

Specification Sheet

Six slots for I/O modules are located in the upper cover of the ROC312. Any type and any combination of I/O modules can be plugged into the slots. The I/O modules are configured in the same way as the built-in I/O channels.

The Local Operator Interface port (LOI) provides a means for direct link between the ROC312 and a personal computer. With the computer running ROCLINK for Windows Configuration Software, the user can configure the functionality of the ROC312 and monitor its operation.

The display port (labeled DSPL) is dedicated to the Local Display Panel accessory (see Specification Sheet 2.2:LDP), which mounts in the door of a ROC enclosure. Through this panel, the user can access information stored in the ROC312.

Communications card expansion sockets allow a communications card, as well as a HART card, to be added to the ROC312. The communications card, which uses the COMM port for external communications, can be any of the communications cards listed under Options below.

LED indicators are provided to show the operation status of the ROC and the activation states of the discrete I/O channels. Two internal diagnostic inputs are dedicated to monitoring input power and circuit board temperature.

The ROC312 has a metal case that helps protect the electronics from physical damage. For protection from outdoor environments, the unit must be placed in a housing, such as a freestanding or a mountable ROC enclosure (see other specification sheets).

Options

The ROC312 supports these options (detailed information is found in the respective specification sheets):

- ◆ Communications or MVS combination card.
- ◆ HART Interface Card.
- ◆ I/O modules.

The **communications card** provides an additional port for communicating with the ROC312. One card of the following types can be accommodated:

- ◆ EIA-232 (RS-232) for point-to-point asynchronous serial communications.
- ◆ Remote MVS Interface, which combines MVS remote sensor communications with EIA-232 (RS-232) serial communications (see Specification Sheet 2.5:RMI).

- ◆ EIA-422/EIA-485 (RS-422/RS-485) for point-to-point and multiple-point, respectively, asynchronous serial communications.
- ◆ Radio modem for communications to a radio.
- ◆ Leased-line modem for communications over customer-owned or leased lines.
- ◆ Dial-up modem for communications over a telephone network.

The **HART interface card**, which requires that a communications card be present to permit its installation, is available to help provide communications with devices using the HART protocol.

I/O modules can be added as needed to satisfy a wide variety of field I/O requirements. The types of modules that can be used are:

- ◆ Analog Input (loop, differential, or source).
- ◆ Analog Output.
- ◆ Discrete Input (source or isolated).
- ◆ Discrete Output (source or isolated).
- ◆ Pulse Input (normal, slow, or low-level).
- ◆ Relay Output.
- ◆ RTD Input.
- ◆ HART Interface Module (can be used instead of the HART interface card).
- ◆ Serial I/O (Daniel Gas Chromatograph application).

Accessories

A number of accessory items are available for the ROC312 that provide environmental housing, power, communications, local monitoring, and I/O lightning protection. These items are described in other specification sheets. See your local sales representative for more information.

Specifications

PROCESSOR

16-bit running at 8 MHz.

MEMORY

On-Board: 128KB battery-backed SRAM for data. 8KB EEPROM for configuration.

FlashPAC: Plug-in module with 512KB of Flash ROM (352KB used) and 512KB of battery-backed static RAM (SRAM).

Memory Reset: RESET switch (not available on Measurement Canada version) enables a cold start initialization when used during power-up.

OPERATOR INTERFACE PORT

EIA-232D (RS-232D) serial format for use with portable operator interface. Baud is selectable from 300 to 9600 bps. Asynchronous format, 7 or 8-bit (software selectable). Parity can be odd, even, or none (software selectable). 9-pin, female D-shell connector provided.

TIME FUNCTIONS

Clock Type: 32 KHz crystal oscillator with regulated supply, battery-backed. Year/Month/Day and Hour/Minute/Second.

Clock Accuracy: 0.01%.

Watchdog Timer: Hardware monitor expires after 1.2 seconds and resets the processor. Processor restart is automatic.

DIAGNOSTICS

These items are monitored: analog input mid-scale voltage, power input voltage, and board temperature.

POWER

Input: 8 to 30 Vdc. 1 watt typical, excluding I/O power.

AI Loop: 23 Vdc minimum, 4 to 20 mA provided for transmitter loop power from internal power converter. Available at "T" terminals on built-in analog input channels.

DI/PI Source: Input power is routed to discrete input "S+" terminal.

ANALOG INPUTS (BUILT-IN)

Quantity/Type: Three, single-ended voltage-sense (current loop if scaling resistor is used).

Terminals: "T" loop power, "+" positive input, "-" negative input (common).

Voltage: 0 to 5 Vdc, software configurable. 4 to 20 mA, with 250Ω resistor (supplied) installed across terminals "+" and "-".

Accuracy: 0.1% over operating temperature range.

Impedance: One MΩ.

Filter: Double-pole, low-pass.

Resolution: 12 bits.

Conversion Time: 30 μs.

Sample Period: 50 ms minimum.

DISCRETE/PULSE INPUTS (BUILT-IN)

Quantity/Type: Two isolated or sourced discrete inputs. Inputs software-configurable as two medium-speed pulse counters.

Terminals: "S+" source voltage, "S-" source voltage common, "+" positive input, "-" negative input.

Signal Voltage: 7 to 30 Vdc in the active (on) state, 0 to 4 Vdc in the inactive (off) state.

Frequency: 50 Hz maximum for discrete inputs; 1000 Hz maximum for pulse inputs.

Sample Period: Discrete inputs, 10 ms minimum; pulse inputs, 50 ms minimum.

DISCRETE OUTPUTS

Quantity/Type: Two dry-contact SPST relay outputs, one of which is designated "AUX" or auxiliary.

Terminals: "NO" normally-open contact; "COM" common.

Contact Rating: 30 Vdc or 125 Vac, 5 A maximum.

Isolation: 4000 volts.

Frequency: 10 Hz maximum.

EXPANSION I/O

Six slots are provided for I/O modules. Any type and combination of I/O modules can be used. See module specification sheets for more information.

ENVIRONMENTAL

Operating Temperature: -40 to 75°C (-40 to 167°F).

Storage Temperature: -50 to 85°C (-58 to 185°F).

Operating Humidity: To 95% non-condensing.

Specifications (Continued)

ENVIRONMENTAL (CONTINUED)

Transient Protection: Meets IEEE C37.90.1-1989.

Radiated Emissions: Meets EN50022 Level A in accordance with EN 50081-2 (1993).

ESD Immunity: Meets IEC 1000-4-2 in accordance with EN50082-1 (1992) and EN50082-2 (1995).

Surge Voltage Immunity: Meets IEC 1000-4-5 in accordance with EN50082-1 (1992) and EN50082-2 (1995).

Radiated RF Immunity: Meets IEC 1000-4-3 in accordance with EN50082-1 (1992) and EN50082-2 (1995).

Radiated Magnetic Field Immunity: Meets IEC 1000-4-8 in accordance with EN50082-2 (1995).

Conducted Induced RF Immunity: Meets IEC 1000-4-6 in accordance with EN50082-2 (1995).

WEIGHT

1.9 kg (4.2 lb.) without options.

DIMENSIONS

Overall: 89 mm D by 203 mm W by 226 mm H (3.5 in. D by 8 in. W by 8.9 in. H).

Mounting: 165 mm W by 216 mm H (6.5 in. W by 8.5 in. H) between mounting hole centers.

ENCLOSURE

Metal chassis and two-piece cover meet NEMA 1 rating.

APPROVALS

Standard Version: Approved by CSA for hazardous locations Class I, Division 2, Groups A, B, C, and D.

Measurement Canada Version: Approved by Measurement (Industry) Canada for gas custody transfer, in addition to approval by CSA for hazardous locations (see Standard Version). Note that I/O Modules must not be used to supply flow inputs to the ROC in a Measurement Canada installation.

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