- 8 general purpose individually isolated inputs
- Monitor references, anode currents, T/R voltages
- -3Vdc to +3Vdc in low range (>100Mohm)
- 0 to 60Vdc in high range

When used in a PowerView CP System:

- Synchronises with PowerView Testing
- Performs remote Instant Off & Depol. testing
- Perform 10/1000Mohm Reference Testing

Features

- 9-30Vdc powered
- RS485 Modbus RTU communication option
- PowerView CP System compatible
- High accuracy 16 bit measurements

- 500Vdc inter-channel isolation
- Positive and negative measurements up to ±3Vdc
- Resolution of 10µV for accurate shunt measurements
- Compact DIN rail mount format

Overview

The **PowerView iREF8** cathodic protection 8 input monitor module is designed for remote monitoring of cathodic protection systems.

Its primary application is the monitoring of reference half-cells, but the flexibility of this module allows other inputs such as TR voltages and currents to also be monitored.

Inputs

Eight individually isolated inputs can be used to accurately measure reference half-cell voltages, or the volt drop across external current shunts, or transformer/rectifier output voltages up to 60Vdc, or any other ancillary measurements.

Each input can be set by a user selectable link to be in low range or in high range. In low range, the input has an input impedance of greater than 100Mohm, and can measure inputs from as low as ±50mVdc up to ±3Vdc with an accuracy of <0.25%

Input Impedance

In low range, input impedance of the inputs is extremely high at >100Mohm for accurate long term measurement of reference half-cells.

The module can be switched into "Lo-Z" (low impedance) mode, where the input impedance of all inputs in low range is set to 10Mohms.

Mounting

The iREF8 module is designed to be fitted to a 35mm standard DIN rail.

Communications

The iREF8 module is equipped with a two-wire RS485 port. This allows communications to the module over a single twisted pair cable up to 1200m in length.

Up to 32 modules can be connected in a daisy chain on a single communication cable. Module addressing is by rotary selector switch on the front of the module.

By selecting the appropriate address on the rotary switches the module communications can be set into Modbus RTU protocol for communication with a third party Modbus Master device such as a SCADA system, or in the native communication protocol used by the PowerView CP system.

RS485 Termination

A companion RS485 termination board is used to connect the iREF8 modules to a network. This termination board, the model C6366A Mini Patch Board provides the following functions:

1. Terminals for daisy-chaining the RS485 cable, allowing servicing without breaking the RS485 link.
2. Four RJ11 connectors allowing up to four iREF8 modules to be connected to a single mini patch board.
3. Provides power to the iREF8 via power input terminals

Local Test Points

A ribbon connector on the module allows the inputs to be monitored on a user accessible front panel by the plugging in the companion 8 way monitor board.
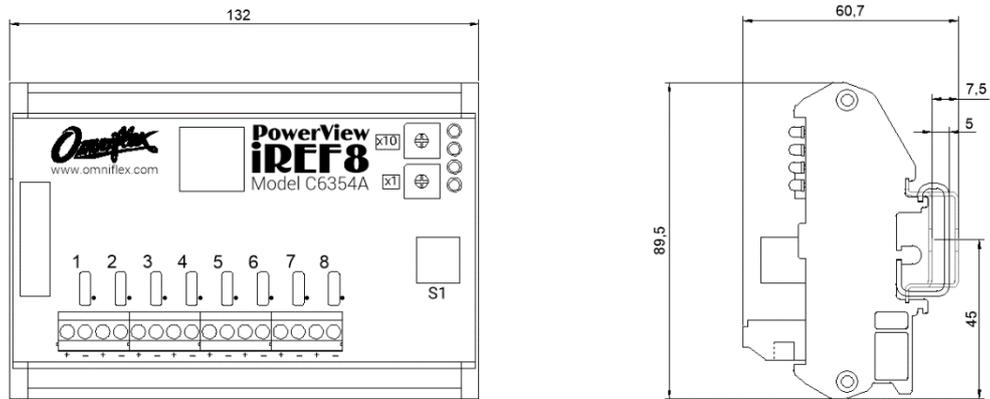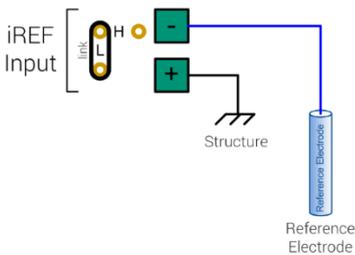.

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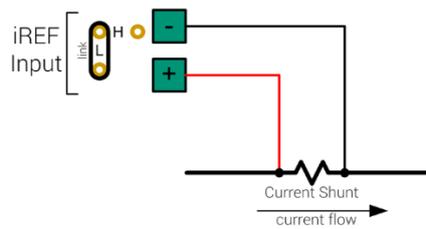Omniflex
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Mechanical Details

Connection Examples

Connecting a reference electrode

Connecting a current shunt
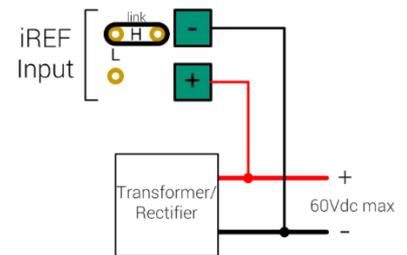
Connecting a T/R voltage

Application Example: Monitoring a conventional Transformer/Rectifier

iREF8
Model C6354A

Mini Patch Board
(RS485)
Model C6176A

Input 1: T/R Voltage (0-60Vdc)
Input 2: Anode 1 Current (0-300mVdc)
Input 3: Anode 2 Current (0-300mVdc)
Input 7: Reference 1 (-3 to +3Vdc)
Input 8: Reference 2 (-3 to +3Vdc)

Dual twisted
pair cable
from SCADA

9-30Vdc

Modbus RTU
(RS485)

Anode 1

Structure

Ref 1   Ref 2

Transformer/
Rectifier
60Vdc max

Anode 1+

Anode 2+

Structure

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Specifications

Power Supply

Connections	Via RJ11 communications cable
Voltage	9-30Vdc (<5% ripple)
Current	<100mA

Inputs

Quantity	8 channels
Isolation	500Vac channel to channel

Range Selection

Method	User selectable link per input channel
Options	High Range / Low Range

Low Range

Input Range	-3Vdc to +3Vdc
Input Resolution	0.01mV when input < 300mV 0.1mV when input > 300mV
Input Accuracy	0.1mV when input < 300mV 1mV when input > 300mV
Input Impedance	>100Mohms in default Hi-Z mode 10Mohms in Lo-Z (low impedance) mode
Over-voltage protection	60Vdc

High Range

Input Range	0 to +60Vdc
Input Resolution	2mV
Input Accuracy	0.25% of reading
Input Impedance	1 Mohm

Communication Port

Type	RS485 (two wire + ground)
Connection	1 x RJ11 (power + communications)
Protocols	Modbus ASCII or RTU Slave Conet/s (selected with address switch)
Max. no of slaves	32
Max. Cable Length	1200m (4000 ft) Refer RS485 spec for limitations

Slave Address and Protocol Selection

Method	Rotary Switch or via software configuration

Address 0	Modbus ASCII; 9600baud on address 2.
Address 1 to 60	Conet/m at 38,400 baud Addresses 1 to 60 (compatible with PowerView CP systems)
Address 61 to 70	Modbus RTU 9,600baud Addresses 1 to 10 respectively
Address 71 to 90	Modbus RTU 38,400baud Addresses 1 to 20 respectively
Address 99	Software configured baud and protocol.

Environment

Operating Temp.	-10° C − 60° C (+14° F − 140° F)
Relative Humidity	5 to 95%
Storage Temp.	-25° C − 85° C (-13° F − 185° F)
MTBF	220,000 hours

Mechanical

Width	130mm
Height	89.5mm
Depth	50mm

Weight

Unpacked	160gm approx.
Packed	265gm approx.

Compliance to Standards

Safety	UL60950-1, EN60950-1
EMC	EN 55011:2011 Class B EN 61000-3-2:2014 (IEC 61000-3-2:2014) EN 61000-3-3:2013 (IEC 61000-3-3:2013) IEC 61326-1

Ordering Information

ORDER CODE	DESCRIPTION
C6354A	PowerView iREF8 Monitor Module

Accessories

C6357A	PowerView 8 way Panel-Mount Test Point Board
C6176A	PowerView Mini Patch Board

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