



SAMPLE & HOLD

TYPE 112-48

FUNCTION

The 112-48 provides signal repeater, signal conversion or linearisation functions with a remote output hold facility. The unit accepts current, voltage or resistance type inputs.

The isolated output may be either current or voltage.

DESCRIPTION

After level shifting and conditioning, the input signal is converted into digital form by an analogue to digital converter (ADC). Any digital processing, e.g. for linearisation etc, is then carried out. The digital data signals are optically isolated before being converted into analogue form by a digital to analogue converter (DAC). Under normal operation the DAC continually samples data. The 'HOLD' signal input, when active, holds the output of the DAC at the last sampled value. The DAC drives the output stage which provides either a current or voltage, load independent output.

HOLD INPUT

The Hold signal input may be a volt-free contact or a voltage signal. Contact inputs may be either normally closed, which performs a hold when the contacts are opened, or normally open, where the hold function is activated by a closed contact. Voltage input signals are also catered for.

LINEARISATION

The unit can accommodate any single valued input / output law i.e. having only one output per input. Up to two laws can be accommodated, internally or externally switchable.

MULTIPLIER INPUT

An external variable may be used as an output multiplier and is applied after any linearisation process. This input is not isolated from the output. *NB* the hold function has no control over the multiplier input and any variation on this input will cause an immediate change in the output signal.

Information required When Ordering

- Input Signal (see specification overleaf)
- Output Signal (see specification overleaf)
- Hold Signal (NO, NC or Volts)
- Calibration Data (if linearisation is required)
-this must be supplied as either:-
 - a) Output = Function (Input)
 - b) Tables of Input and corresponding output NB a maximum of 40 steps can be accepted. *(In either case, ignore raised input or output if they exist)*
- Supply Voltage and Frequency
- Internal or External switching if two laws required.



Features

- * **HOLD Signal - Volt-free Contact or Voltage**
- * **Performs Signal Conversion and Optional Linearisation**
- * **Isolated Output - Current or Voltage**
- * **Current, Voltage or Resistance Inputs**

RESISTANCE INPUT, ZERO AND SPAN SETTING

To enable adjustment of zero and span to be made accurately on site, span and zero controls accessible from the front panel are provided and pre-set signals are built into the EPROMs. These signals drive the LED indicators on the front of the unit.

The indicators can be identified as follows:-

Top LED: Over range (OR)

Middle LED: In range (IR)

Lower LED: Under range (UR)

With the input at Zero, adjust the 'Z' control until the UR and IR LEDs are both on.

With the input at Full Scale, adjust the 'S' control until the IR and OR LEDs are both on.

INSTALLATION

Installation information is given in the 112 Series General Information Sheet.

SPECIFICATION (typical performance with linear input/output law)

INPUTS (other inputs available to order)

0-10 mA into 100 ohms
0-20 mA into 50 ohms
4-20 mA into 62.5 ohms
0-5V into >200 k ohms
1-5V into >200 k ohms
Resistance: minimum change 50 ohms
maximum change 10k ohms
Resistance thermometer (100 or 130 ohms):
minimum change 40°C.
maximum change 500°C.

HOLD INPUT

Volt-free contact: either make to hold (normally open) or break to hold (normally closed).
Voltage (option): 0-5 V up to 0-24 V may be specified (must supply 1 mA)
(electrically connected to the output).

MULTIPLIER INPUT

0-10V @ 1mA *(electrically connected to the output).*

OUTPUTS (Others can be provided)

0-10 mA into 2000 ohms maximum.
0-20 mA into 1000 ohms maximum.
4-20 mA into 1000 ohms maximum.
0-5V into 500 ohms minimum.
1-5V into 500 ohms minimum.

CALIBRATED ACCURACY (Voltage input)

Set at 100% to be within $\pm 0.2\%$ FSD.

OUTPUT DEVIATION FROM SET LAW

Law dependent; typically error is $< \pm 0.1\%$ FSD.

OUTPUT RIPPLE

$\leq \pm 0.2\%$ RMS of FSD.

LOAD RESISTANCE EFFECT

$\leq 0.001\%$ of span / 100 ohms change
(current outputs with 1000 ohms load).

LAW CHANGE (Option)

Alternate law selected by Internal or external switch.

ISOLATION

The signal input and output are isolated from each other and from the power supply.
Maximum voltage 250V RMS or 400V DC.
Resistance between input, output or power supply $\geq 1 \times 10^9$ ohms.

INTERFERENCE REJECTION

Filtering is incorporated to reject R.F. and other industrial noise.

INPUT CURRENT SHUNT RESISTANCE

Error $\leq \pm 0.1\%$.

RESPONSE TIME

Time constant = 250 ms.

SERIES MODE REJECTION

Additional 0.1% output ripple for 50 Hz sine wave input of peak to peak amplitude \leq full scale.

COMMON MODE REJECTION

Rejects 50 Hz signals up to 25 x input span.

INPUT PROTECTION

Voltage inputs: 250V RMS or DC.
Current inputs: 0.5W max.

OUTPUT LIMIT

+ 24V DC on open circuit - 102.3% of Span
(except when external multiplier is used).

TEMPERATURE COEFFICIENTS

Zero: $\pm 0.02\%$ span / °C
Span: $\pm 0.02\%$ span / °C

TEMPERATURE RANGE

Operating: -10°C to $+60^\circ\text{C}$.
Storage: -5°C to $+70^\circ\text{C}$.

SUPPLY VOLTAGE REJECTION

Output change $< 0.01\%$ Span / 10% supply change.

POWER SUPPLY

Standard AC and optional DC powered versions are available. Full details of the power supply options are given in the 112 Series General Information Sheet.

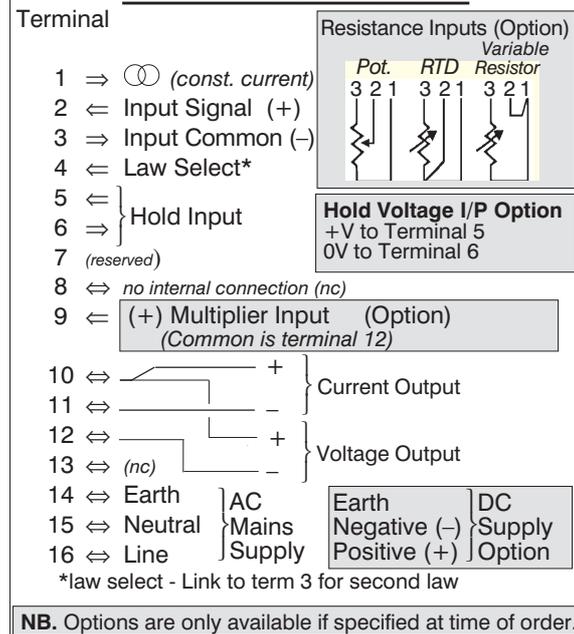
Power Supply Indication: At least one of the three light emitting diodes on the front panel will be illuminated when power is applied.

Fuse: This unit is fused internally.

WEIGHT

Approximately 0.7 kg

TERMINAL CONNECTIONS



NB. Options are only available if specified at time of order.

WARNING THIS UNIT CAN BE MAINS POWERED, AND ALL INPUTS TO IT MUST BE ISOLATED FROM DANGEROUS VOLTAGES BEFORE THE FRONT COVER IS REMOVED. LIVE TERMINALS WILL BE EXPOSED.



Continuous development may necessitate changes in these details without notice

SIL

STROUD INSTRUMENTS LTD.
36-40 Slad Road, Stroud, Glos. GL5 1QW, England
Telephone: +44 (0)1453 765433 Fax No: +44 (0)1453 764256
www.sil.co.uk