

Multiple bus-bar insulation monitor device

- Monitor 5 Independent Circuits
- AC / DC Measurement on All Circuits
- Integrated Communications
- Rapid Response Time
- Programmable Response Values



Monitor Five Bus-Bars

Monitor resistance-to-earth of up to five independent bus-bar feeds on a single device. AC or DC, up to 160V RMS. Monitored Circuits remain galvanically isolated from one another at all times.

Earth-Loop Measurement

Need to know that your installation has a “good earth”? The SA380-IT features an integral earth-loop tester that continuously checks earth continuity.

Digital & Serial Output

RS485 communications and a volt-free contact output allow connection of the SA380-IT to supplementary data-logging devices. An invaluable tool to aid tracking down intermittent earth faults.

Integrated Communications

Integral Bluetooth LE, GSM/GPRS modem and Ethernet port allows connection to Enterprise Condition Monitoring “back-office” systems and provides multiple means of direct access, either on, or off-site.

Long-Term Trends, Short-Term Diagnosis

As an RCM device, the SA380-IT enables off-site long-term trending and supervision of your power supply assets, allowing you to plan, predict and prevent. Connect on-site via laptop or Bluetooth and the SA380-IT becomes a powerful real-time tool to aid in fault finding and repair of damaged cables.



Ordering information

Description	MPEC Part No.	NR PADS No.
SA380-IT Multiple Bus-Bar Insulation Monitor Device. 110 V AC Power Supply Without cables and crimps	SA380-IT-NR	0086/000416
SA380-IT Multiple Bus-Bar Insulation Monitor Device. 110 V AC Power Supply With cables and crimps	SA380-IT-SD	0086/000417
SA380-IT Multiple Bus-Bar Insulation Monitor Device. 12 V DC Power Supply With cables and crimps	SA380-IT-LV	NA
Cable & Crimp kit	SA380-IT-CK	0086/000418
SA380-IT Spare Connector Set	SA380-IT-CN	0086/000419
SA380-IT 47K Ω Resistive Cable - 3 meters	COM-IT-RESCAB	NA
SA380-IT Hand-held Configuration and Diagnostics Device	SA380-IT-CD	0086/000422
SA380 Series Hinged Wall Bracket	BRK-HINGE	0086/000423

Insulation Coordination to EN50124-1 & EN60101-1

Nominal System Supply Voltage (U_N) (110 V AC Variant)	AC 110 V RMS
Nominal System Supply Voltage (U_N) (12 V DC Variant)	DC 12 V
Over-voltage Category	CAT IV
Rated Impulse Voltage Withstand (U_{NI})	4 kV
Pollution Degree	3
Rated Insulation Voltage (U_{Nm})	AC 185V RMS
Inter-Monitored Circuit Isolation Voltage (Galvanic)	+/- 400 V Peak Min
Inter-Monitored Circuit Protective Impedance (in break-down)	140 k Ω Min

All devices undergo factory Hi-Pot testing

Supply Voltage

Operating Voltage Range (110 V AC Variant)	AC/DC 40-160 V RMS +15%
Operating Frequency Range (110 V AC Variant)	DC to 60 Hz
Operating Voltage Range (12 V DC Variant)	DC 10-16 V +15%
Max. Power Consumption	6 VA

Monitored Circuits Voltage

Number of Independent Circuits Monitored	5	AC or DC
Operating Voltage Range	AC 5-160 V RMS	+15%
	DC 5-160 V RMS	+15%
Operating Frequency Range	DC to 60 Hz	
Voltage Accuracy	+/- 5 %	>= 1 V

Monitored Circuits Insulation Resistance

Equivalent Resistance to Earth ($R_L = R_B // R_N$)	0 Ω to 5 M Ω	AC Circuits
Actual Resistance to Earth (R_B and R_N)	0 Ω to 5 M Ω	DC Circuits
Accuracy*	+/- 1 k Ω	$Z_L < 20$ k Ω
	+/- 5 %	$Z_L \geq 20$ k Ω $Z_L \leq 1$ M Ω
Alarm Response Value	Configurable 1 k Ω to 1 M Ω	Factory set at: 150 k Ω for DC 50 k Ω for AC
Alarm Hysteresis	Configurable 1 k Ω to 1 M Ω	Factory set at: +150 k Ω for DC +50 k Ω for AC
Standard Response Time (per circuit) T_R	1.5 s	Typical
Maximum Response Time (per circuit) T_R	750,000 x C_E	seconds
Product Response Time	T_R X Number of Circuits in Operation	Typical
System Leakage Capacitance (C_E) (per circuit)	100 μ F	Max.

Measuring Circuit

Measuring Voltage	+/- 13 V
Measuring Current	< 200 μ A
Internal Resistance & Impedance	> 45 k Ω no resistive cable fitted
System Resistance & Impedance	> 70 k Ω resistive cable fitted
Measuring Circuit is only connected to a single Monitored Circuit at any one time	
Internal System Check Frequency	300 s

Earth Loop Circuit

Measuring Voltage	+/- 3.5 V	Max
Measuring Current	< 1 mA	
System Resistance & Impedance	> 25 k Ω	FE to SE
Tolerance to Stray Interference Voltage	+/- 1,100 mV DC.	
	+/- 850 mV AC.	Peak,
Measurement Range	0 Ω to 1.1 k Ω	
Accuracy	+/- 0.5 Ω	$R_E < 10 \Omega$
	+/- 5 %	$R_E \geq 10 \Omega$
Alarm Value	Configurable 0 Ω to 1 k Ω	Factory set at 1 k Ω
Alarm Hysteresis	Configurable 0 % to 100 %	Factory set at 10 %

Output Ports & Radio

Auxiliary Power Output	Voltage	5 V +/- 10 %
	Power	1 W +/- 10 %
Volt-Free Contact	Form	N.O. SPST
	Withstand Voltage	+/- 160 V Max.
	Contact On Resistance	0.75 Ω Max.
	Contact Off Resistance	1 M Ω Min.
	Max. Current	1 A AC RMS or DC
Serial Data Output	EIA RS485	115,200 bps Max.
Ethernet	RJ45	10/100 Mbps Auto MDIX
Wireless Modem (SIM Factory Fitted)	SMA (Female)	GSM 2G GPRS
Bluetooth	Touch to Enable	Bluetooth Low Energy

Environmental

EMC Emissions & Immunity	EN50121-4
Surge Immunity: Monitored Circuits & Earth	4kVEN61000-4-5
Voltage Withstand	EN50124-1 EN61010-1
Climatic Class	T1 In cubicle EN50125-3
Ambient Operating Temperature	-25 $^{\circ}$ C to +70 $^{\circ}$ C
Storage Temperature	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Humidity	Condensing 5 % to 100 %
Vibration	3 - axis'2.3 m/s ²
Impact Protection	IK06
Ingress Protection	IP52
Flammability Rating	UL94 V0

Supported Protocols

MPEC RailDaq <i>Efficient Data Communications</i>	LAN/GSM RS485	TCP/IP Port 7777 112,800 bps
Network Rail MIMOSA <i>Verbose Data Communications</i>	LAN/GSM	TCP/IP Port 80
SNTP <i>Time Synchronization</i>	LAN/GSM	UDP Port 123
HTTP <i>Configuration and Live Data</i>	LAN/GSM	TCP/IP Port 80
FTP <i>Firmware Upgrade for NR users</i>	LAN/GSM	FTP Port 21 (Outbound) FTP Port 1024-65535 (Inbound)

Installation Data

Mounting	BR930 / Q Style Mounting Plate
Primary Connections	Wire Size: 2.5 mm ² max. Spring Clamp
Auxiliary Connections	Wire Size: 1.5 mm ² max. Spring Clamp
Weight	350g

For more information please contact:

MPEC Technology Ltd, 6 Pinnacle Way
Pride Park, Derby, DE24 8ZS

Tel: 01332 363 979

Email: enquiries@mpec.co.uk

Web: www.mpec.co.uk