



INTEGRATOR

TYPE 112-5A

- **Universal AC/DC powered**
(85 - 260 VAC, 24 - 200 VDC)
- **Wide range of input signal types**
- **Output pulse rates:**
Electromechanical Counter
0 - 0.05 up to 600 counts /min.
Open Collector 0.001Hz to 5kHz
- **Output options:-** Open collector, Voltage pulse
or external Electromechanical counter
- **Maintains loop on mA inputs when module**
unplugged
- **Wall or DIN rail mounting**
- **5 year warranty**



The Integrator converts a process signal input (voltage or current) into a pulsed output with respect to time. The output pulse rate is proportional to the magnitude of the analogue input signal. The 112-5A can be used for continuous integration and totalisation where any 'rate' signal is available in analogue form, e.g. flow, B.T.U. watts etc.

Information required when ordering

- Specify order code 112-5A followed by:-
- Input signal type (see specification)
- Full Scale Rate represented by input signal
(e.g. Full Scale Input = 10m³ per day)
- The integrated quantity represented by one
output pulse (e.g. 1 pulse = 1 litre)
- Low level cut-off (5% unless otherwise specified -
see specification)
- Output type (see specification)
- Desired Pulse Width for open collector
output option.
- DIN rail mounting clip required ?

Electromechanical Counter (8 digit non-reset)

Options:-

- Fitted
- Supply separately
- Counter not required

Typical applications

- » Converting analogue process signals into a pulsed
output suitable for PLC digital inputs
- » Integration of process 'rate' measurements e.g.
from energy meters and flowmeters
- » Proportional sampling applications

Specifications

Inputs (factory configured)

Input impedances shown in brackets.

Current: 0-10 mA (100R), 0-20 mA (50R), 4-20 mA (62R)

Voltage: 0-1V, 0-5V, 0-10V (>200k)

(Other inputs available to order)

Input overrange protection

Self resetting 100mA fuse

Output options

(factory configured)

- Optically isolated open collector (npn)
- for electromechanical counter - 24V 60ms
(NB see 'External Counter' note)
- Relay changeover contact (FSD=10Hz max.)

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

NOTE: External counter

Units without an internal counter - with output option 'b' the external counter used must have an impedance > 180R, be suitable for 24 volt dc operation and pulses of 60 ms in duration.

Units with internal counter - the Integrator will drive an external electronic counter (NB not electro-mechanical).

Output pulse rate

Calibrated as required within the following full scale limits:-

Electro-mechanical counter & relay output options
0.05 to 600 counts per minute (3 to 36000 counts per hour).

With open collector output option:
e.g. for driving electronic counters and other devices: 0.001Hz to 5kHz.

Calibrated accuracy

Set at 100% to be within $\pm 0.1\%$ FSD

Linearity error

$\leq \pm 0.1\%$ FSD.

Suppression elevation error

$\leq \pm 0.1\%$ FSD.

Zero (low-level) cut-off

0 - 10% (set to 5% FSD unless otherwise requested).

Temperature coefficients

Zero: $\pm 0.02\%$ span/ $^{\circ}\text{C}$, Span: $\pm 0.02\%$ span/ $^{\circ}\text{C}$

Environmental

Temperature range: operating -10 to +50 deg C
storage -20 to +70 deg C

Humidity: 0-95% RH non-condensing

Stability

Over 24 hours $\pm 0.1\%$ FSD; Over 1 year $\pm 0.25\%$ FSD

Isolation

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

Power supply

85 - 260 VAC 50/60Hz; 24 - 200 VDC (3W nominal)

Supply voltage rejection

Span change: $< 0.02\%$ span / % supply change

Mechanical

Weight: approx. 0.5kg (with counter fitted)

Enclosure: Fire retardant materials - Base: phenol (black)

Cover: polystyrol (light grey). Protection: IP40

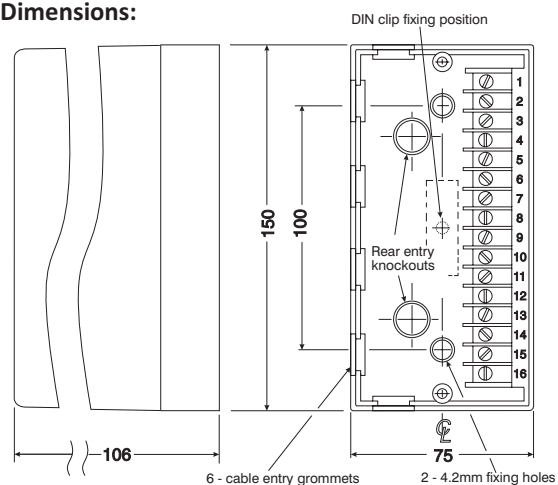
Screw terminal wire capacity: $2 \times 1.5\text{mm}^2$

Safety & EMC

Safety: EN61010-1, Emissions: EN50081-1

Immunity: EN50082-1, CE certified

Dimensions:



Electrical connections

- No internal connection (nc)
 - Input Signal (+)
 - Input Signal (-)
 - nc
 - Normally closed
 - Common
 - Normally open
 - nc
 - nc
 - +V
 - Output
 - 0V
 - nc
 - Earth
 - Neutral / - DC
 - Line / + DC
- Relay Output Options
- Counter Output (24v 60ms pulse)
- Transistor Output (npn Open Collector)



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

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