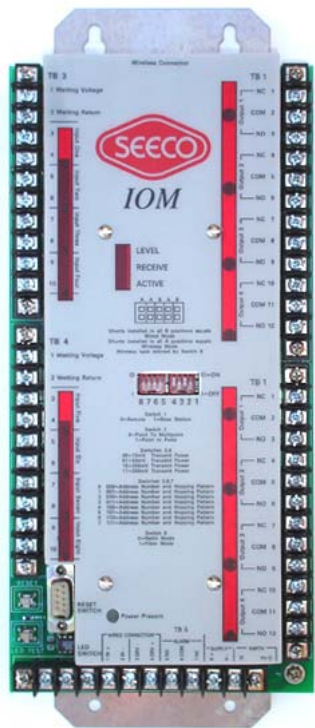




Remote I/O Module



Type: IOM
Operating Voltage: 24, 48, 125 VDC

Description

The remote I/O module provides convenient, reliable and cost effective communication of status and control signals between peer to peer IEDs using RF or RS485. *Optical fiber available in first quarter of 2009.*

Applications

- Substation protection and monitoring - Enhance relay control of breakers, cap banks, group operated isolation switches and other protection devices.
- Transmission switch sectionalizing - Facilitate coordination of multiple switches in close proximity for line sectionalizing and fault isolation
- Line switch control from substation blockhouse - Control line switches outside and adjacent to the station using existing station RTU or relays without costly trenching or ground loop current

Features & Benefits

- Rapid installation - Fast, simple installation and testing compared to traditional control wiring
- Economical - Reduces trench and raceway requirements, material expense and installation labor
- Safety - Eliminates paths for dangerous voltages

Standard Features

The IOM RF version includes a high performance 2.4 GHz spread spectrum wireless transceiver. Frequency hopping ensures maximum immunity to noise and multipath fading, and reliability in the presence of interfering signals. Data is error checked with 24-bit cyclic redundancy check. DIP switch settings are provided for selecting three levels of RF transmit power, device address number and frequency hopping pattern.

The IOM for traditional serial wired communication is provided with a RS485 isolated transceiver.

Each configuration of IOM comes complete with a digital interface of eight 5000 Vrms isolated inputs and eight outputs. The eight digital inputs are divided into two groups of four. Each group of four has a separate and isolated wetting voltage. Each output is a form "C" contact rated at 16 amperes at 250 VAC. LED status indicators are provided for each input and output.

A form "C" alarm relay output is provided which will de-energize if a failure occurs. LED status indicators are provided for RF level, module active and data transfer active. Terminal blocks are provided for all connections

Standard Features (cont'd)

and are rated for 15 amperes at 300 volts. Other standard features include a system reset button, LED test button, DB9M RS232 connector, a null modem cable and a setup disk for communication with Windows® Hyper-Terminal.

The board design is solid state with integrated circuit technology, surface mount construction and micro processor control of all board functions. The board is designed for high reliability in a range of challenging conditions, including temperature ranges of +85°C to -40°C.

To Be Specified on Order

To obtain pricing information or to place an order, the following minimum information must be specified:

- Catalog number
- Operating voltage: 24, 48 or 125 VDC
- Method of communication: RF, RS485 or *optical fiber*
- *Connector style (optical fiber only)*
- Optional equipment or non-standard features



Catalog Numbers and Ratings

Operating Voltage	Method of Communication		
	RF	Optical Fiber	Serial RS485
24 VDC	IOM-024R	IOM-024O	IOM-024S
48 VDC	IOM-048R	IOM-048O	IOM-048S
125 VDC	IOM-125R	IOM-125O	IOM-125S

General Specifications

Environment

Temperature: -40°C to +85°C

Humidity: 20% to 90% (non-condensing)

Customer Enclosure

NEMA 3R or better

Dimensions and Weight

13.33 in (H) X 6.5 in (W) X 2.5 in (D), 797g (1.846 lbs)

Power Supply Ratings

24 VDC	18-36 VDC @ 225 mA maximum
48 VDC	36-75 VDC @ 165 mA maximum
125 VDC	66-154 VDC @ 133 mA maximum

Digital Inputs

(8) Optical isolated inputs

(2) Isolated wetting voltages: 24-154 VDC

Each wetting voltage input assigned to 4 inputs

2.47 mA nominal input current with 4 inputs active

Digital Outputs

(8) Optical isolated outputs, SPDT, 16A /250 VAC,
16A /24 VDC resistive load

Contact material: AgSnO₂

Maximum switching voltage: 440 VAC

Maximum switching current: 16A

Initial contact resistance: max. 50 mOhm

Data Rate (bps): 9600

Operate Time: 18 ms

Alarm relay (form C): .3A/125 VAC, 1A/30VDC, resistive load

Operator Interface

Terminal configuration (RS232C): 9600 baud, 8 data bits, no parity, 1 stop

Input to output delay: 150 ms maximum

(1) *Optical fiber available in first quarter of 2009*

(2) For optional antenna and coax cable, please specify the required length of coax to be supplied; antenna and coax are at additional cost

RF Specification

2.4 GHZ spread spectrum wireless

802.11b avoidance to frequency bands

FCC Certification, Part 15.247 (no license required)

ETSI Certification, brETSI 300.328 (no license required)

Rated RF power +24dBm

Frequency range 2401-2495MHz

Number of channels 16 US

Receiver sensitivity -92dBm@10⁻⁵ BER

Channel data rate 450Kps

IF adjacent channel rejection >55dB

24 bit cyclic redundancy check

Distance determined by antenna gain and location

Serial Wired Specification

RS485 isolated transceiver

Input to output isolation: 2500 Vrms

Transient immunity: 30kV/us

Distance: up to 4000 ft

Data rate: 9600, 8 data bits, no parity, 1 stop

Optical Fiber Specification

Specification information available first quarter of 2009