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Traveller StrainMaster SGIT



Feature:

- Strain Gauge Installations tester
- Built-in Bridge Amplifier
- Compact
- Mobile

Description:

Traveller StrainMaster SGIT is a Strain Gauge Installations tester with a built-in bridge amplifier. It is a versatile, very compact battery-powered instrument for testing and verification of already existing or new strain gauge installations.

Generally, for testing and verifying the quality of strain gauge installations two measurements are to be performed:

- Measurement of the resistance between strain gauge grid and test structure (insulation resistance, leakage to ground);
- Measurement of possible permanent resistance changes of the strain gauge due to installation procedures.

Normally, the insulation resistance of a properly installed strain gauge should be in the high M Ω -range with minimum values of 60 M Ω (120 Ω gauges) and 175 M Ω (350 Ω gauges). Amongst others, reasons for too low insulation resistances can be:

- Moisture or chemical attacks;
- Backing foil damage due to improper soldering procedures;
- Residual solder fluxes;
- Incompatible, wrongly applied, or not fully cured protective coatings.

Difficult strain gauge handling during complicated installation processes can cause permanent resistance changes in the gauges. Such resistance changes should not exceed certain relative values, and in any case, should not be far beyond the nominal resistance tolerance limits of the gauges. Reasons for larger permanent strain gauge resistance changes may be:

- Strain gauge grid abrasion with unencapsulated strain gauges;
- Small installation radii;
- Improper, or not properly functioning clamping devices for bonding processes.

For both operational mode, whether strain indicator mode or installation tester mode, the strain gauge bridge circuits are connected to the instrument in one and the same way which enables precision strain measurements and a permanent monitoring of the strain gauge installation's quality before, during and after the strain measurements.

Thus, Traveller StrainMaster SGIT is an instrumentation system which efficiently combines optimum measurement reliability with high data accuracy in demanding and sophisticated static strain gauge measurements. Consequently, it highly contributes to the economy and cost control of strain gauge measurements in experimental stress analysis applications.

Technical Data:

Tester-Mode	
Number of Channels:	1 for 120- and 350-Ω Strain Gauge
Resistance of Strain Gauges:	Measurement Range: 10.00 Ω to 999.99 Ω; Resolution 0.01 Ω 1000.0Ω to 9999.9 Ω; Resolution 0.1 Ω 10000 Ω to 99999 Ω; Resolution 1 Ω Measurement range switch is automatically done by the tester.
	Accuracy: 0.2 % FSR
Insulation Resistance:	Measurement Range: 1 MΩ to 1 000 MΩ; Resolution 1MΩ 1 000 MΩ to 20 000 MΩ; Resolution 10MΩ Measurement range switch is automatically done by the tester.
	Test excitation: 20 V
	Accuracy: 2 % FSR
Strain Gauges Deviation:	Measurement Range: 0.00 % to +/- 9.99%; Resolution 0.01 %.
	Accuracy: 0.2 % FSR
StrainMaster-Mode (Bridge Amplifier-Mode)	
Number of Channels:	1 for Quarter Bridges 120 and 350 Ω, Half- and Full Bridges for strain gauges and strain gauge based transducers; software selectable.
Bridge Excitation:	2.5 V
Gain:	50x and 500x software selectable.
Resolution A/D-Converter:	16-Bit; Sigma/Delta (Σ/Δ)-Converter
Display of the values:	readout is in mV, mV/V or μm/m (software selectable)
General Data	
LCD-Display and Keyboard:	LCD-display with keyboard and backlight for readout of system setup, system operation and measurement data.
Power Supply:	Battery powered 9 VDC (6 x LR14), or external power supply 230 VAC.
Connection of the measurement points:	Is done by connectors, which allow a connection at open wire ends by clamping
Interface (Option):	USB interface incl. software for data readout
Height:	220 mm
Width:	105 mm
Depth:	90 mm
Weight:	0.9 kg