Models:
GENII PI REM: Pulse Input Module

GENII PI REM
Pulse Input Module

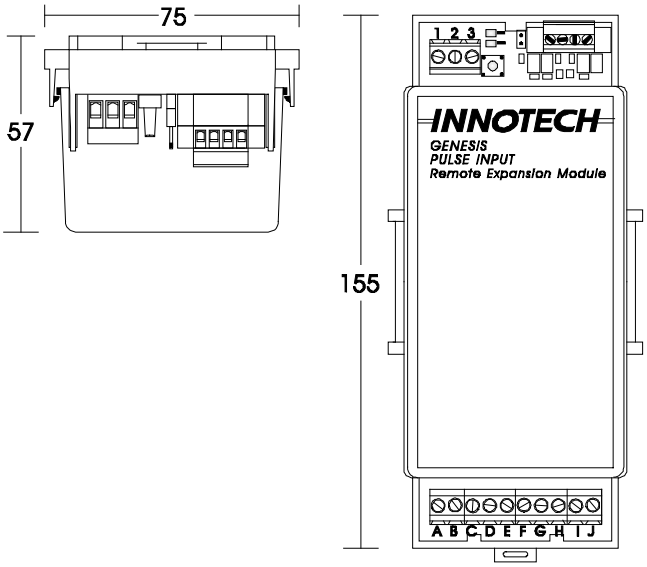
Overview
The Innotech GENII PI REM Pulse Input Module is a remote expansion device for the GENESIS range of Digital Controllers.

The module is powered by 24VAC and provides 5 opto isolated digital inputs to sense pulsed signals from field equipment. The voltage detection range is 12 to 24VDC.

The GENII PI REM may be located remotely from the GENESIS Controller providing distributed digital pulse inputs for the system.

The GENII PI REM is configured and programmed via the GENESIS Controller. The GENII PI REM communicates with the Genesis Controller via the REM Comms port. The remote link uses RS485 at a baud rate of 38400. For pre-version 5 controllers, a GENII RMI, Remote Module Interface, is required.

Please refer to DS 15.01 for further information.



Features
- The GENII PI REM detects pulses with a minimum on time of greater than 20ms, with a minimum off time of 20ms, which gives a maximum of 25 pulses per second
- 5 Optically isolated digital pulse inputs
- LED indication of input status
- Remote sensing and control of I/O points, up to 500m from the Genesis II Controllers
- Housed in a low profile DIN rail-mounted enclosure
- RS485 interconnection between modules
- Galvanic Isolation for communications to prevent grounding problems
- JUMPER selectable Address Number (1-15)
- Wiring Diagrams for modules generated by GEN2Config Software
- LED indication of network traffic assists network setup & debugging

Approvals
The GENII PI REM conforms to:
- EN61326-1:2013 for CE & RCM Labelling
- FCC Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Applications
- Expands GENESIS Digital Controller I/O capabilities by providing 5 opto isolated digital pulse inputs allowing distributed data acquisition via RS485. Typical applications include accumulating reading from sources such as a Kilowatt hour meter.

Application Notes
A GENESIS Controller must have version 4.1 firmware installed to support Pulse Inputs REM Modules. Version 4.1 Config Software must be used to configure a GENESIS Digital Controller that has Pulse Input REM Modules connected to it.

A GENESIS Digital Controller can have up to 15 GENII PI REM Modules connected to it via the REM comms bus. For detailed connection information to the pre-version 5 GENESIS Digital Controller Family, please refer to DS 99.03.

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Specifications

Power Supply

- 24VAC ±10% @ 50/60Hz
- Power Consumption: 4VA max

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a Class 2 safety transformer that has the energy and voltage limiting characteristics as described in the National Electrical Code, ANSI/NFPA70. It must also be sized and fused in compliance with local safety regulations.

Inputs

- 0V OFF
- 12-24V ON

(Supplied by Class 2 power source)

Terminal Identification

1	24VAC Supply
2	0VAC Supply
3	Earth

TERMINAL 3 is for the protection of the Comms circuitry and must be connected to a good electrical bonded Earth. This may be the Earth bus bar of the switchboard or the point that connects the chassis of the equipment the Module is in, to electrical Earth. This point should not be tied to terminal 2.

COMMS Connection

SHLD 1	Shield from incoming Comms Cable
+	RS485 (+) signal
-	RS485 (-) signal
SHLD 2	Shield from outgoing Comms Cable

I/O Terminal Connections

A	Input 1+
B	Input 1-
C	Input 2+
D	Input 2-
E	Input 3+
F	Input 3-
G	Input 4+
H	Input 4-
I	Input 5+
J	Input 5-

Temperature Ratings

- Storage 0 to 50°C non-condensing
- Operating 0 to 40°C non-condensing

Enclosure

The GENII REM Modules are housed in a rectangular case made from flame retardant polycarbonate / ABS plastic listed under UL94.

Colour:	Grey
Mounting:	DIN Rail

Installation

The Cable run between the GENII PI REM and the GENII RMI should not exceed 500 metres. The Comms wiring requires cable especially suited for RS485. Other shielded cable is not suitable and may cause spasmodic Comms failures.

The GENII REM Modules should be mounted on DIN rail in cabinets approved for switchgear or industrial control equipment. Strictly follow the guidelines when installing the Comms wiring as outlined in the Genesis II Installation Manual. Mount the GENII PI REM in a dry and clean location free of excess vibration.

There are four jumpers located in a row on the upper section of the GENII REM Module. These are labelled A0, A1, A2 and A3. These set the address of the GENII REM Modules. Directions for setting the address are shown in the wiring diagram generated by the GEN2Config software.

If for some reason, an address for a module needs to be changed, the unit must be powered down before the jumpers are altered. Anti-static precautions should be taken when changing addresses or adding or removing cabling from the terminals.

Wiring

The cable used for RS485 Comms must be shielded single twisted pair, 120 ohms character impedence, 36 to 45pF per metre capacitance between conductors.

The Comms cable must be organised as a bus topology. That is, starting at one end, devices are connected to it until the other end of the cable is reached. No “stubs” are allowed. To connect a device to the cable, a cut is made in the cable at the point where the device is to be situated along it. Then, the two new ends of the cable are wired into the device. The shields from the two new ends are then terminated into the terminals marked SHLD1 and SHLD2 respectively.

Refer to the Genesis System Network Installation Instructions for more information.

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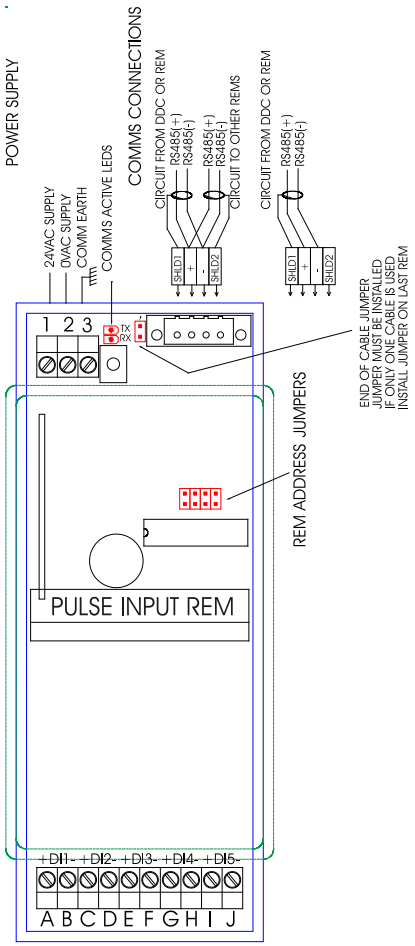

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note – This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.

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