

**New
Features!**

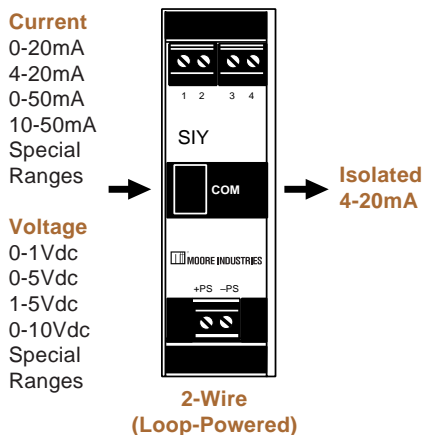
Description

Moore Industries' SIY PC-Programmable Signal Isolator/Converter combines smart digital technology with advanced analog operation to deliver superior reliability, accuracy, and ease of use.

The highly versatile SIY programs to accept a wide range of current or voltage inputs. It outputs an isolated, proportional, 4-20mA signal. As a flexible analog/digital hybrid, this 2-wire (loop-powered) transmitter programs in seconds to handle a wide range of important signal interface applications:

- **Isolate Signals** to stop erratic process measurements caused by ground loops.
- **Convert Signals** so field instruments can interface directly with an indicator, recorder, DCS, PLC, or PC-based SCADA system.
- **Divert Signals** so the output from one transmitter can be sent to two separate locations.
- **Protect Equipment and Signals** by eliminating common electrical paths.
- **Boost Signals** so that more instruments can be added to an overburdened loop.
- **Solve "Bucking Power Supplies"** by stopping a conflict caused by a 4-wire transmitter and a DCS both trying to power the same process loop.

Figure 1. Compact yet powerful, this 2-wire signal interface features programmable inputs with a completely isolated output.



* All product names are trademarks of their respective companies.



Available in rail-mount DIN-style and head-mount "hockey-puck" housings, these precision instruments install in a high-density cabinet or in harsh field conditions.

Features

- **Wide range of signal input choices.** There's no need to specify and stock fixed-range instruments as spares. The SIY handles the majority of current/voltage interface applications you are likely to encounter.
- **Input/output opto isolation.** The SIY delivers superior protection against the harmful effects of ground loops and other plant "noise".
- **Fast measurement cycle.** Delivering an output update up to 8 times per second, you'll get analog speed combined with digital versatility.
- **RFI/EMI protection.** The SIY is resistant to the harmful, unpredictable effects of radio frequency and electromagnetic interference.
- **Enhanced configuration software.** From a single screen, you can set all the application-specific parameters. New features allow you to: trim input sensor readings, customize input linearization curves, program output damping, and calibrate other loop instruments—all from a single screen!

SIY

PC-Programmable
Signal Isolator/Converter

Specifications

Performance Accuracy: $\pm 0.08\%$ of span (includes input accuracy, output accuracy, and the combined effects of linearity, hysteresis, repeatability, and adjustment resolution)
Minimum Input Span: Current, 1mA; Voltage, 250mV
Isolation: HPP housing, 1500Vrms input to output to case; DIN housing, 500Vrms input to output to case
Measurement Cycle: Output updates 8 times per second
Output Response: 256msec, maximum (128msec typical) for output to reach full scale in response to a 10-90% step change on input
Input Impedance: Voltage, 1M Ω ; Current, 20 Ω
Ripple: 10mV peak-to-peak maximum (measured across 250 Ω resistor)
Load Effect (current outputs): Negligible within specified load limits

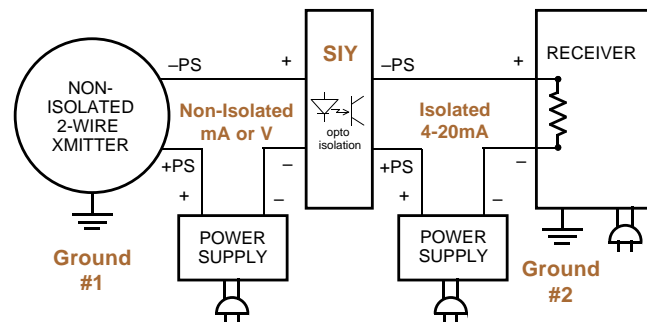
Performance (continued) Power Supply Effect: 0.002% of span per 1V change
Over-Voltage Protection: 48V, maximum on output; 48V reverse polarity protection on output
Maximum Input Overrange: Current: 100mA maximum continuous; Voltage on Current Input: $\pm 5V$ dc peak; Voltage: 18Vdc
Load Capability: Supply Voltage – 10V = Ω 0.02A
Output Current Limiting: 3.8mA (low) and 21.4mA (high)
Ambient Conditions Operating Range: -40°C to $+85^{\circ}\text{C}$ (-40°F to $+185^{\circ}\text{F}$)
Storage Range: -40°C to $+85^{\circ}\text{C}$ (-40°F to $+185^{\circ}\text{F}$)
Effect of Ambient Temperature on Accuracy: $\pm 0.015\%$ of span/ $^{\circ}\text{C}$
Relative Humidity: 0-95%, non-condensing

Ambient Conditions (continued) RF/EMI Immunity: 20V/m @ 20-1000MHZ, when tested according to SAMA standard 33.1 (10V/m @ 80-1000MHZ, 1K AM, when tested according to IEC 1000-4-3-1995)
Common Mode Rejection: 100dB, minimum, @ 50/60Hz
Normal Mode Rejection: 60dB, typical, @ 1V peak-to-peak, 50/60Hz
Adjustments The choice of a current or a voltage input is selected via the input terminals; all other settings are made using Windows-based configuration software
Weight HPP-Style Housing: 65 g (2.3 oz)
DIN-Style Housing: 184 g (6.5 oz)
LH1-Style Housing: Polyester Cover: 283.5 g (10 oz.)
 Metal Cover: 468 g (16.5 oz.)

Stop Ground Loop Noise!

A difference in potential between a grounded transmitter and a grounded receiving device on the same loop may result in unpredictable ground loop problems, which can lead to signal drift.

Use the SIY to break the galvanic path between a field transmitter and an indicator, recorder, DCS, PLC, or PC-based SCADA system. This stops the harmful effects of ground loops, motor noise, and other electrical interferences.



Certifications



CSA: General Location – File Number LR28549-97



CE: Conformant – EMC Directive 89/336/EEC
EN 50081-2, 1993 and EN 50082-2, 1995

Ordering Information

Unit	Input	Output	Power	Options	Housing
SIY PC-Programmable Isolator/ Converter	<p>PRG Programmable with supplied Configuration Software and front panel connection terminals for:</p> <p><u>CURRENT (into 20Ω):</u> Any range from -2.5mA to 55mA including: 0-20mA 4-20mA 0-50mA 10-50mA (recommended minimum span, 1mA)</p> <p><u>VOLTAGE (into 1MΩ):</u> Any range from -0.5 to 11V including: 0-5Vdc 1-5Vdc 0-10Vdc (recommended minimum span, 250mV)</p>	<p>4-20mA Program-mable output span between 4mA minimum and 20mA maximum into 600Ω with 24Vdc power supply</p>	<p>10-42DC (loop-powered on output side)</p>	None	<p>DIN Universal, DIN-style aluminum housing mounts on 32mm G-type (EN50035) and 35mm Top Hat (EN50022) rails</p> <p>HPP Hockey-puck housing for mounting in standard connection and field-mount heads</p> <p>D2LS HPP in <i>D-BOX</i> enclosure with two 1/2-inch NPT entry ports and a solid cover</p> <p>D2LSP HPP in <i>D-BOX</i> enclosure with two 1/2-inch NPT entry ports and a solid cover with 2-inch pipe mount hardware</p> <p>LH1NS* Connection head with two entry ports: 1/2-inch NPT conduit and process-black PBT polyester cover.</p> <p>LH1NA* Connection head with two entry ports: 1/2-inch NPT conduit and process-black aluminum cover.</p> <p>LH1MS* Connection head with two entry ports: M20 cable and 1/2-inch NPT process-black PBT polyester cover.</p> <p>LH1CS* Connection head with two entry ports: M20 cable and G1/2 (BSP) process-black PBT polyester cover.</p> <p>LH2NS Explosion-proof connection head with two entry ports: 1/2-inch NPT conduit and process-black metal cover.</p> <p>LH2MS Explosion-proof connection head with two entry ports: M20 cable and 1/2-inch NPT black metal cover.</p> <p>CH6 HPP in plastic polypropylene, NEMA 4 connection head.</p> <p><small>* For alternate cover color, replace the fifth designator in the LH1 model number with appropriate letter from below (i.e. LH1NG): C = Clear (LH1 only), B = Blue, R = Red, Y = Yellow, G = Green. ** For Group A (only) all conduit must be sealed within 18 inches.</small></p> <p><small>NOTE: Add "P" suffix to any LH or CH housing for 2-inch pipe mounting hardware (i.e., LH1NSP).</small></p>

When ordering, specify: Unit / Input / Output / Power / Options [Housing]

Model number example: SIY / PRG / 4-20MA / 10-42DC [DIN]

Everything you need is included...

Each SIY order comes with one copy of our Configuration Software on a 3½-inch floppy disk (Windows® 3.1, '95, '98, and NT Compatible). To order additional copies, specify Moore Industries' part number: **235-75120-01**.

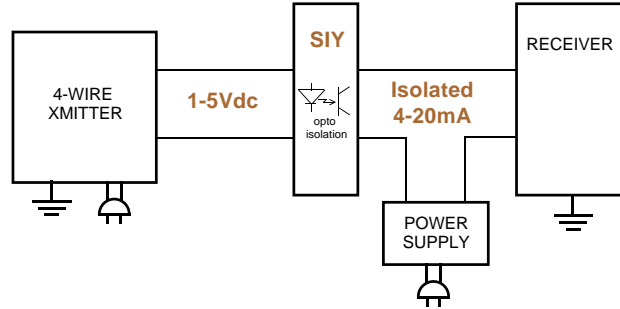
A SIY Configuration Cable is required to use the PC to configure the SIY. To order an unisolated cable for use in the shop using a grounded PC, specify Moore Industries part number **803-040-26**. If you plan to configure the SIY in the field or in areas with high ground potentials, specify part number **803-039-26** for a cable equipped with its own self-powered, input-to-output isolation circuit.

SIY

PC-Programmable Signal Isolator/Converter

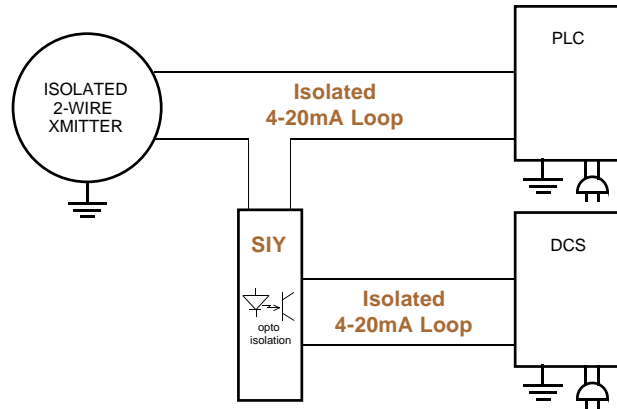
Convert Signals

The SIY takes one process signal type (such as 1-5V) and converts it to a standard, isolated 4-20mA. This allows devices like transmitters and transducers to interface directly with an indicator, recorder, DCS, PLC, or PC-based SCADA system.



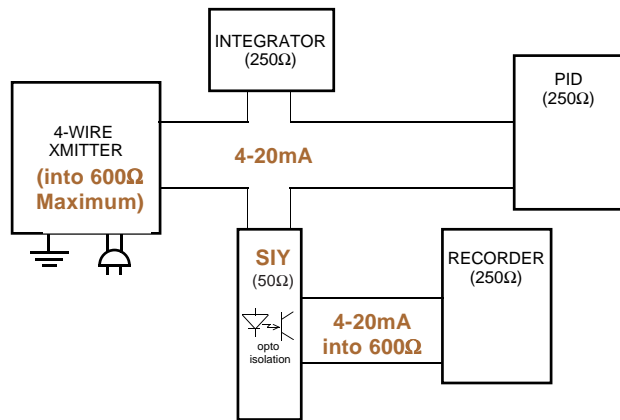
Divert and Protect Signals

Using the SIY, you can send the output from one transmitter to a second location, protect expensive monitoring/control equipment by eliminating common electrical paths, or create a buffer between devices to allow interruption of one system without impacting the other.



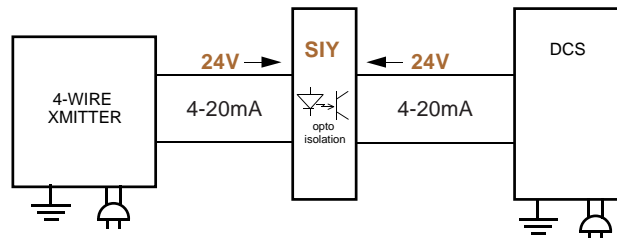
Boost Signals

If you need to add another instrument to an overloaded loop, use the SIY. It features a high drive capability of 600Ω (with a 24V power supply) and an input impedance of just 20Ω.



Solve "Bucking Power Supplies"

When two devices (such as a 4-wire transmitter and a DCS) are trying to source power to a loop, the result is a non-functioning loop. When neither of the devices can be eliminated, the solution is the SIY. It can operate with powered inputs from both sides, thus restoring normal operations to the loop.





One Window. One Minute. One Setup.

Configuring the SIY is as simple as point-and-click. All you need is a PC running Windows (v3.1, '95, '98, or NT), our Configuration Software (one copy supplied free with each order), and a configuration cable. In minutes, you can begin configuring your transmitters':

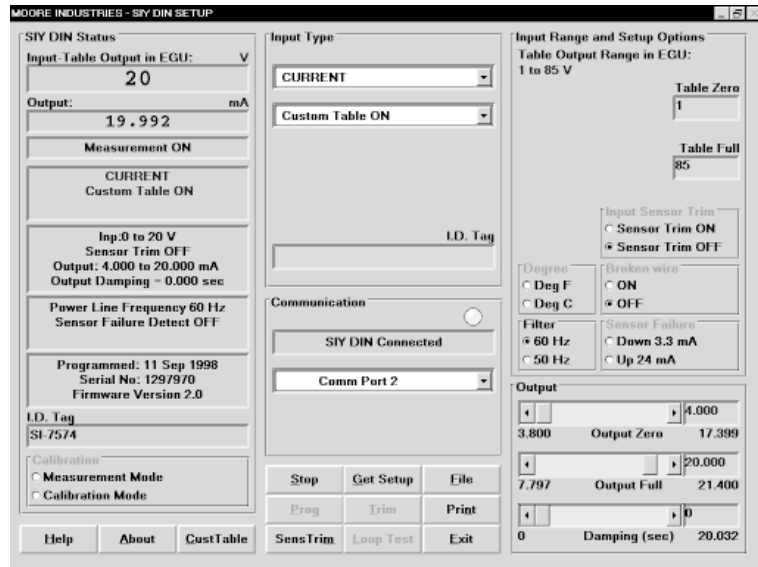
- Input type and range (zero and full scale)
- Output range (4-20mA, zero and full scale)
- Noise rejection (50Hz or 60Hz)
- Direct or reverse output
- Over or under input range detection
- Custom instrument tag and serial number
- Custom input linearization
- Custom input trimming to actual sensors
- Fixed output with an easy loop test
- Damping time for erratic signal compensation (0-20.032 seconds)

Custom Linearization Tables—Unusual inputs are not a problem for the SIY. Not when it is so easy to build a custom 85-point linearization table with the Configuration Program's straightforward interface.

Output Damping—If your sensor is prone to step increases and decreases, use the SIY to lessen the impact on your process. You can program a damping value from 0 to 20.032 seconds, averaging out sensor fluctuations over the time period setting, and lessening the impact of step changes.

On-Screen Setup Confirmation—Once programmed, the operating parameters you have selected are constantly displayed in the configuration window.

Figure 2. From a single software window, you can program the SIY in one minute or less.



Configuration Alerts—Data fields on the configuration window provide alert messages (such as “Zero or Full Scale Outside of Conformance Range”) to let you know when you are making a nonstandard or ill-advised selection.

Store and Print Files—After you've created a configuration file, it can be downloaded to multiple SIY's, printed out as a hardcopy, or named and stored (on a PC hard drive or disk).

Reverse Output—Setting Zero Scale Input numerically above Full Scale Input will result in the transmitter's output going up when the input goes down, and vice-versa. When you have chosen this operation, the “Output” portion of the configuration screen changes to read “Reverse Output”.

Digital Output Trimming—A sophisticated yet simple-to-implement software feature allows you to adjust the SIY's output to compensate for inaccuracies in your readout equipment. The “Zero Scale Output” can be adjusted between 3.797 and 17.400mA. The “Full Scale Output” adjusts between 7.798 and 21.401mA.

Context-Sensitive HELP System—Just point to the area on the Configuration Screen where you are encountering difficulty, and an explanation appears on the bottom of the screen.

SIY

PC-Programmable Signal Isolator/Converter

Figure 3. Installation Dimensions.

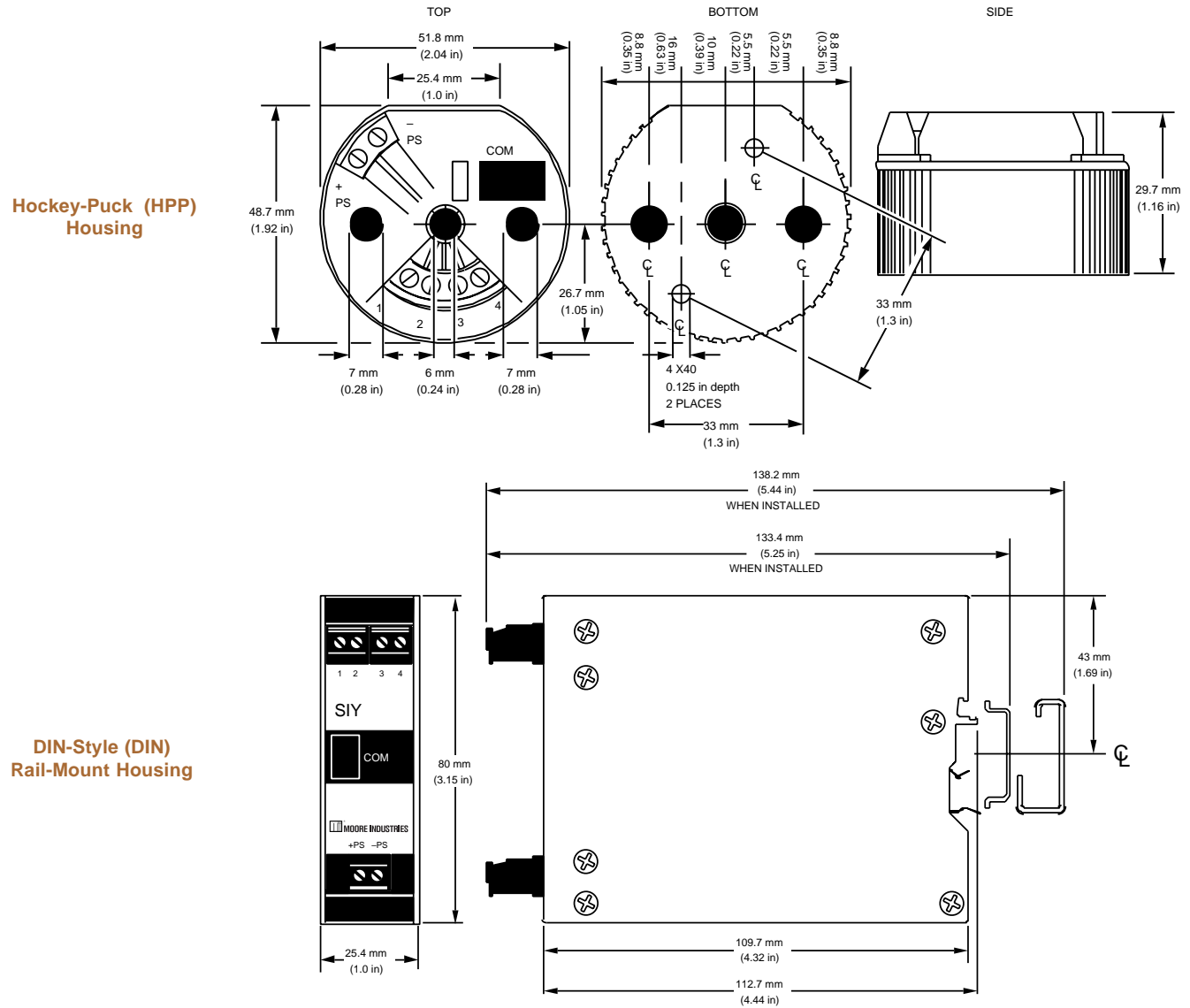


Table 1. Terminal Designations.

Input Type	Input Terminals				Output Terminals	
	1	2	3	4	Left to Right	
Current Inputs		+I		-I	+PS	-PS
Voltage Inputs			+V	-V	+PS	-PS

Factory Configuration Available

We can deliver your SIY PC-Programmable Isolator/Converters preconfigured to your specifications and ready to install.

You'll still receive a free copy of our software with your order so that you can reconfigure your SIY if your needs change. Consult your Moore Industries' Sales Representative or one of our STAR Centers for details.



The Interface Solution Experts • www.miinet.com

United States
Tel: (818) 894-7111
FAX: (818) 891-2816

Australia
Tel: (02) 9525-9177
FAX: (02) 9525-7296

Belgium
Tel: 03/448.10.18
FAX: 03/440.17.97

The Netherlands
Tel: (0)344-617971
FAX: (0)344-615920

United Kingdom
Tel: 01293 514488
FAX: 01293 536852