System 350™ Display Modules

The D350, D351, and D352 Display Modules are designed for use with System 350™ temperature, humidity, and pressure controls to provide a digital readout of sensor or setpoint values—at the push of a button.

As are all System 350 products, the display modules are housed in a NEMA 1 high-impact thermoplastic enclosure. The modular design provides easy, plug-together connections for quick installation and future expandability.

Figure 1: System 350 Display Module

Features and Benefits	
❑ **Modular Design**	Enables control, stage, and display modules to be purchased and installed as necessary
❑ **Plug-together Connectors and 35 mm DIN Rail Mounting**	Eliminates wiring between modules and reduces installation costs
❑ **Various Models Display Temperatures (°F and °C), Humidity Levels (0 to 100%), or Pressures (in psi or in. W.C.)**	Provides visual sensor and setpoint indication for System 350 controls
❑ **Continuous Readout of Sensor Value; Front Access Button Can Be Pushed to Display Setpoint**	Permits use as a monitoring device and/or a setup tool
❑ **Can be Remote Mounted Using WHA29A Cable Assemblies**	Extends monitoring capabilities up to 50 ft (15.2 m)

Part No. 24-7664-206, Rev. H
Code No. LIT-930070

Application Overview

System 350 Display Modules can be permanently installed in a System 350 control system or used for remote setup or troubleshooting.

All adjustments to the system can be made accurately by using the display modules during setup. For applications where a display module will not be permanently mounted, the service technician can use an optional extension cable (WHA29A-600R) to temporarily connect a display module to the system to verify the sensor reading and setpoint.

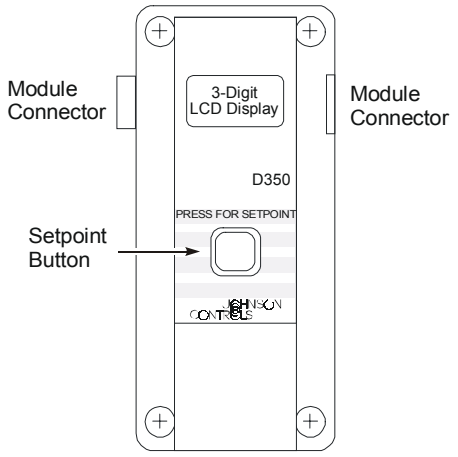

Figure 2: Display Module Features

Operation

The display modules receive their power, sensor, and setpoint information from a System 350 control module. A 3-digit LCD (Liquid Crystal Display) provides continuous readout of the sensor value.

To view the setpoint reading, press the PRESS FOR SETPOINT button located on the face of the module. The button must be pressed and held for approximately three seconds.

IMPORTANT:	The D350, D351, and D352 Display Modules are matched to the A350, W351, and P352 controls, respectively. If an incorrect display module is used on a system, the display provides inaccurate readings. See Table 2 for more information on choosing the correct D350 display module.

Installation

WARNING:	**Risk of Electrical Shock.** Disconnect power supply before making electrical connections to avoid possible electrical shock or equipment damage.

The display modules are housed in a compact NEMA 1 plastic enclosure designed for standard 35 mm DIN rail mounting. The modules are not position sensitive, but they should be mounted for convenient wiring and adjustment. Four key-slot mounting holes on the back of the control case are provided for surface mounting when required.

The display modules plug into the control and other System 350 add-on modules via 5-pin connectors located on either side of each module.

System 350 modules can be arranged in any order; external wiring is not required to interconnect components. (For optimal system accuracy, mount the D350 series modules at the far right end of the system.) The system becomes operational as soon as power is applied.

Five wire cable assemblies in various lengths are available for remote mount applications. See Table 3.

Dimensions

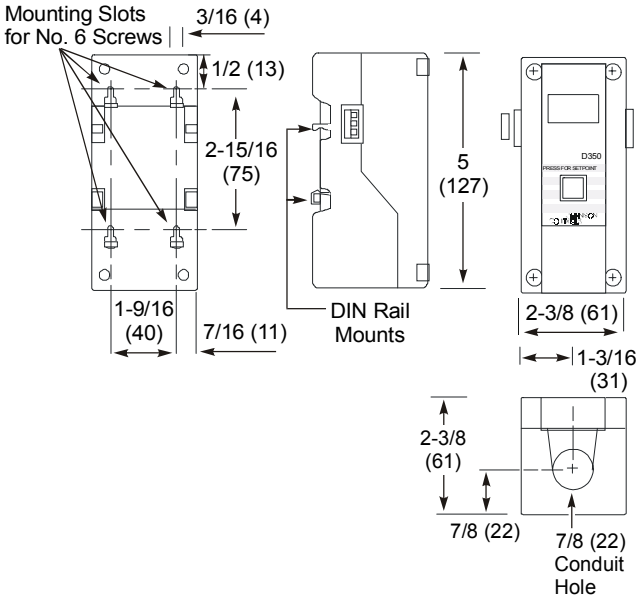

Figure 3: Module Dimensions, in. (mm)

Checkout Procedure

Before applying power, make certain that the installation and wiring connections are according to job specifications. After necessary adjustments and electrical connections have been made, put the system into operation and observe at least three complete operating cycles before leaving the installation.

Troubleshooting

Before troubleshooting the display module, verify that the system control is functioning properly. Consult the appropriate System 350 bulletin for operating specifications and troubleshooting instructions.

If the control is functioning properly, use the following procedure to troubleshoot the display module.

1. Measure the temperature, pressure, or humidity with an instrument that is at least as accurate as the sensor in the system, and compare this with the readout on the display module.
   a. If these values do not match within a reasonable range (for example, 0.5F°), check the sensor for proper wiring and performance. Refer to the appropriate sensor bulletin for information on sensor troubleshooting.
   b. If the sensor is wired and operating correctly and the display reading is incorrect, the display module must be replaced.
2. Press the PRESS FOR SETPOINT button on the front of the display module. If the value displayed on the LCD is out of range, replace the display module. Refer to Table 1 for out-of-range values for the various display modules.
3. If pressing the PRESS FOR SETPOINT button results in a reading other than the expected setpoint value, check the setpoint dial setting and correct if necessary. If the display continues to read an incorrect value, replace the display module.

Table 1: Out-of-Range Values

Display Module Model	Out-of-Range Setpoint Value	Out-of-Range Sensor Value
D350AA-1	Greater than 260°F or 130°C	Greater than 300°F or 150°C
D351AA-1	Greater than 95% RH	Greater than 100% RH
D352AA-2	Greater than 700 psi	Greater than 750 psi
D352CA-1	Greater than 5.20 in. W.C.	none
D352CA-2	Greater than 0.260 in. W.C.	Greater than 0.520 in. W.C.

Table 2: Controls and Related Display Modules

Control Module Models	Display Module Models
A350A/B, A350E, A350P, A350R, A350S	D350
W351, W351P	D351
P352AB-2, P352AB-3, P352AB-4, P352PN-2, P352PN-3, P352PN-4	D352AA-2
P352PQ-1	D352CA-1
P352PQ-2	D352CA-2

Repairs and Replacement

Field repairs or calibration must not be made. For replacement modules, contact the nearest Johnson Controls representative.

Ordering Information

Table 3: Ordering Information

Product Code Number	Description
D350AA-1C	Temperature Display Module with Fahrenheit Scale
D350BA-1C	Temperature Display Module with Celsius Scale
D351AA-1C	Humidity Display Module with Percent RH Scale
D352AA-2C (Not interchangeable with D352AA-1C)	Pressure Display Module with 0 to 750 psi Scale
D352CA-1C	Pressure Display Module with 0 to 9.99 in. W.C. Scale
D352CA-2C	Pressure Display Module with 0 to 0.999 in. W.C. Scale
WHA29A-600R	3 ft (0.9 m) Cable, 5-wire
WHA29A-603R	25 ft (7.6 m) Cable, 3-wire; Requires Y350R at D350 Location
WHA29A-604R	50 ft (15.2 m) Cable, 3-wire; Requires Y350R at D350 Location

Specifications

Product	System 350 Display Modules
Readout	3-digit LCD Continuous Display
Supply Voltage	D350 Provided by the A350 Temperature Control Module D351 Provided by the W351 Humidity Control Module D352AA-1; D352AA-2; D352CA-1; D352CA-2: Provided by the P352 Pressure Control Module
Current Draw	4 mA (typical)
Mounting	Surface or DIN Rail
Ambient Temperature	Operating: -30 to 150°F (-34 to 66°C) Shipping: -40 to 167°F (-40 to 75°C)
Ambient Humidity	0 to 95% RH non-condensing
Material	Case, Cover: NEMA 1 High-impact Thermoplastic
Agency Listings	UL CNN XAPX UL Listed for Canada, CNN XAPX7, File E27734 (all models)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult Johnson Controls/PENN Application Engineering at (414) 274-5535. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products or misuse of its products.

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FAN 930
System 350 Product Guide
Printed in U.S.A.
www.johnsoncontrols.com