3595 1Q1

20 Channel Analogue Reed Relay
IMP Replacement of 3595 1H IMP

What is the 3595 1Q1 – 20 Channel Analogue Reed Relay IMP Replacement of 3595 1H IMP?

The 35951Q1 is an enhanced version of the 35951C1, which includes 3 and 4 terminal resistance and RTD measurement facilities organised in a similar way to the original 35951H IMP. All 20 channels are available to use in pairs for the 3 and 4 wire measurement modes. The channels are fully programmable and so each 3 or 4 wire measurement takes up 2 channels but leaves the rest available for other 35951C measurement modes. It remains compatible with the 35951C, and the resistance measurement modes
are programmed using the same codes as a 35951H. The connector wiring for the 3 and 4 terminal resistance modes differs a little

from the 35951H , but otherwise the 35951Q is compatible with the measurement modes of the 35951H analogue channels..

Features

Compatible Communications with 3595 series

Compatible enclosure and connector blocks

Thermocouple, resistance, RTD, voltage and current measurements in rugged enclosure.

20 Channels per Module – precision reed relay isolation. Individually programmable

Precision 3 and 4 wire resistance and RTD measurements. (35951Q1)

Enhanced 14 to 19/20 bit resolution. 100 to 10 measurements per second

Enclosed connector blocks. Dual sensor accurate Cold Junction Compensation

Thermocouple health monitoring
Temperatures in ‘C or ‘F unit

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Specifications Details

Number of channels / module:	20/10
Number of poles / channel:	3/6
Connector type input channel:	Standard 3595 series Isothermal Enclosure Screw Terminals.
Measurement modes:	V DC (mV DC, uVDC) Thermocouple CJC temperature Sensor health
Thermocouple types:	K,J,T,R,S,E,B,N
Thermocouple compensation:	Dual sensors 3&4 wire resistance 3&4 wire PT100

A-D Converter

Measurement resolutions supported:	19/20 bits at 9 measurements/s 18/19 bits at 20 measurements/s 17 bits at 30 measurements/s 17 bits at 40 measurements/s 15 bits at 80 measurements/s 14 bits at 100 measurements/s

Number of bits includes sign counted as 1 bit.

50 Hz Mains frequency interference rejection is provided by 17 and 20bit modes 60 Hz mains interference rejection is provided by 17,19 and 20 bit modes. .

Higher Measurement rates possible by disabling drift correct measurements.

Voltage Measurement

Input voltage ranges	+12V >-12V +2.0V >-2.0V +200mV >-200mV +30mV >-30mV

Automatic range selection is supported.

DC measurement accuracy	+/- 0.015% of reading + 0.01% of range + 4uV
Temperature coefficients DC voltage	25ppm rdg + 0.1uV/ o C
Measurement sensitivity 30mV range 18 bits	<0.25uV
Additional error at 80 & 100/sec mode	0.03% of range

Thermocouple Measurement Accuracy

Internal Cold junction compensation errors included:
(External compensation is also available)

Type	Range	Accuracy
K	-100 to 500 500 to1200 1200 to 1600	0.5°C 0.7 3.0
J	-50 to 360 360 to 800	0.5 0.7
T	-150 to 400	0.5
R	0 to 1600	2.0
S	0 to 1700	2.2
E	-50 to 290 290 to 1000	0.7 1.0
B	200 to 1600	4.5
N	-200 to 1600 -100 to 580 80 to 1300	1.3 1.1 1.3

Displayed sensitivity	<0.1oC

Thermocouple Health Monitoring automatic by resistance measurement sequence.

Current Measurement

Sensitivity (100R shunt fitted)	<10nA

Accuracy as for voltage ranges + shunt accuracy

Resistance Measurement

Measurement configurations	3 & 4 wire connection
Measurement ranges	2000 ohm 256 ohm 32 ohm
Sensing current	<0.75 Ma (switched)
Accuracy	0.03% rdg +0.015%mg +3 mohm at 18-20bits
Sensitivity @17bits	<1 mohm

RTD Measurement

PT -50 to 400°C	+/- 0.2°C
-150 to 600°C	+/- 0.4°C
Measurement modes	3 wire and 4 wire

Interference Rejection

AC 50/60Hz	
Common mode rejection ratio channel group	<0.1uV/V
Single channel common mode rejection ratio	<1uV/V
Series mode rejection ratio 50 or 60 Hz +/- 0.05%	<1 mV/V
Applies to 18,19,20 bit measurements.	
DC channel common mode rejection ratio	<0.1uV/V
Maximum voltages operating:	
Max. voltage between (+) and (-) inputs, same channel	+-12V
Maximum voltage between any two terminals	200V

Note: reed scanners are not suitable for direct connection to power circuits

Overload Protection

Channel Overload Protection	Passive 50V continuous

Isolation

For protection against transients and ground loops	
Isolation test voltage IMP to IMP or to SNET	Tested at 500V

Power Requirement

Connector	Via SNET cable
Voltage	11 to 48V
Current	<100mA at 12V <50mA at 24V

General

SNET INTERFACE	SNET standard compatible
STATUS LED's	4
Function	Power Communication ADC fault Calibration error
Safety	EN61010-1:2010 EN61010-2-30:2010
EMC	EN55011:2009 EN 61326-2-1:200
Case size	435*215*34.5mm
Protrusion of cable boots	45mm
Weight	3.23kg
Operating Temperature Range	-20 to 70oC
Relative Humidity (noncondensing)	85% at 40
Vibration	1g 10hz to 400Hz in 3 planes
Programming storage	Secure flash memory
Calibration temperature is 21'C	Calibration temperature is 21'C