

DP-EX Control/Status Panel Connection and Operation



Functional Description of the DP-EX:

The DP-7EX can be used as a remote control/status panel for the , DS-4, rain/snow sensor controller usually mounted on or near the antenna. The DP-7EX provides a method of controlling the sensor and monitoring deice detection status. It also provides 8 additional thermal switch inputs for monitoring heater output temperature. The DP7-EX is 1.75" (1-U) high and is designed for mounting in a standard 19" electronic equipment rack.

Connecting to the DP-EX:

The following table lists the function of each DP-7EX terminal position and the interconnects for each type of sensor. A Control/Monitor cable should be ordered to connect the DP-7EX to the DS-4. This cable can be any cable 22 gauge or larger shielded cable. The number of conductors is determined by the number of heaters supplied with the de-icing system. The cable will have 5 conductors plus an additional 2 conductors per heater. Terminate the shield drain wire on the DP-7EX end of the cable to any ground point. A plug-in power supply is also provided with the DP-7EX and connects to polarized header J1:

TB1	Function	DS-2B	DS-3	DS-4	DS-5
1	Sensor Deice On Monitor	C/M Red	C/M Red	Monitor Red	C/M Red
2	Sensor Deice On Monitor	C/M Orange	C/M Orange	Monitor Black	C/M Orange
3	Sensor Manual On	C/M Black	C/M Black	Control Black	C/M Black
4	Sensor Standby	C/M Green	C/M Green	Control Green	C/M Green
5	Sensor Ground	C/M White	C/M White	Control White	C/M White
6	Remote Deice On Status ²				
7	Remote Deice On Status ²				
8	Not Used				
9	Remote Manual On ¹				
10	Remote Manual On ¹				

- 1 A dry contact closure to these inputs will force the DP-7EX into a "Manual On" mode from any front panel switch setting.
- 2 Form A dry contacts close whenever "Deice On" activation is detected. Maximum rating for the contacts is 400 mA @ 24 VAC/VDC.

The DP-7EX power supply provides a regulated +5VDC output. Examine the power supply label and confirm that local AC power is correct for the power supply included with the unit. Power supplies are available for either 100-120 VAC or 200-240 VAC input.

Connecting Thermal Switches to the DP-7EX:

The DP7-EX provides additional inputs for monitoring antenna heater output temperature. A switched +5VDC supply through the front panel indicators is connected to TB3-1 through TB3-8 (HEATER 1 IN – HEATER 8 IN.) This supply is only activated when the deicing system is on ("Deice On" indication.) A common ground is available at TB3-9 and TB3-10. A thermal switch of appropriate temperature value may be mounted on a heater monitoring point and connected across an input and common ground. When the switch closes the respective LED will illuminate. This provides a positive feedback that the deicing system has been activated and that the respective monitoring point has reached operating temperature.

Monitoring the Deicing System with the DP-7EX:

The "Power" indicator confirms that the DP-7EX is on. The DP-7EX provides a "Deice On" indication when the connected DS-4 sensor/controller has detected snow or ice or has been placed in the "Manual On" mode from the DP-EX, confirming sensor

control relay closure. This indication is mimicked by the "Remote Deice On Status" contact set available on TB-1. The "Standby", "Auto", and "Manual On" LED's indicate the operational mode of the sensor/controller. These indicators will normally follow the position of the front panel control switch. However, in the case of a remote "Manual On" command, the indicators will default to "Manual On", disregarding the position of the switch.

As noted above, the DP-7EX can also monitor a temperature point at the heater. A delay can be expected between deice activation and "Heater On" illumination. This is due to the amount of time required for the monitor point to reach the temperature required to toggle the thermal switch connected to the monitor input.

Controlling the Deicing System with the DP-7EX:

The connected sensor/controller can be manually activated by either placing the front panel switch in the "Manual On" position or by closing the "Remote Manual On" contact inputs. This will unconditionally activate the sensor/controller and the connected deicing system. Placing the DP-7EX in "Standby" will prohibit activation of the deicing system even if the sensor/controller detects snow or ice. When configured as a controller with a drying delay timer, the "Standby" position will also clear the drying delay on a triggered sensor/controller and shut off the deicing system. Placing the DP-7EX in "Auto", the normal mode of operation, will allow the sensor/controller to activate the deicing system as weather conditions dictate.

Operational Differences with the DS-4 Controller:

The DS-4 provides two sets of control/monitor points, each tied to one load relay. The DS-4 can operate under 16 different modes, including low temperature/precipitation sensor, deice/rain sensor, deice/rain controller, and dual deice controller. However, the DP-7B can provide only one "Manual On/Standby" function and can monitor only one relay for "Deice On" indications. Therefore, the DP-7EX should only be used with a DS-4 set as a deice/rain diversion controller, a dual deice controller, or a DS-9B replacement controller. In deice/rain diversion controller mode the DP-7EX will only activate and monitor the deicing system relay(s) on the controller. In dual deice both relays will be inherently monitored and controlled.