNING

1. It is required the circuit supplying power to the RX1200 and heating cable have ground fault protection. This is mandatory by National/Canadian Electric Code.
 - a. If the ground fault trips and cannot be reset, then there is a fault in either the RX1200 or the heating cable.
 - b. Do not attempt to bypass the ground fault device. Doing so may result in risk of fire or electrical shock.
2. The RX1200 must be kept dry. The RX1200 is not water resistance and will fail if the device gets in contact with water, snow or ice.
3. Roof and Gutter cables must be installed in compliance with either National or Canadian Electric Code and Local or Provincial Code
4. Only one roof and gutter cable per RX1200. Do not exceed 1225W on the RX1200; risk of electric shock, fire or the formation of ice dams can result if more than 1225W or more than one cable is connected to the RX1200.
5. The RX1200 must be installed according to the manufacturer's instructions. By not doing so may void your warranty.
6. Make sure to save this manual in case assistance is needed in the future.

Installation Instructions

Roof with Gutter

1. The RX1200 main housing should be mounted under the eave or soffit, or equivalent location protected from the weather. See Fig. 1.

a. Make sure the mounting location is close enough to the receptacle, which is supplying power to the RX1200.

i. Location of the receptacle should be protected from rain, snow and direct sunlight.

b. Make sure power leads, probe leads and power connection to the heating cables have drip loops for maximum water protection. See Fig. 1.

Note: The RX1200 should be mounted where you can see the indicator lights. This will allow you to determine if the RX1200 is powered and heating.

i. Receptacle can be controlled by switch with pilot light, (located indoors.)

Mount RX1200 main housing using the two (2) screws provided. See Fig 2.

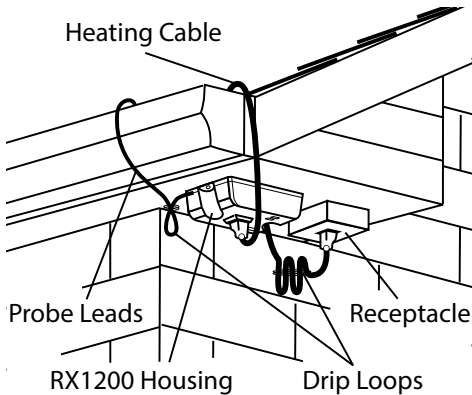


Fig. 1

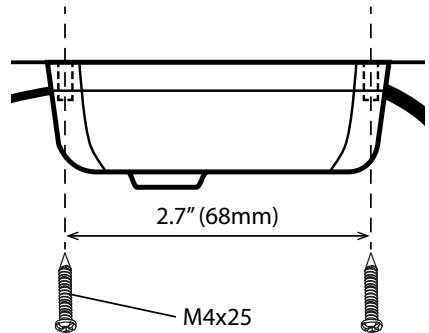


Fig. 2

2. Place splice connection and sensor wire along the bottom of the gutter approximately two inches within the roof and gutter cable. See Fig.3.

a. Attach probe lead near splice connection to the edge of the roof by sensor shingle clip.

b. Wrap the probe lead around at least one gutter support strap or nail.

c. Run the sensor wire along one zig-zag of the roof and gutter heating cable on the roof as shown on Fig. 3.

- d. Run the sensor wire up the roof, at least 2 feet (60cm) beyond the roof and gutter heating cable as shown on Fig. 3.
 - i. Secure the sensor wire to the roof with the Sensor Shingles Clips provided. Gently squeeze the coated end of the clip around the sensor wire.

Note: Sensor wire cannot be extended.

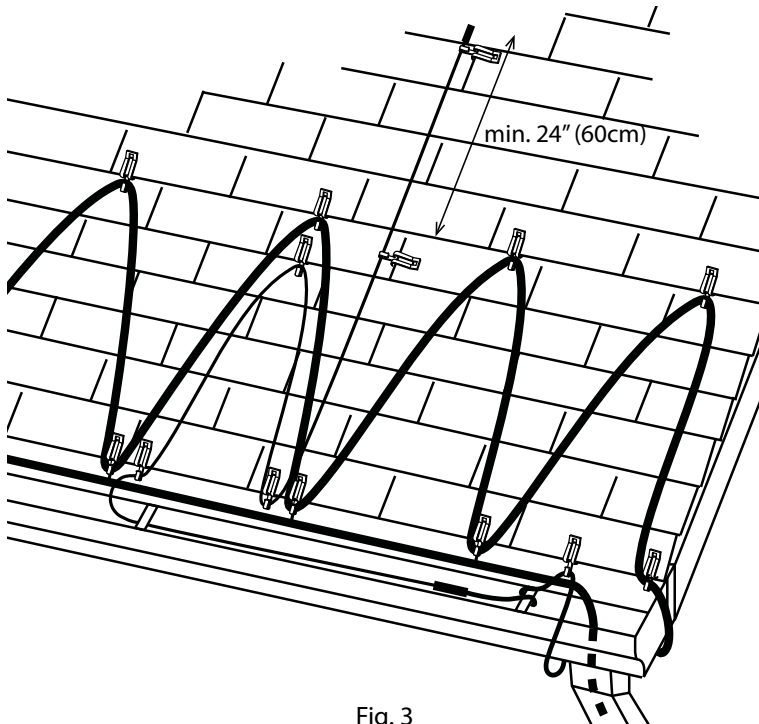


Fig. 3

Roof without Gutter

1. The RX1200 main housing should be mounted under the eave or soffit, or equivalent location protected from the weather. See Fig. 5.
2. Splice connection and probe lead should be looped and fixed near controller box. See Fig. 5.
3. Run the sensor wire along one zig-zag of the roof heating cable on the roof as shown on Fig. 3.
4. Run the sensor wire up the roof, at least 2 feet (60cm) beyond the roof heating cable shown on Fig. 3.

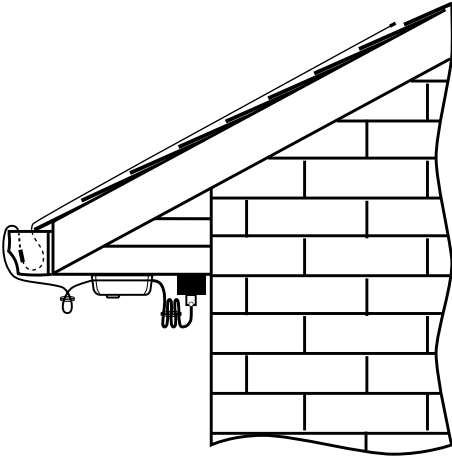


Fig. 4
Sensor Wire installation with gutter

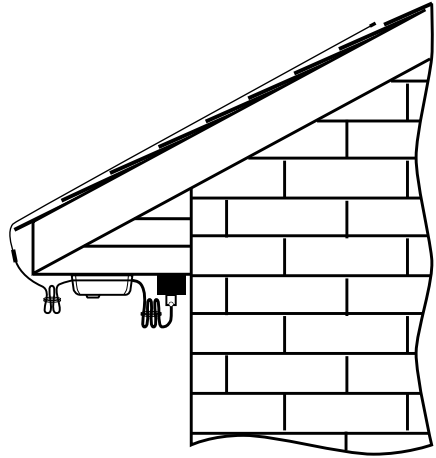


Fig. 5
Sensor Wire installation without gutter

Metal and Membrane Roof

1. To install the shingle clips on metal or membrane roof, adhesive must be used to bond the shingle clip to the roof. Note: Danfoss sells Roof Clip Glue. Contact your local representative for more information.
2. Precautions must be taken on metal roof installation to protect the sensor wire from getting damaged. Damage can occur to the sensor wire from sliding snow or ice which can cause the controller to stop working.
3. Make sure the sensor wire will be long enough to reach the melting area on a membrane roof.

Connection

1. Connect the power cord of the roof and gutter de-icing cable into the RX1200 main housing. Do not exceed maximum load of 10.2A @ 120V or maximum output of 1225W.
2. Connect the grounded plug of the RX1200 into the receptacle. Make certain that this connection remains dry and that the power cord has drip loops.
3. If using a plot light switch, turn the switch to the "ON" position. This will light the "Power" indicator on the RX1200.

Operation Modes and Signal Lights

Power On

The “Power” indicator will light up green, when the RX1200 is connected to power.

Energizing Roof De-icing Heating Cable

The RX1200 requires both the proper temperature AND the presence of moisture to energize the roof de-icing heating cable.

Temperature Measurement

The temperature sensor is placed in the RX1200 main housing, therefore the RX1200 should be installed outdoors. The sensor will measure the ambient temperature. Note: Sunlight on the main housing will result in incorrect ambient temperature.

Moisture Sensor

The sensor wire will determine if water is present. The sensor wire needs to be covered with at least 10 inches (25.40cm) of water for the system to turn on. Note: The moisture sensor will only measure the water on the wire, NOT snow and ice.

Temperature Above 39.2°F (4°C)

If the ambient temperature is above 39.2°F (4°C) and the sensor wire is wet, then the “Heating” indicator on the main housing will turn on and turn off after two minutes.

Temperature Below 39.2°F (4°C)

If the ambient temperature is below 39.2°F (4°C) and the sensor wire is wet, then the “Heating” indicator on the main housing will turn on. This means the RX1200 is energizing the roof de-icing heating cable.

Temperature Above 44.6°F (7°C)

If the ambient temperature is above 44.6°F (7°C), the “Heating” indicator will turn off and the RX1200 will stop energizing the roof de-icing heating cable.

Heating Cable Failure Monitoring

If the outer jacket and insulation of the roof de-icing heating cable is damaged, the RX1200 controller will stop supplying power to the heating cable. The “Heating” indicator will start to blink indicating the heating cable needs to be replaced. Do not solely rely on this function to monitor the heating cable, as minor damage and other abnormal conditions may not be detected.

Commissioning

The RX1200, power connection to the receptacle and the roof de-icing heating cable should be inspected at the beginning of the winter season and then monthly during operations of the unit.

Stop using and replace the RX1200 that has been damaged, cut or deteriorated for any reason. Look for any signs of animal bite marks or physical abuse to the RX1200. Remember to remove leaves and other debris from gutter, downspouts and roof.

Disconnect the power to the RX1200 during summer months.

There are no serviceable parts for the RX1200.

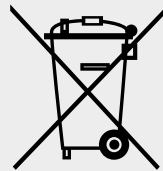
Testing

The RX1200 can be tested for functionality by submerging the sensor wire in 10 inches (25.40cm) water. The "Heating" indicator on the main housing will turn on for two minutes and then turn off (when the ambient temperature is above 39.2°F (4°C)).

LIMITED WARRANTY

The RX1200 is warranted against defects in workmanship and materials for one year from date of sale. This warranty does not apply to damage resulting from accident, misuse, or alteration nor where connected voltage is more than 5% above the configured operating voltage, nor to equipment improperly installed or wired or maintained in violation of this Owner's Manual. No other written or oral warranty applies. No employee, agent, dealer or other person is authorized to give any warranties on behalf of DANFOSS.

Units returned for warranty repair cannot be modified from shipped condition and leads must protrude a minimum of 6 inches from the base conduit hub. Repair costs of a modified unit will be quoted as the unit must be returned to the original, unmodified condition prior to return shipping. The customer shall be responsible for all costs incurred in the removal or reinstallation and shipping of the product for repairs. Within the limitations of this warranty, inoperative units should be returned, freight prepaid, to DANFOSS, and we will repair or replace, at our option, at no charge to you with return freight paid by DANFOSS. It is agreed that such repair or replacement is the exclusive remedy available from DANFOSS and that DANFOSS IS NOT RESPONSIBLE FOR DAMAGES OF ANY KIND, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above exclusion may not apply to you. The warranty gives you specific legal rights, and you may also have other rights which vary from state to state.





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