The Fiberoptic Communications Specialists

Fiberoptic Digital I/O (Input/Output)

Model 531-8

For point-to-point transfer-trip relaying, use the H&L Model 531-8 Fiberoptic Digital I/O

Model 531-8 Features

- **Plug-in optical modules for multimode or singlemode operation**
- **8 opto-isolated 12-250Vdc inputs**
- **8 isolated, microprocessor fault-protected, latched relay outputs**
- **Choice of Solid-state or electro-mechanical relays**
- **Gold contacts optional (for very low resistance for low voltages)**
- **High Speed option**
- **RS-232 input option**
- **LED status indicators for each input and output**
- **Convenient terminal blocks for inputs, outputs and power**
- **Transient resistant power supply**

Overview

The Model 531 is a dependable fiberoptic solution that replaces copper wire connections and galvanically isolates, protects, and monitors contacts remotely (such as close-coil, local, or remote trip). If you need to telemeter revenue meter pulses over distances of many miles, you need the Model 531-8 Fiberoptic Digital I/O from H&L Instruments. This unique ***wire replacer*** product does not require a PC (just a screwdriver to connect the inputs and outputs).

The use of fiberoptics (glass or plastic) eliminates aggravations typically found in copper, radio, and telco wireline systems. It is, by far, the most reliable high-speed medium available for data communication. By investing in H&L Instruments 531-8 to connect to electrical switchgear such as reclosers, you ensure that the best performance possible.

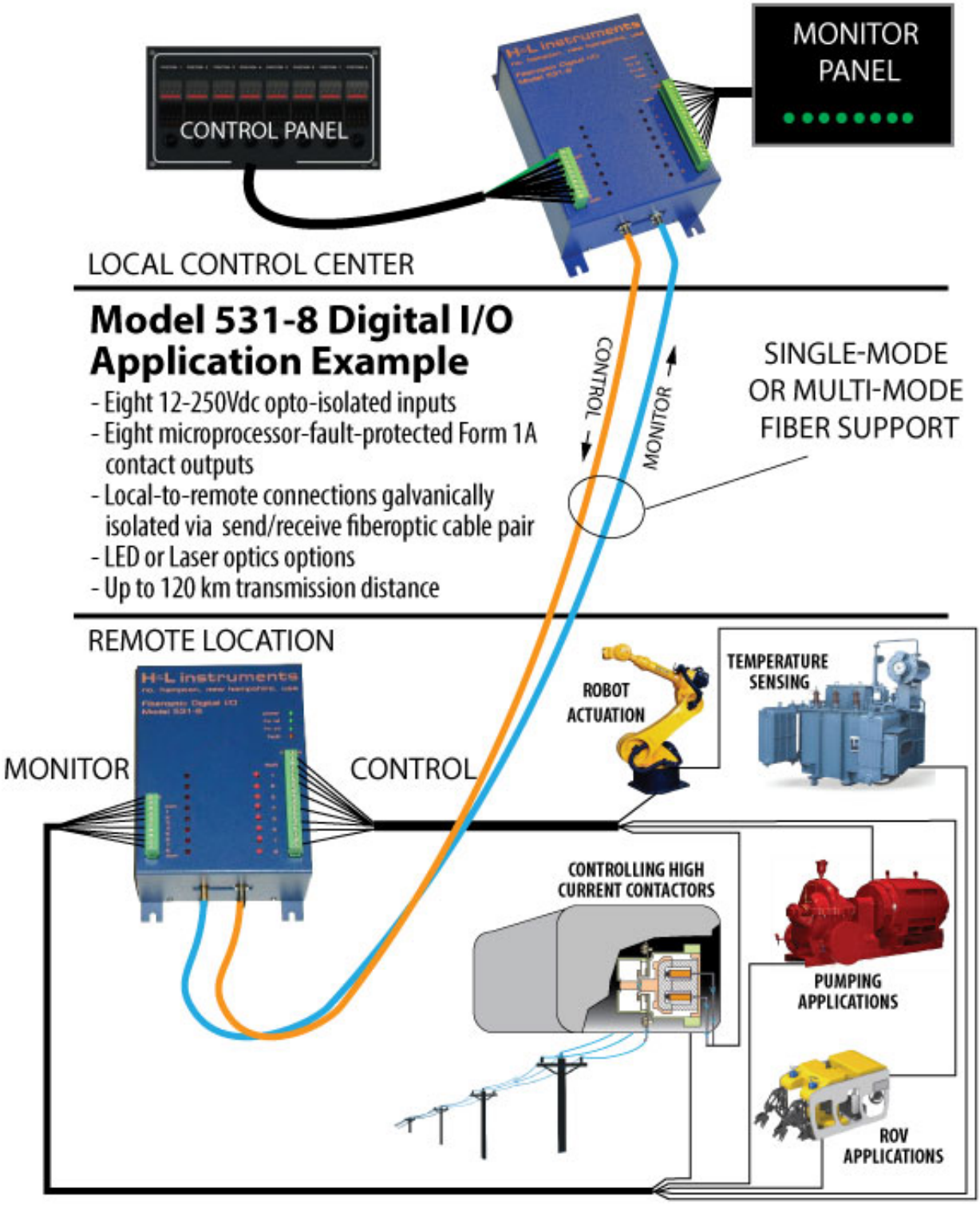
The Model 531-8 is simple to install due to its removable plug-in screw terminals. It offers plug-in optical modules for multimode or singlemode fiber operation. You can substitute an RS-232 module for the optical module and connect the unit to a Model 570 transceiver. This allows you to take advantage of the many point to point fiberoptic channels on the 570 system to avoid need for additional dedicated fibers.

Easy-to-read LED indicators continually display the status of inputs and outputs. The unit has 8 universal (12-250Vdc) opto-isolated voltage inputs and 8 isolated microprocessor fault-protected relay (Form 1A) outputs that are provided as either solid-state (best for revenue or RPM pulse transfers) or electro-mechanical (with optional gold contacts for very low resistance, low voltage applications. The Model 531-8 is bi-directional. Via fiber, the inputs on one unit control the outputs on the mating unit to permit relaying electrical status signals without a ground loop, while maintaining a floating signal locally. The latched relay outputs remember their state through the use of CRC checking of fiber data packets. If a fiber is severed, or the sending unit loses power, the outputs do not change, ensuring reliable data exchange and no un-commanded operations.

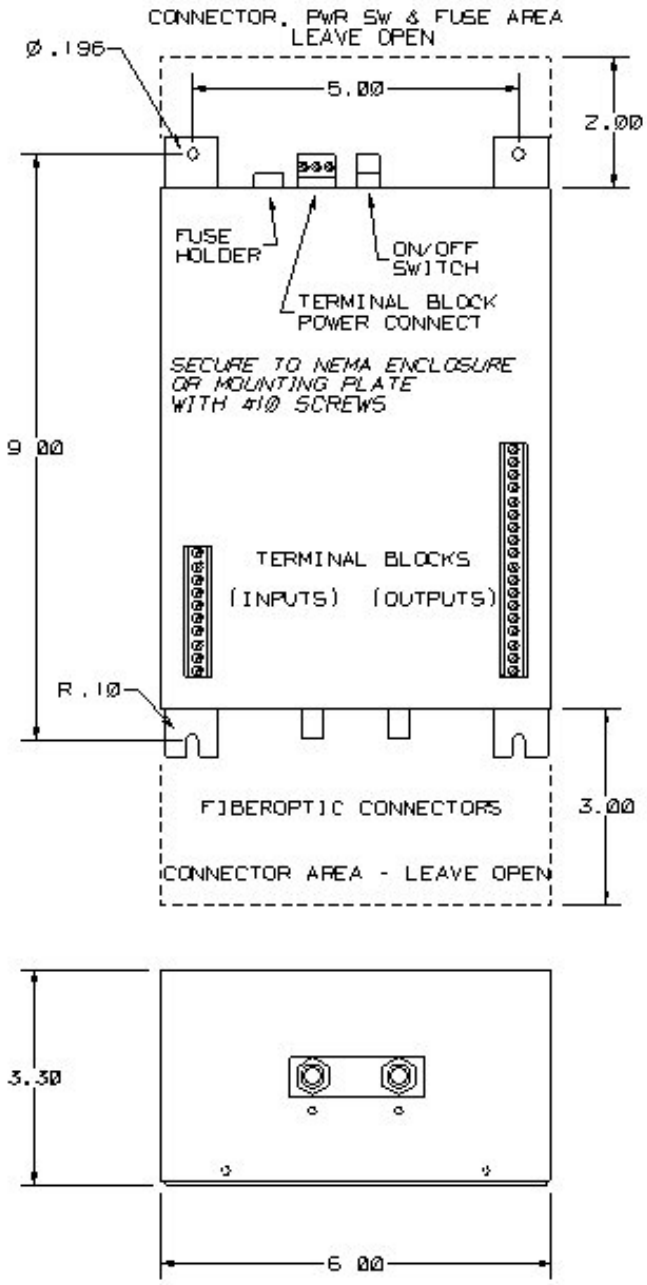
The Model 531-8 actively tests the fiber signals for errors, consistently checking to prevent accidental state changes. It uses a ninth relay alarm contact and LED indicator to immediately alert you to any communication problems.

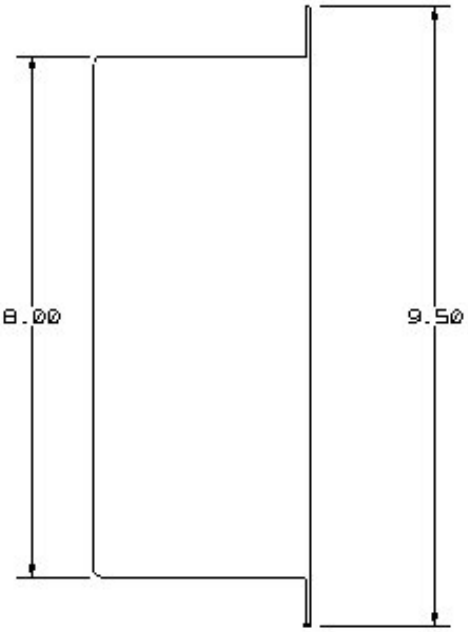
High Speed Option

An optional high-speed version of the product is available to reduce the sampling interval and input RC signal filtering. The high speed option requires the use of solid-state relays and results in a square wave frequency response of ~125 Hz. A minimum input pulse on-time of 4 msec is required, which corresponds to a 125Hz pulse rate at a 50% duty cycle. This means, for example, that at 50Hz, the duty cycle must be between 20% and 80%.



"We just call them [Model 531-8s] our 'blue bricks.' Just like bricks, you put them in place and they do their job. You don't have to think about it — they are so reliable!"
- Detroit Edison





Other H&L Fiberoptic Products:

Model 508B Fiberoptic TransNet Extender (fiberoptic isolation)
Model 532A Modem/Multiplexer (point-to-point communications)
Model 542B Fiberoptic Transceiver (multi-drop loop communications)
Model 561 Fiberoptic Transceiver (FiberLoop II™ multi-drop self-healing system)
Model 561-16 (16 serial ports)
Model 570E Fiberoptic Transceiver (FiberLoop III™ multi-drop self-healing system with Ethernet option)
Model 570-16 Transceivers (16 serial ports)
Model 570X-E Fiberoptic DNP3 Gateway Transceiver

Model 531-8 Specifications

Inputs:

8 opto-isolated, 12-250 Vdc

Relay Specifications:

Operate/Release Time:

Electromechanical	6/3 msec
Photovoltaic	2/0.5 msec

Receive Delay:

Electromechanical	15 msec
Photovoltaic	15 msec
Photovoltaic Hi-speed Option	6 msec

Current, voltage, resistance:

Electromechanical 5A at 30 VDC resistive
5A at 250 VAC resistive

Photovoltaic 0-400 volts (DC or AC peak)
125 mA-AC, 250 mA DC
22-32 Ohms (AC/DC), 5-8.25 Ohms (DC only)

Fiberoptic Connectors: ST

Optical Budget:

20 dB multimode LED @ 850nm (62/125 fiber)
16 dB singlemode LED @ 1300nm
32 dB singlemode Laser @ 1310nm

Optical Output Power:

LED> -18 dBm @ 850nm multimode (62/125 fiber)
LED> -24 dBm @ 1300nm singlemode
Laser> -8 dBm @ 1310nm singlemode

Environmental/Mechanical Specs:

Operating Temperature: -40°C to +85°C
5% to 95% RH
Net Weight: 4lbs. / 9.5" X 6" X 3.3"

Power Options (10 watts all relays on):

12Vdc, 24Vdc, 48Vdc, 125Vdc/120Vac 50-60 Hz,
250Vdc/230Vac 50-60 Hz

H&L instruments

PO Box 580
34 Post Road
North Hampton,
New Hampshire 03862
USA
Tel: 603.964.1818

www.hlinstruments.com

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