# PG-141-100-AB Notifier NFS 3030 to Modbus RTU Protocol Converter

PG-141-100-AB is highly powerful, superior, completely configurable and productive Building & Industrial Automation gateway for integrators to effortlessly interface devices to networks in commercial buildings and industrial plants.

PG-141-100-AB Gateway model supports Notifier NFS 3030 and Modbus RTU protocols. It is a Bi-directional Converter that can be configured as a Client on Notifier NFS 3030 side and a Server/Client on Modbus RTU protocol interface.

When configured as a Notifier NFS 3030 client, the PG-141-100-AB can read data from your Notifier NFS 3030 fire panel and publish it as Modbus RTU data. Also, it can write commands sent from the Modbus RTU side to the Notifier NFS 3030 fire panel.

When configured as a Modbus RTU client, the PG-141-100-AB can read data from your Modbus RTU devices and publish it as Notifier NFS 3030 type data. Also, it can write commands sent from the Notifier NFS 3030 side to the Modbus RTU devices.

The PG-141-100-AB can be configured to behave as a server on Modbus RTU interfaces. This mode is useful when data exchange is required between a Notifier NFS 3030 client (for eg. SCADA) and a Modbus RTU client (for eg. a Building Management System).

The PG-141-100-AB can be configured to behave as a client on both Notifier NFS 3030 and Modbus RTU interfaces.

PG-141-100-AB gateways have benefitted system integrators worldwide with its powerful line of gateways. Additionally, PG-141-100-AB gateway runs the same protocol conversion software on a productive and cost efficient platform backed by the experience, engineering expertise and technically proven support that integrators have come to expect from PG-141-100-AB.

**Features**

- Ability to interface upto 1000 points
- DIN rail mount optional
- DIP switches to select baud rate or node ID on the fly
- Multi-configuration capability
- BACnet COV support for fast data communication while reducing the traffic over a BACnet network

**Specifications**

| | | |
|---|---|---|
| **Environment** | Operating Temperature: -40 to 75° C (-40 to 167°F) | |
| | Relative Humidity:5-90% RH non-condensing | |
| | | |
| **Power Requirements** | 9-30 VDC or 12-24 VAC | |
| | Current Draw @ 12V about 250Ma | |
| | | |
| **Physical Dimensions(HxWxD)** | 4.5x2.9x1.6 in. (11.5x7.4x4.1 cm) | |
| | 0.4 lbs (0.2 Kg) | |
| | | |
| **Other** | Configuration/Diagnostic utilities | |
| | Capacity: 1000 points | |
| | Table,Wall or DIN rail mount | |
| | | |
| **Communication Interfaces** | RS-485 | 1 |
| | RS-485 or RS-232 | 1 |
| | Ethernet 10Base-T, 100BASE-T[2] | 1 |
| | Mbus | - |
| | KNX | - |
| | LonWorks | - |
| | | |
| **Approvals** | TUV Approved to UL 916 and CSA C22.2 standards | |
| | BTL and LonMark certified | |
| | LonMark Certified | |
| | RoHS Compliant | |
| | GOST-R Certified | |
| | CE and FCC | |

## Notifier NFS 3030 Protocol Driver Description

| | | |
|---|---|---|
| **Formal Driver Type** | Serial | |
| | Passive Client | |
| | | |
| **Connection Information** | | |
| Connection Type: | RS-232 (Vendor Limitation) | |
| Baud Rates: | 9600 (Vendor Limitation) | |
| Data Bits: | 8 (Vendor Limitation) | |
| Stop Bits: | 1 (Vendor Limitation) | |
| Parity: | None (Vendor Limitation) | |
| Multidrop Capability: | No | |
| | | |
| **Devices Tested** | | |
| **Device** | **Tested (Factory, SITE)** | |
| NFS-3030 Test Panel supplied by Notifier Corp | Factory | |
| BOOT: 002.003.002 APP: 002.003.014 | Site | |
| BOOT: 002.012.006 APP: 002.013.002 | Site | |
| | | |
| **Connection Facts** | | |
| **Mode** | **Nodes** | **Comments** |
| Client | 1 | Each port can connect to only 1 NFS3030 Panel |
| Server | 0 | The NFS3030 driver cannot be used as a Server |

## Data Types Supported

This driver was designed to be connected to the Notifier Onyx NFS-3030 printer port, and listen for incoming messages. The panel's default setting for the printer port is off. To utilize this driver, the printer port must be enabled to 80-columns, unsupervised, before this driver can be used.

The primary purpose of this driver is to record the status of devices connected to the NFS-3030 system by interpreting the text messages sent to the printer port. Not all messages will be interpreted, as many messages do not directly pertain to device status, or are currently supported. The following subset of event messages is recognized:

| **Active Events:** |
|---|
| FIRE ALARM |
| TROUBLE |
| PREALARM |
| SECURITY ALARM |
| SUPERVISORY |
| DISABLED |
| ON/OFF *detectors, modules, panels only* |
| ACTIVE |

A detailed mapping of message interaction System Trouble messages provided by Notifier at the time this driver was written is tabulated in the NFS 3030 Driver Manual. Any changes or additions by Notifier will not be reflected in this driver unless specifically revised.

## Zone Status

Information about zone status that is incorporated with point status messages will not be recorded by this driver. A device can belong to multiple zones; however, only the primary zone is listed in printer output. This limits, severely, the accuracy of zone data based on event generated messages, and therefore will not be recorded.

However, zone DISABLED messages will be recorded by the driver as there is no ambiguity in their status.

## Panel Status: Data Array Mapping

The status of NFS 3030 devices will be recorded into a series of data arrays within the device, and are available for reading by any other connected device. The data from each loop will be recorded into a separate data array, and a single system array will record system troubles and disabled zones. The structure of the data arrays is provided below.

Most of these arrays will only contain binary information to represent an active or inactive state. However, there could be multiple troubles associated with a single device. For each trouble message, the data array register corresponding to a particular device will be incremented as a counter and decremented when a trouble is cleared.

| Parameter | Registers (float) | |
|---|---|---|
| *{per loop}* | | |
| Fire Alarm | 0-199<br>200-399 | detectors<br>modules |
| Trouble<br>*each point will increment/decrement the number of troubles recorded, system normal will reset the counter to zero* | 500-799<br>700-899 | detectors<br>modules |
| PreAlarm | 1000-1199<br>1200-1399 | detectors<br>modules |
| Security Alarm | 1500-1799<br>1700-1899 | detectors<br>modules |
| Supervisory | 2000-2199<br>2200-2399 | detectors<br>modules |
| Disabled | 2500-2799<br>2700-2899 | detectors<br>modules |
| On/Off | 3000-3199<br>3200-3399 | detectors<br>modules |
| Active | 3500-3799<br>3700-3899 | detectors<br>modules |
| *{system points only}* | | |
| System Troubles | 0-1000 | |
| Disabled Zones | 1000-1999<br>2000-2099<br>2100-2199 | General Zones<br>Releasing Zones<br>Trouble Zones |
| Panel<br>*note: some of these Data Arrays are not appropriate for panels | 3000-3099<br>3100-3199<br>3200-3299<br>3300-3399 | Fire Alarm<br>Trouble<br>*<br>Security |
| put arranged in this fashion for symmetry in message parsing | Alarm<br>3400-3499<br>3500-3599<br>3600-3699<br>3700-3799 | *<br>Disabled<br>On/Off<br>* |

## Port Supervision

The driver is able to process port supervision queries sent by the panel. It has several modes for achieving this.

| | |
|---|---|
| Mode=1 | Driver responds to port supervision queries. |
| Mode=2 | Driver responds to port supervision queries unless it fails to process a message correctly (parsing error). In this case the driver starts a 7 second timer during which time it will not respond to port supervision queries. |
| Mode=3 | Driver accepts the port supervision query but does not respond. This mode is useful for panels where supervision is enabled but no response should be sent. |
| Mode=4 | This is an internal mode. It means the mode is in transition. |
| Mode=5 | Similar to Mode 1 but can be made to transition between mode=3 and mode=5 based on the value in a Data Array. This mode is useful for Hot Standby. |

## Driver Limitations and Exclusions

- General zone disabling will be recorded, but zone information related to corresponding alarm, trouble, pre-alarm, security alarm, supervisory, and on/off will not be recorded.
- Synchronization between the NFS 3030 Panel and the device can only occur while the panel is in SYSTEM NORMAL mode. At this time the device can be reset.
- Read point status data will not be recorded as this information is not available at the printer port
- The printer port must be enabled on the unit and set to 80 columns with NO supervision unless port supervision is enabled in the driver configuration
- All data related to non-event driven printer reports will not be recorded by the device
- This driver was written specifically for the following Notifier 3030 firmware versions. Any changes or additions by Notifier will not be reflected in this driver unless specifically revised.

| | | | |
|---|---|---|---|
| Boot: | 001.001.001 | Dec 03 2002 | App: |
| | 001.005.001 | Feb 28 2003 | |

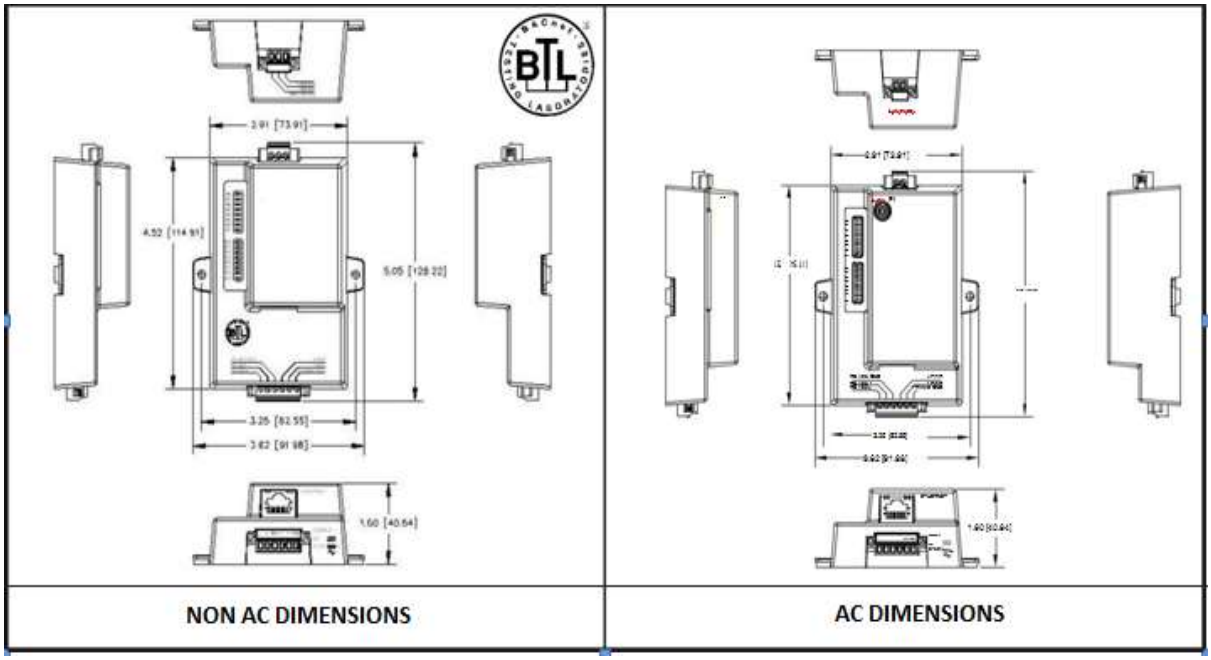
- Information about zone status incorporated with point status messages will not be recorded.
- There can only be one panel connected to any given port
- Data accuracy is dependent on data presented to the printer port by the Notifier NFS3030.

- The driver cannot send any messages (including Ack, Reset and Silence) to the 3030 Panel.

## Modbus RTU Protocol Driver Description

| PG-141-100-AB Mode | Comments |
|---|---|
| Client | Nodes:1 Only 1 client node allowed on Multidrop systems |
| Server | Nodes:255 Actual electrical loading may reduce number of usable server nodes |
| | |
| **Formal Driver Type** | Serial |
| | Client or Server |
| | |
| **Connection Information** | Connection Type: RS-232 or RS-485(Two wire, half-duplex) |
| | Baud Rate: 110-115200, standard baud rates only |
| | Data Bits: 7,8 |
| | Parity: Even, odd, None |
| | Multidrop Compatibility: Yes |
| | |
| **Function Code Supported** | |
| **Function Codes** | **Description** |
| 01 | Read Discrete Output Status (0xxxx) |
| 02 | Read Discrete Input Status (1xxxx) |
| 03 | Read Output Registers (4xxxx) |
| 04 | Read Input Registers (3xxxx) |
| 05 | Force Single Coil (0xxxx) |
| 06 | Preset Single Register (4xxxx) |
| 15 | Force Multiple Coils (0xxxx) |
| 16 | Preset Multiple Registers (4xxxx) |

## Dimensions:



| NON AC DIMENSIONS | AC DIMENSIONS |
|---|---|