



ISN MICROGATEWAY

SPECIFICATIONS

SUPERCEDES: 450.20-S06 (500)

Form 450.20-S06 (401)

YORK's ISN MicroGateway provides a reliable, economic interface between YORK chillers and either a YORK **ISN** network or Johnson Controls, Inc. **N2** network. The ISN or N2 network may then function as a Building Automation System (BAS), communicating with other devices in the system, such as controllers and air handling equipment.

When using the ISN protocol, the MicroGateway can also be configured as a point-of-connection device using an ASCII communications interface. This allows other third-party systems to retrieve data from YORK devices via the ISN network, provided the third-party system has developed an ASCII translator driver.

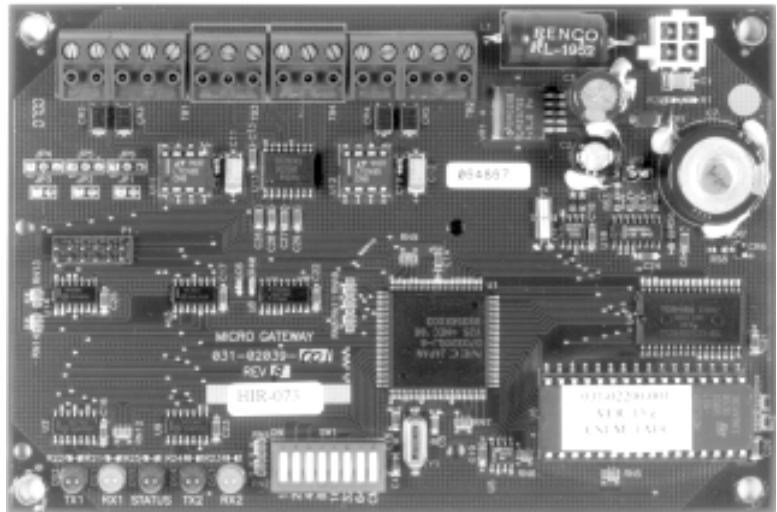


Figure 1. ISN MicroGateway

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Features and Benefits

- Integration is offered between all standard **York Talk** communication protocols and **ISN Rev. 6 & 7** networks.
- Provides for the transfer of ISN analog and digital points and controls.
- Integrates YORK chillers directly to a JCI **N2 OPEN** network.
- Integrates YORK devices to a third-party BAS via an **ASCII** interface.
- Robust software design assures error-free data transfer.
- Plug-in connectors simplify and ensure quick installation.
- Available as a stand-alone enclosure with power supply or as a card for installation within existing OptiView micro panels.
- UL 916 listed and certified to comply with the relevant **CE EMC** and safety directives.

Remote monitoring and control from any ISN controller or LINC product provides flexibility through the peer-to-peer ISN network. Compatibility with new and most existing YORK devices reduces obsolescence of components and allows the BAS to expand with additional buildings and equipment.

The ISN MicroGateway is available as either a card, (shown in Figure 1) fitted directly inside an OptiView micro panel, or as an enclosure (shown in Figure 5) with power supply. As an enclosure the MicroGateway may be used with any chiller micro panel type or as a point-of-connection device.

A full complement of ISN commands specifically for the MicroGateway commissions the unit to communicate using the different protocols and loads the points for the various chillers available from YORK. A VT100 terminal emulation program (MicroGateway Configurator) connects to the MicroGateway through the RS232 port. This allows complete setup of the MicroGateway applications, as well as troubleshooting and monitoring of data.

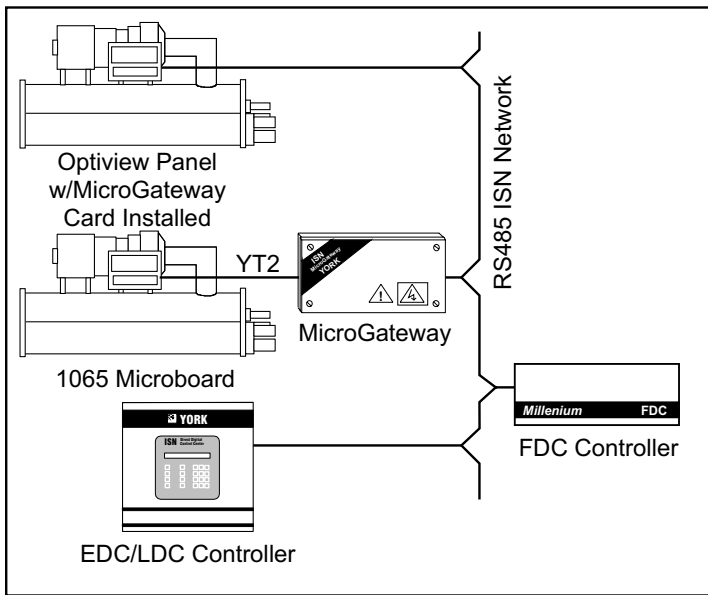


Figure 2. Connection to an ISN System

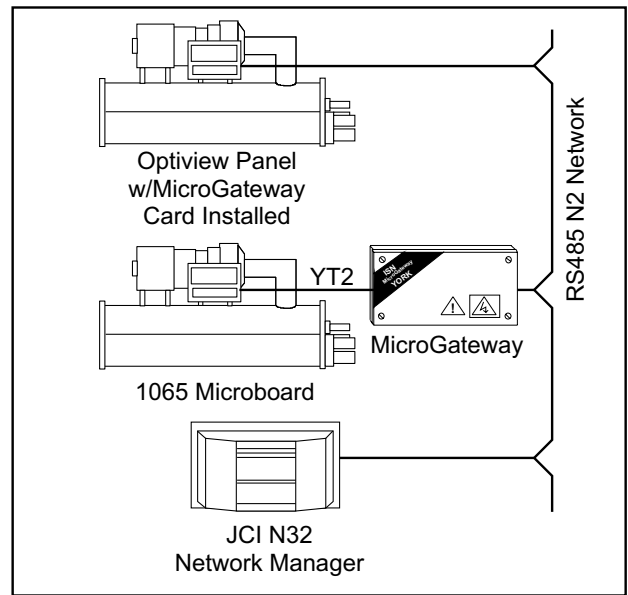


Figure 3. Connection to an N2 Network

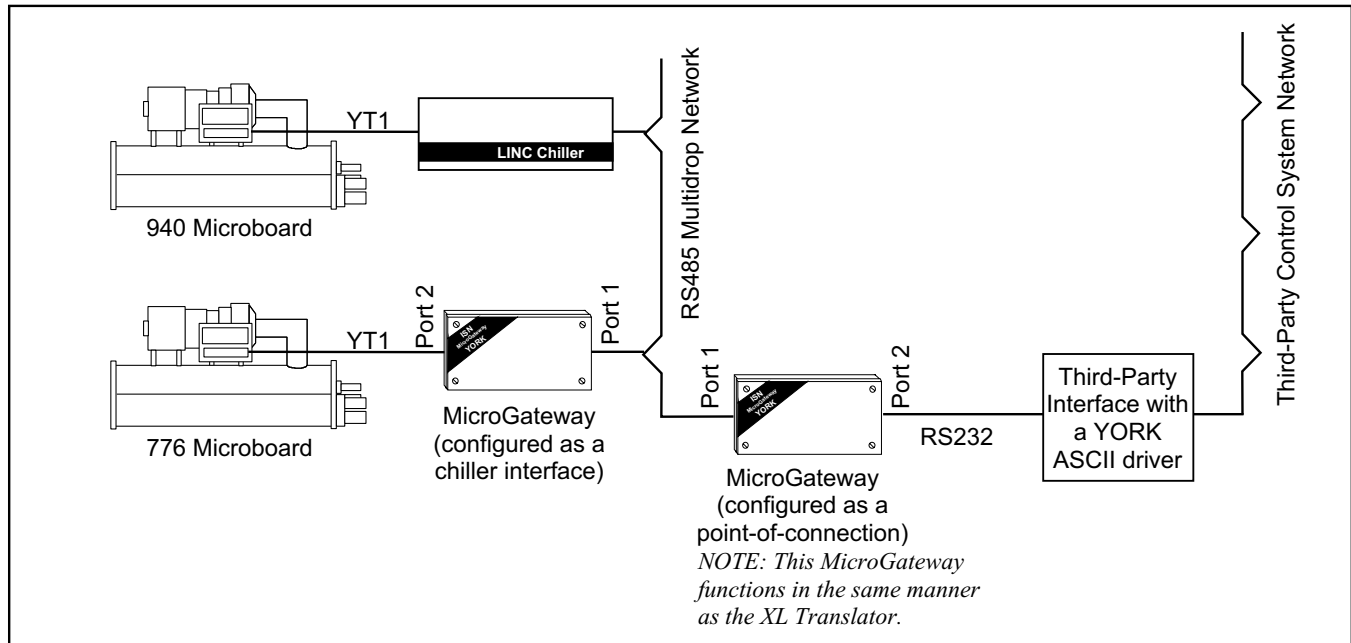


Figure 4. Chiller Interface to Third-Party BAS using ASCII Protocol

Configurations of the ISN MicroGateway

Figure 2 depicts connections between the YORK micro panel chillers and an ISN network. The MicroGateway interfaces to all the different types of micro-processor based YORK micro panels, including the 776, 940, 1065, 1095 and OptiView boards.

Figure 3 shows MicroGateways connecting YORK micro panels to a JCI N2 system.

Figure 4 illustrates the MicroGateway used as a point-of-connection to an ASCII translator for an independent third-party BAS system. This requires two or more MicroGateways to be connected as shown.

For the OptiView micro panel, the MicroGateway board easily mounts within the micro panel itself, eliminating the need for an additional enclosure or power supply. Other chiller models may require the external enclosure with power supply.

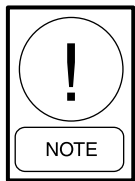
Network Support

Chiller Interface – Operates in a one-to-one interface with a YORK chiller. Any YORK device which communicates using either York Talk 1, 2 or 3 may be connected to one port, allowing the data to be visible through the other port

ISN – YORK’s proprietary network. Chillers and other YORK devices may coexist as peers on an ISN network. ISN supports up to 98 subnetworks with a maximum of 92 nodes per subnetwork. It communicates at either 19.2 or 50 kbaud.

N2 – A Johnson Controls, Inc. proprietary network widely used in many global HVAC applications. It uses a simple Master/Slave protocol to transfer data between devices. N2 supports network addresses from **1** to **200** (excluding 127).

ASCII – An open set of terminal commands which may be used by a third-party BAS to interface with a YORK chiller.



NOTE: A YORK ASCII driver is required to interface with a YORK chiller. Development of the driver is the responsibility of the third-party and is not provided by YORK.

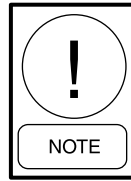
Physically the network is based on RS485 technology. Typically a twisted-pair, shielded cable is daisy-chained between devices. The physical length of the network, the number of nodes, etc., is governed only by the constraints imposed by the RS485 standard (4000 ft./1220 m, and 32 nodes).

Functionality

When configured as a chiller interface, the MicroGateway polls the chiller panel for data, passing any commands received from the ISN network to the chiller panel.

When configured as a third-party point-of-connection it packetizes the ASCII character strings from the third-party driver into the ISN protocol and sends them to the ASCII MicroGateway configured as chiller

interfaces. In this configuration it provides a ROUTING function.



NOTE: The MicroGateway requires the use of a computer using a VT100 interface to set up the ports, chiller points and software features. For installations which do not require a computer, refer to products utilizing Quick Start.

Protocols

There are seven specific types of protocols employed by the MicroGateway:

ISN – Provides a network interfaces between the networked MicroGateways. Operates under the Rev. 6 and 7.6 (19.2 kbaud) and Rev. 7 (50 kbaud) versions.

York Talk – Provides an interface with the all the different types of YORK chiller micro panels using York Talk 2 (RS485) or York Talk 1 or York Talk 3 (RS232).

N2 – Provides an interface to the JCI MetaSys® compatible “N2 Open” system.

ASCII – While technically not a protocol it allows a standard interface for third-party to connect to a YORK chiller via an ISN network.

The ISN MicroGateway provides the third-party with access to three well-specified data structures (known as Features). These allow a third-party device to:

- send commands to the chiller panel.
- retrieve data from the chiller panel.
- determines the status of the communications between the chiller panel and MicroGateway.

Diagnostics

A user may diagnose the operation of the MicroGateway by observing the communication and STATUS LEDs. The STATUS LED provides a visual indication of the general operation status of the MicroGateway during normal operation. The communication LEDs allow the communication ports to be debugged.

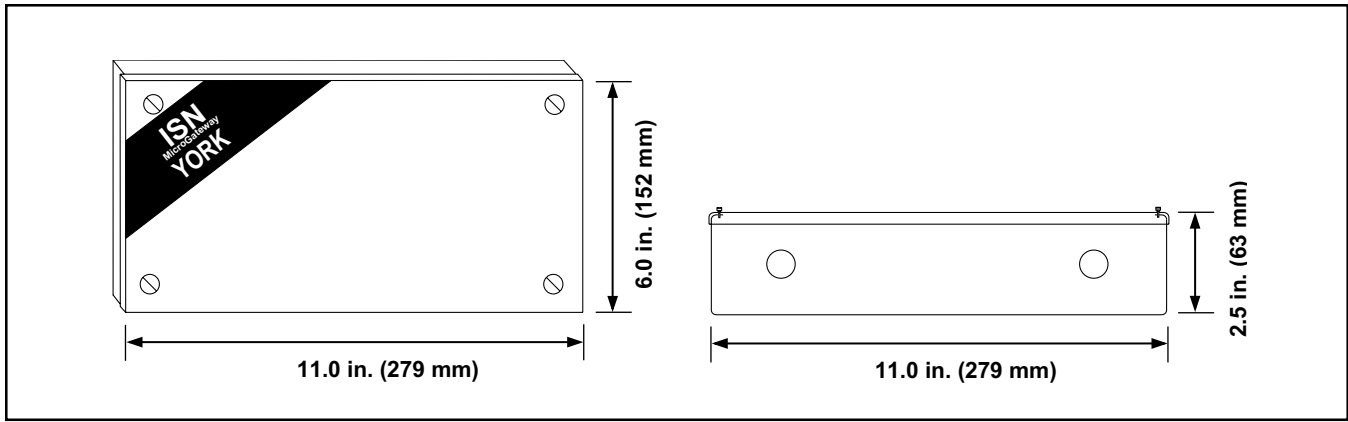


Figure 5. Dimensions

SPECIFICATIONS

| | | Board Only | Board w/Enclosure & Power Supply |
|-----------------------|--|---|---|
| General | Primary Power Source | 12 VDC, (-2/+25%) | 110/220 VAC, ($\pm 15\%$) |
| | Frequency | N/A | 60/50 Hz ($\pm 10\%$) |
| | Power Consumption | Nominally 4 VA | Nominally 12 VA |
| | Operating Environment | 32 to 122° F (0 to 50° C) 0 to 95% RH non-Condensing | 32 to 122° F (0 to 50° C) 0 to 95% RH non-Condensing |
| | Size (H x W x D) | 4 x 6 in. (101 X 152 mm) | 6 x 11 x 2.5 in. (152 X 279 X 63 mm) |
| | Weight | 4 oz. (113 grams) | 4.5 lb. (2 kg) |
| Electrical | Processor | NEC V25 Operating at 8 MHz | |
| | Memory PROM | 256 kbytes of CMOS OTP/EPROM | |
| | Memory RAM | 128 kbytes of capacitor-backed CMOS SRAM | |
| | E ² | 1,000 bytes of useful storage | |
| | Back-up | SRAM data maintained for 72 hrs. Capacitor Enable/Disable jumper | |
| Installation | Port 1 Selections | RS485/RS232 (York Talk 1, 2 or 3, ISN at 19.2 or 50 kbaud) | |
| | Port 2 Selections | RS485/RS232 (York Talk 1, 2 or 3, N2, and Terminal Configuration) | |
| User Functions | Port 1 | Communication status LEDS (TX = Red LED and RX = Green LED) | |
| | Port 2 | Communication status LEDS (TX = Red LED and RX = Green LED) | |
| | System Status | Flashing Red LED; Error codes reported by different flash rates | |
| | Node Selection | Via DIP Switch (Terminal Mode selected by setting DIP=255) | |
| | Network Cabling | A three-core cable with shield and drain wire should be used for both RS232 and RS485 connections | |
| Agency | UL 916/FCC Part 15 Conducted and Radiated CE (Satisfying all the relevant EMC directives) and IEC950/EN60950 (Safety directive) | | |

Ordering Information

ISN MicroGateway OptiView kit: 371-03609-001
 ISN MicroGateway in an enclosure 110VAC: 371-02592-101
 ISN MicroGateway in an enclosure 220VAC: 371-02592-201



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