

# high accuracy scanner SHP 101



The SHP 101 bench top instrument is capable of scanning up to 12 temperature sensors. When used with the Precision Thermometer PHP 601, thermocouples and RTDs can be measured without loss of signal integrity or performance. Each block may be configured either as two measurement channels (thermocouple or voltage measurements) or as a 4 wire measurement (RTDs).

- Metrology scanner
- Thermocouples and RTDs
- RS 232 (optional IEEE)
- Outstanding measurement homogeneity
- Fully compatible with the PHP 601

## Description .....

- Programming and processing by using the 12-key keypad, RS 232 link or optional IEEE 488 link.
- Connection of the sensors by means of screw terminals accepting 4-mm plugs (tellurium copper terminals with extremely

low thermocouple effect).

- Switching of resistance in 3 or 4 wire configuration.
- Switching of thermocouples with or without reference junction compensation.
- Outputs available for direct link to the high accuracy thermometer PHP 601.

## Applications.....

- Scanning of thermocouples, RTDs and low level electrical signals.
- Calibration of temperature sensors.
- Mapping.
- Use as voltmeter or ohmmeter input extension.

## functions

The SHP 101 operates as follows:

- Manually by using the front keypad.
- Remote controlled either by a PHP 601 (direct RS 232 command) or a controller (RS 232 or IEEE interfaces).

## Commands.....

Channel and 2 or 4 wire configuration can be selected.

## Configuration.....

- 6 RTD measurement channels, 4 wire configuration or
- 12 voltage (thermocouples) measurement

channels, 2 wire configuration or  
- N 4 wire channels (0 – N – 6) and 2 x  
(6 – N) 2 wire channel.

## Connection .....

Inputs: 4-mm tellurium copper terminals.  
Voltage and reference outputs: 4-mm copper terminals.  
RTD and reference junction outputs: 5-pin connectors.

## Switching .....

Relays with very low emf and contact resistance.

Stray emf: 0,2  $\mu$ V max.

Contact resistance: 300 m  $\Omega$  max.  
Max. contact resistance difference between two wires of a channel: 40 m  $\Omega$  .  
Deviation between input blocks:  $\pm$  0.02°C max.  
Breaking capacity:  
60 V, 100 mA, 1 W max.

## Reference junction .....

Uncertainty due to the internal reference junction:  $\pm$  0.05°C max.  
Temperature coefficient:  
 $\pm$  0.005°C/°C max.

## general specifications

Operating conditions .....  
Complying to the IEC Publication 359:  
operating category I.  
Reference range:  $23 \pm 1^\circ\text{C}$ .  
Relative humidity: 45 to 75%.  
Operating nominal range: 0 to  $50^\circ\text{C}$ , RH  
20 to 75% noncondensing.  
Operating range limits:  $-10$  to  $+55^\circ\text{C}$ ,  
RH 10 to 80% noncondensing.  
Storage and transport limit range:  
 $-30$  to  $+60^\circ\text{C}$ .

Presentation.....  
ABS bench-type casing provided with a tilt  
bail/handle.  
Dimensions: 225 x 110 x 310 mm.  
Weight: 2 kg.

Power requirements: 115 V or 230 V  
 $\pm 10\%$ , 50 Hz to 400 Hz, 20 VA max.

## versions

Two versions are available:  
• Basic version including mains supply  
and RS 232 link.  
• Basic version with IEEE 488 link.

The RS 232 (standard) and IEEE 488  
(option) links enable a complete program-  
ming of the unit via an external controller  
(micro-computer for example).

## accessories

- Cable, 2-meter length with LEMO socket  
at one end and RTD free connection at the  
other end (ACL 4603).
- LEMO socket to be wired (ER 48379).
- PHP-SHP link cable with LEMO sockets at  
both ends. One is for the PHP/SHP external  
reference junction compensation, the  
other is for measuring resistance over the  
scanner (ACL 4601).
- Connection leads, 1-meter length, PHP-  
SHP equipped with 4-mm dia. plug; very  
low emf cable for connecting thermocou-  
ple or voltage type signals.

## ordering instructions

Scanner	SHP 101-1
Scanner with IEEE 488 interface	SHP 101-3

Accessories .....	
Soft carrying case	AN 6901
RS 232 cable, 9-pin male/female	AN 5875
IEEE 488 cable, 2-meter length	AN 5836
LEMO socket to be wired	ER 48379
PHP/SHP connection cable	ACL 4601
Cable, 2-meter length with LEMO and free ends	ACL 4603
Standard sensor with plugs	AN 5847B
Reference sensor with plug	AN 5848-2000A
Standard thermocouple	T 1200
Low emf 2-wire cord	PEM 40317

Specifications subjects to modification without prior notice



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