

PULSE ISOLATOR

Type 112-51

User Guide

Continuous development may necessitate
changes in these details without notice

Document Ref: UD112-51 Rev 1



PROCESS MEASUREMENT, CONTROL & DISPLAY INSTRUMENTATION

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WARNING!

It is important that this guide is read and fully understood before attempting installation or commissioning of the instrument. Instructions appearing in this document, and current safety legislation, must be observed to ensure personal safety and to prevent damage to the instrument or equipment connected to it.

The instrument should be installed, commissioned and operated only by suitably qualified and authorised personnel.

Safety and EMC information

Safety: EN61010 -1

Immunity: EN50082-1

Emissions: EN50081-1

CE certified



The specifications for the instrument must not be exceeded. If the instrument is used in a manner not specified, the protection provided by the instrument may be compromised.



The instrument must be installed in an enclosure that provides adequate protection against electric shock.



Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages before carrying out installation or maintenance.



The instrument is designed for installation in a clean, dry environment (Pollution degree 1).



Stroud Instruments Ltd strongly recommends that repairs and re-calibration work are done on a return to factory basis in order that our quality standards, product specifications and safety precautions are not compromised.



The instrument is double insulated

Note: Clean with a moist cloth - USE NO SOLVENTS.

Installation



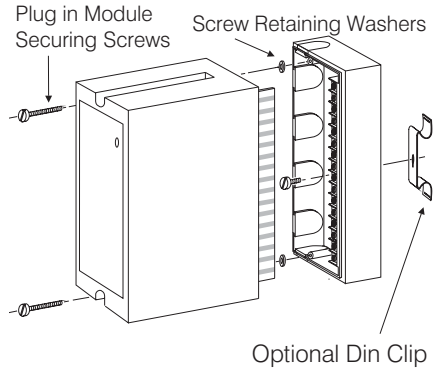
WARNING: Installation should be conducted by appropriately skilled and authorised personnel only.



WARNING: Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages before carrying out installation.



WARNING: The instrument must be installed in an enclosure that provides adequate protection against electric shock.



Location

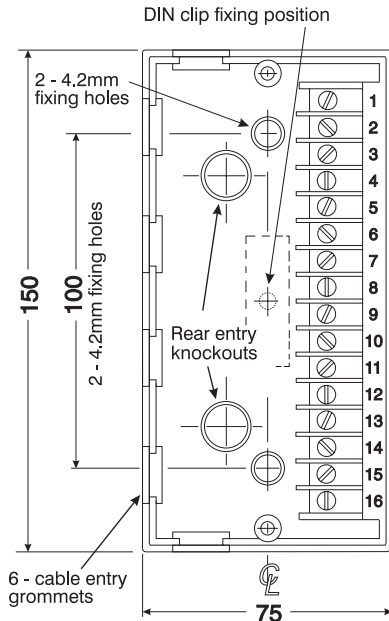
- The instrument is designed for installation in a clean, dry environment
- Do not install near to switch gear, motor controllers or other sources of strong magnetic fields.
- Avoid exposure to direct sunlight and ensure the ambient temperature inside the enclosure that the unit is mounted in will not exceed our specification.

Fixing

112 Series Modules are designed to be fitted to any flat dry surface using two 4mm screws. Alternatively, by fitting an optional DIN clip, they may be clipped to a rail conforming to BS5584:1978, EN50 022, DIN46277-3. Grommets are provided on three sides of the base section and there are two rear entry knock outs in the bottom.

Dimensions in mm

Module height 106mm



Wiring and connections

- Segregate power supply and signal wiring.
- Use screened cable for all signal wiring with the screen earthed at instrument end only.
- All connections should be made using ferrules.

Screw terminals are provided - wire capacity 2 x 1.5mm²

Access to Terminals



WARNING: Ensure that power to the instrument is switched off and signal wiring isolated from hazardous voltages

Loosen the two module securing screws. *(NB these screws are retained in the top section by captive washers).* Gently pull away the top section of the module from its base to expose the fixing points and wiring terminals. To refit the module, align the module edge connectors with the socket in the base and carefully press home. **NB** do not over tighten the module securing screws.

Terminal connections

Inputs

- 1 Transducer Supply (+12v) 10mA max
- 2 Input Signal (+)
- 3 Input 0V
- 4 Normally Closed c/o Switch Contact
- 5 Normally Open c/o Switch Contact

Options
see
Specification

Outputs

- 6 *(see pulse splitter option)*
- 7 +V
- 8 Output Signal
- 9 Output 0V
- 10 Normally Open
- 11 Common
- 12 Normally Closed
- 13 *(no connection)*

} Pulse Output options)
(see next page)

} Relay Output Option

Connections for Pulse splitter option

- 6 Normally Closed
- 7 Common
- 8 Normally Open

} Relay Output 2

Supply

- 14 Earth
- 15 Neutral
- 16 Line

Earth } DC
Negative (-) } Supply
Positive (+) } Option

Note

The 112-51 Pulse Isolator is configured during manufacture to suit the application specified at the time of ordering. A change in the type of input or output will require a return to factory for re-configuration.

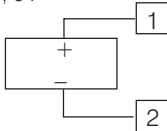
Please note: Options available are those specified at time of order

Input Connections

NB The 112-51 Pulse Isolator is configured during manufacture to suit the application specified. A change in the type of input or output will require a return to factory for re-configuration.

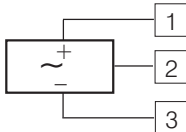
2 Wire Transmitter

e.g. KDG 7402 Flow meter with 918/T Pre-amplifier, GWF Opto Pulse Generator types 01, 02, 03, 04



3 Wire Transmitter

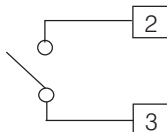
e.g. IPG 11 Pulse Generator RS 508-2704 Liquid flow sensor



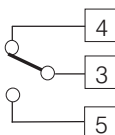
Voltage Change



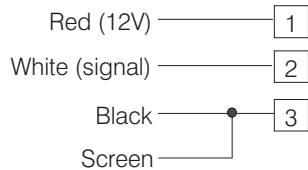
Contact Closure



Changeover contacts



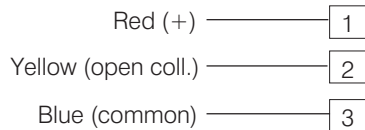
Kent Pulse Unit Type HRP



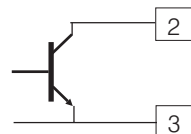
Kent Pulse Unit Type LRP



Kent Pulse Unit Type PSM-KSM

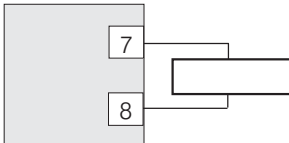


Open Collector

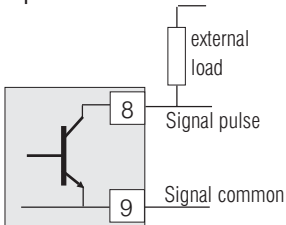


Output connections

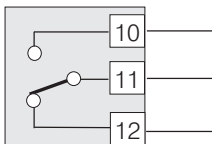
EM Counter



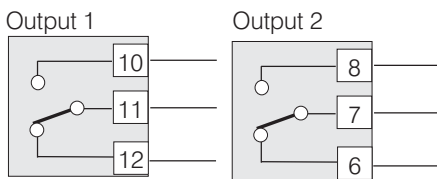
Open Collector



Relay



Pulse Splitter



Power supply connections

This instrument is supplied in *one* of two power supply versions.

1. AC mains supply: 110, 220 or 240 VAC $\pm 10\%$ 50/60Hz; 5VA
2. DC supply: 12, 24 or 48V -10% to +20%; 3.5W



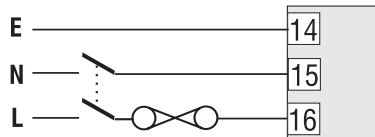
WARNING: Check that the supply voltage on the data label (on top of instrument) is suitable for the application.



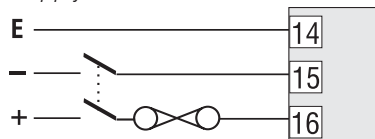
WARNING: Ferrules must be used for AC mains power wiring

Power supply wiring to the instrument should be protected by a suitable fuse and double pole switch - see below. The switch should be clearly marked as the isolating switch for the instrument.

AC Mains



DC supply



Please note:

The unit cannot be changed by the user from one type of power supply version to another (e.g. AC to DC). This conversion can only be done on a return to factory basis.

Trigger Level Adjustment

Versions of the 112-51 with a front of unit accessible LEVEL control may be adjusted to set the point at which the unit responds to a voltage level change at the input. This level is set correctly when the lower LED indicator flashes in sympathy with the input signal (LED is 'on' when signal is lower than the trigger level).

NB units which do not have the accessible LEVEL control are factory set for the required input signal and should require no further adjustment.

Fuse replacement and changing AC supply voltage

Gaining access to power supply



WARNING: Switch off all supplies and isolate signal and other wiring from dangerous voltages before proceeding.

Remove plug-in module as described on page 3 - "Access to Terminals"

The plate with the terminal connections label can now be removed by easing apart the longer sides of the module to release the interlocking tongue and groove. Note the location of the printed circuit board which must be replaced in the same position. Slide out the board.

Supply Voltage

Mains powered units can be adapted for operation on 110V, 220V or 240V supplies. Fig 1 provides details of the required link settings which are effected by soldered tinned copper wire links.



WARNING: Links for 110V operation must be insulated with silicon rubber sleeving.

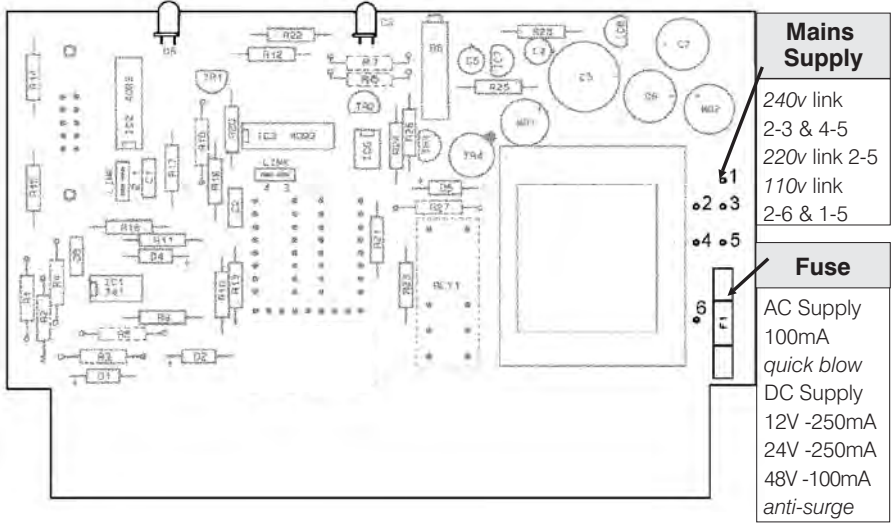
NB: DC powered units are an option specified at the time of ordering and have no facilities for changing the operating supply voltage.

Re-assembly

Re-check your link selections.

Replace the printed circuit board into the case ensuring that it is located in the slot under the LED indicator window. Replace the bottom plate by first engaging the side with the two tongues into the slots in the case and then press the plate home to engage the side with the single tongue. Plug the reassembled module into the base section and secure with the two captive screws provided.

Fig. 1 Location of fuse and AC mains supply links



Specification

INPUT PULSE RATE

0-10kHz

INPUTS

(the required type to be specified at the time of order)

- a) Contact closure
- b) Change-over contacts *(high bounce rejection)*
- c) Voltage level change (10mV minimum, 50V maximum. sine, square or triangular)
- d) Open collector transistor
- e) Proximity switches, turbine meters, etc.
- f) Current pulse e.g. 1-3mA

INPUT IMPEDANCE

100k ohms *(voltage change signals)*.

TRIGGER LEVEL

This is adjusted by a 15 turn potentiometer. *NB* *Optionally accessible through the front cover.* When the trigger level is correct, the lower LED will flash at the input signal frequency.

INPUT PROTECTION

Voltage change inputs, can withstand 250V RMS.

TRANSDUCER POWER SUPPLY

An optional supply is available for powering input signal equipment. 12 Volts at 10mA maximum.

OUTPUT OPTIONS

(the required type to be specified at the time of order)

- a) Optically isolated open collector transistor,
- b) 24 Volt pulse of duration 60ms
- c) Relay change-over contact (FSD = 10Hz max).
Relay contacts are rated at:-
5A @ 250V AC resistive or 2.5A @ 24V DC resistive

NB Other pulse output voltages (e.g. 5V) and pulse widths available to order.

TEMPERATURE RANGE

Operating: - 10 to + 60°C

Storage: - 20 to + 70°C

ACCURACY

Error ± 1 output pulse.

ISOLATION

Input and output are isolated from each other and from the power supply. Maximum voltage 250 V RMS or 400 V DC. Resistance $\geq 50 \times 10^6$ ohms measured at 1000 V DC.

POWER SUPPLY

LED indication of power on.

Standard AC:

110, 220 or 240V ±10% 50/60Hz; 5VA

Fuse (internal) 100mA quick-blow (20 x 5mm)

Optional DC:

12, 24 or 48V -10% to +20%; 3.5W

Fuse (internal) 250mA anti-surge (20 x 5mm)

WEIGHT

Approximately 750 grams.

SAFETY & EMC

Safety: EN61010-1

Emissions: EN50081-1

Immunity: EN50082-1

CE certified

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