

DIGITAL DIVIDER

Type 112-25

User Guide

Continuous development may necessitate
changes in these details without notice



PROCESS MEASUREMENT, CONTROL & DISPLAY INSTRUMENTATION

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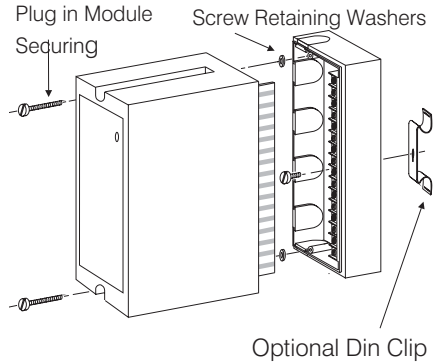


IMPORTANT - Installation, wiring, commissioning or re-ranging of this instrument should be restricted to authorised skilled personnel.
SWITCH OFF ALL POWER SUPPLIES AND ISOLATE SIGNAL WIRING FROM DANGEROUS VOLTAGES BEFORE COMMENCING WORK ON THE INSTRUMENT

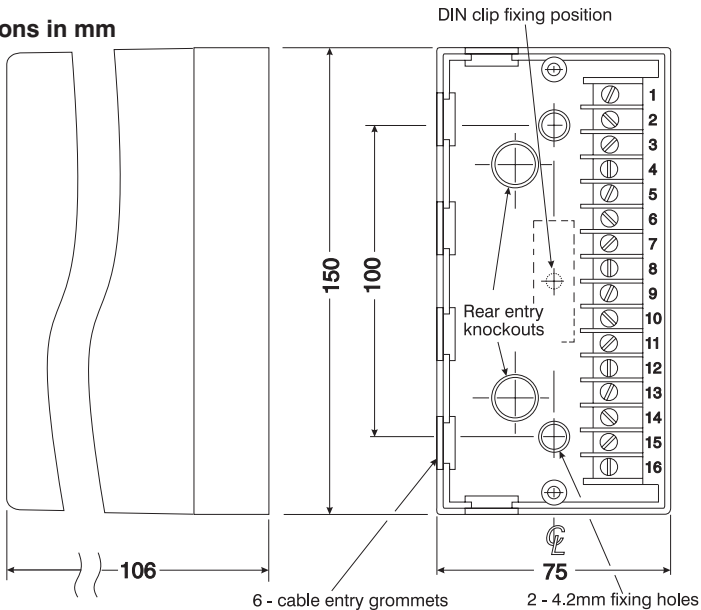
Installation

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 knockouts in the bottom.



Dimensions in mm



Wiring

Grommets are provided on three sides of the base section and there are two rear entry knock outs in the bottom. Good instrumentation practice should be observed when wiring to the unit to ensure segregation of mains supply and signal wiring. Screened cables should be used for signal / sensor wiring with the screen earthed at one end only.

Power supply considerations

Power supply wiring to the instrument should be protected by a suitable fuse and double-pole isolating switch.

Access to Terminals

Isolate all supplies to the unit. 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 Signal Common (-) |
| 4 | Normally Closed c/o Switch Contact |
| 5 | Normally Open c/o Switch Contact |
| 6 | <i>no connection</i> |

} Options
see
Specification

Outputs

- | | | |
|----|----------------------|--------------------------------|
| 7 | +V | } Pulse Output (see next page) |
| 8 | Output | |
| 9 | Output Common | |
| 10 | Normally Open | } Relay Output Option |
| 11 | Common | |
| 12 | Normally Closed | |
| 13 | <i>no connection</i> | |

Supply

- | | | |
|----|---------|--------------------------|
| 14 | Earth | } DC
Supply
Option |
| 15 | Neutral | |
| 16 | Line | |

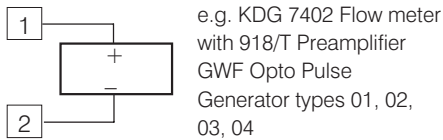
Please Note: Options are only available if specified at time of order.

Typical Connections

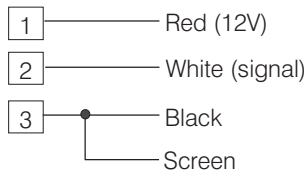
NB the 112-25 is configured internally for the appropriate application during manufacture. The unit cannot be used with another type of input transducer until reconfigured.

Inputs:

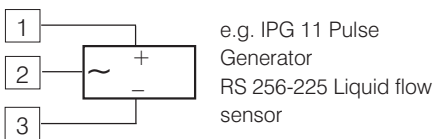
2 Wire Transmitter



Kent Pulse Unit Type HRP



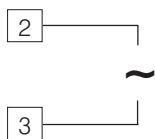
3 Wire Transmitter



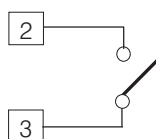
Kent Pulse Unit Type LRP



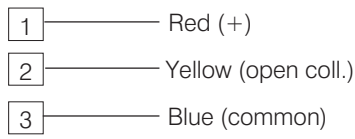
Voltage Change



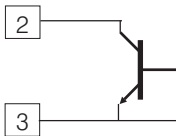
Contact Closure



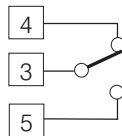
Kent Pulse Unit Type PSM-KSM



Open Collector

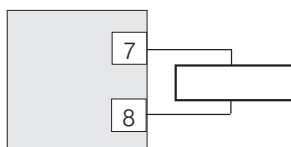


Changeover contacts

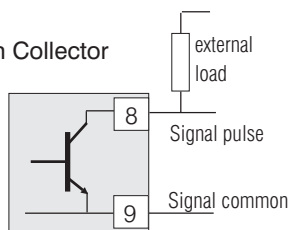


Outputs:

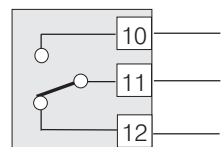
EM Counter



Open Collector



Relay



Internal Settings

Please Note: The 112-25 Digital Divider 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.

Gaining Access

Isolate all supplies to the unit and remove the plug in module as described under "Installation". 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. Observe and note the location of the printed circuit board(s) which must be replaced in the same position(s). Slide out the board(s).

Two-decade version

The 112-25/2 has a single printed circuit board which has two switches giving a maximum division of 99.

SW2 sets units; SW1 sets tens. See Fig 1

Four-decade version

The 112-25/4 has two printed circuit boards. The division is set by four switches (on the smaller printed circuit board - see Fig 2). The four decade switches, SW5 - SW8, set a maximum division of 9999 and jumper links J2, enable further divisions of $\times 10$ or $\times 100$. SW5 sets units; SW6 sets 10's SW7 sets 100's; SW8 sets 1000's

Example (four-decade divider):

Division required is 100,000

Set decade switches to '100'

i.e. set SW6 to '1',

set SW5 = SW3 = SW2 = SW1 = '0'

Set J2 to '100'

See Fig 3 on page 7 for block diagram.

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.

IMPORTANT: 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.

Trigger Level Adjustment

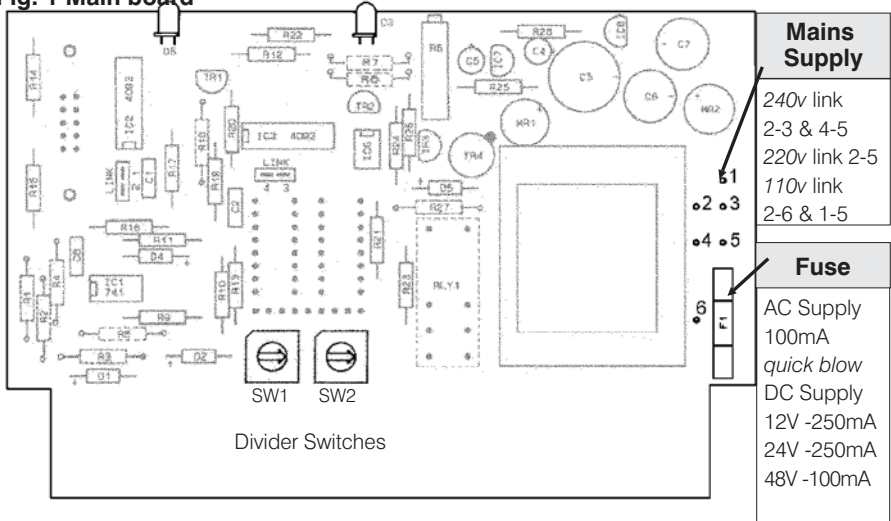
Versions of the 112-25 with a front of unit accessible LEVEL control may be adjusted to set the point at which the unit responds to a voltage level change at the input. This level is set correctly when the lower LED indicator flashes in sympathy with the input signal (LED is 'on' when signal is lower 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.

Re-assembly

Re-check your switch and link selections. Replace the printed circuit board(s) into the case ensuring that the larger board 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 Main board



Please note: only the two-decade version will have decade switches SW1 /SW2 fitted on the main board.

Fig. 2 Sub-board (112-25/4 four-decade version only)

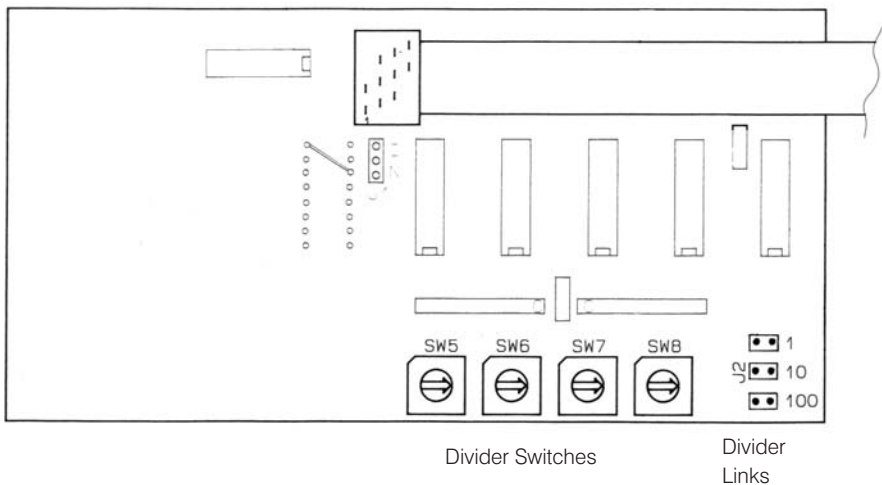
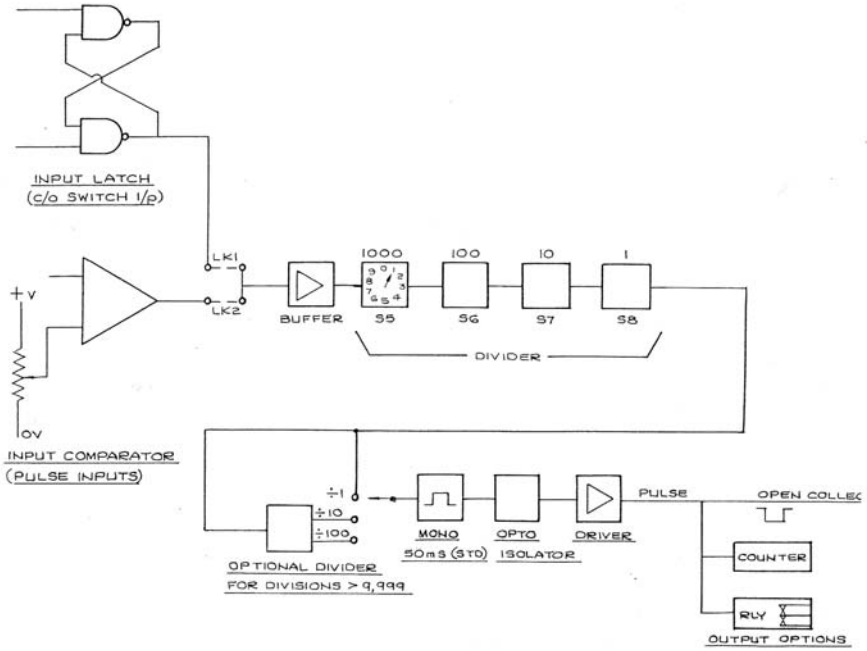


Fig. 3 112-25/4 (four decade) block diagram



Specification

INPUT PULSE RATE

0-20kHz

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.

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. Maximum power available is 12 Volts at 10mA.

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 $\pm 10\%$
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
Immunity: EN50082-1
Emissions: EN50081-1
CE certified

DIVISION SETTING

Type 112-25 /2 - two decade switches maximum division of 99

Type 112-25 /4 - four decade switches division of 9999, and link selection of further divisions of either $\div 10$ or $\div 100$.

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