Model 5012

PROGRAMMABLE COUNTER / SPEED / FREQUENCY / TIMER / TOTALISER / PERIOD / CLOCK / POSITION INDICATOR

INSTROTECH
INSTRUMENTATION AND PROCESS CONTROL

Processing your future

CERTIFICATION DEKRA DIN ISO 9001

TECHNOLOGY TOP · 100

CE

The Model 5012 is a 6 digit (-199999 to 999999) low-cost universal programmable indicator for use in all types of frequency & counting applications. The indicator has uni-polar & bi-polar pulse / frequency inputs for counting, frequency / speed (dual channel), period, flow, timing, totalising & positioning applications. It can be used in conjunction with most standard pulse / frequency generating sensors. Sensor excitation is standard & the output voltage is link selectable.

Options include analog output, alarm setpoints up to 4 alarms, BCD output, RS232 or RS485 communications & many more. The display & analog output is rangeable from the front pushbuttons. The instrument meets the European Community EMC directive 89/336/EEC & Low Voltage Directive 73/23/EEC.

Selected options now feature 'Plug & Play' technology, allowing option boards to be ordered separately & field fitted when required.

MODELS

Three variations of this instrument are available, depending on the required functionality :

Model 5012	6 digit (-199999 to 999999)	Freq, Period, Count, Rate, Totaliser, Event timer
Model 5012-C	6 digit (-199999 to 999999)	Real time clock + all Model 5012 features
Model 5012-Q	6 digit (-199999 to 999999)	Quadrature input + all Model 5012 features

All Models offer up & down counter (with reset/preset), dual channel frequency input, which can be added, subtracted, or ratioed. Period indication is also available as standard.

Time tagging feature is available onthe Model 5012-C as an option.

FEATURES

- ❑ DIN 48 x 96 enclosure, 147mm depth
- ❑ 6 digit (-199999 to 999999), 14.2mm bright red LED display
- ❑ 24VDC supply for encoders & proximity switches
- ❑ Low cost - high performance design
- ❑ Touch button ranging and setpoints
- ❑ Counting, frequency, speed, period, timing, totalising & positioning functions
- ❑ Dual channel frequency inputs (can be added, subtracted or ratioed)
- ❑ Analog output option with programmable zero & span
- ❑ RS232 & RS485 communication option.
- ❑ 'Plug & play' feature available with selected options.
- ❑ Keypad lockout available at no extra charge

SPECIFICATIONS

OPTIONS

3001-P	Two setpoints (solid state relays)	3010	95-265V AC/DC power supply
3001-M	Two setpoints (electro-mechanical)	3012	Peak / valley hold
3002	RS 485 communications	3013	RS 232 communications
3003	0 - 20mA / 4 - 20 mA analog output	3017-P	3 setpoints (solid state relays)
3004-P	One setpoint (solid state relays)	3017-M	3 setpoints (electro-mechanical)
3004-M	One setpoint (electro-mechanical)	3018-P	4 setpoints (solid state relays)
3006	Isolated outputs (order with 3002/3/7/13)	3018-M	4 setpoints (electro-mechanical)
3007	0 - 10V analog output	3020	Ultra bright Red LED display
3008	12 / 24V galvanic isolated DC supply	3023	Pulse output
3009	Parallel BCD output	3025	Keypad lockout

NOTE : Most of the above options are factory fitted. Customer / field fitted options are available as 'plug-&-play' boards and software activated options. Contact factory for more information.

NOTE : Option 3009 cannot be ordered together any alarm options.

FREQUENCY / SPEED

Input frequency range : 0.15Hz - 15000Hz. Up to 0.01Hz resolution.
Pulse amplitude : 50mV up to 24V maximum, uni-polar or bi-polar.
Frequency averaging : None, 0.5, 1.1 and 4.5 seconds programmable.
Selectable for most standard sensors by jumper links and differing connections.
Jumper links for hysteresis selection.

UP/DOWN COUNTER

Maximum pulse rate of 10000 pulses per second.
Pulse amplitude from 5V to 24V maximum, uni-polar or bi-polar.
Counter reset via 'Enter' key (press for 3 seconds) or via external reset (instantaneous).
Selectable for most standard sensors by jumper links and differing connections.
Jumper links for hysteresis selection.

SENSOR EXCITATION

(FOR ENCODERS, PROXIMITY SWITCHES ETC)

Link selectable for
24 VDC (17-26V), current limited to 25mA. Optional 50mA.
12VDC (10-13V), maximum 50mA.
5VDC ± 1%, maximum 50mA.

Optional : 24 VDC (17-26V), increased current capacity 100mA with Option 3010.

POWER SUPPLY

STANDARD
115 / 230 VAC ± 10% (standard), link selectable, 50/60Hz, 5VA typical
24VDC non-isolated on request, 5VA typical

OPTIONAL
12VDC isolated switch mode power supply option (Option 3008-12), 5VA typical
24VDC isolated switch mode power supply option (Option 3008-24), 5VA typical
95V-265V AC/DC switch mode power supply option (Option 3010), 5VA typical

ELECTRICAL SPECIFICATIONS

Accuracy	: 0.01% (scaling = 1), or 1 count
Internal oscillator	: 11.059 Mhz precision
Frequency calculation time	: 5 milliseconds (no averaging)
Operating temp. range	: -10°C to +50°C
Storage temperature range	: -40°C to +80°C
Humidity	: <85% non-condensing
Warm up time	: 10 minutes
Relays, electro-mechanical	: 250V AC, 30V DC, 2A, PF=1
Relays, solid state	: 400 V AC/DC, 0.5A, PF=1
Analog output accuracy	: 0.1% of full scale
Current analog output load	: 500 Ω maximum
Voltage analog output load	: 1 kΩ minimum
Memory retention (excl clock)	: Full non-volatile operation
Real time clock backup	: 2 years typically
Option 3006 isolation rating	: 1500 V
EC EMC & Low Volt directives	: 89/336/EEC & 73/23/EEC

NOTE : Digital inputs are available as standard for reset, preset, start, stop and other functions. A potential free contact is required to operate these digital inputs (active is low). Digital input functions differ depending on mode of operation.

PROGRAMMABLE SETTINGS (SHOWN FOR MODEL 5012 ONLY)

Frequency / counting factor	: 10.000, 1.000, 0.100, 0.010, 0.001
Frequency / counting scaler	: 000.001 to 999.999
Decimal point	: Selectable on any digit
Frequency resolution	: Up to 0.01Hz resolution
Frequency averaging	: None, 0.5, 1.1, 4.5 seconds selectable
Counter features	: Reset (count up) or Preset (count down)
*Analog output zero	: -199999 to 999999 (for 0 - 20mA / 4 - 20mA or 0 - 10V out)
*Analog output span	: -199999 to 999999
*Alarm values	: -199999 to 999999
*Alarm hysteresis	: 0 to 255 (default 1)
*Alarm delay	: 0 to 255 seconds (default 0)
*Alarm relay settings	: Selectable HIGH or LOW alarm
*Alarm relay state	: Selectable normally open or normally closed
*RS485 address	: 1 to 127 available (0 is for factory use)
*RS232 / RS485 baud rate	: 2400, 4800, 9600, 19200
*Protocol options	: DPM's DIGIbus or ASCIIbus

* indicates option

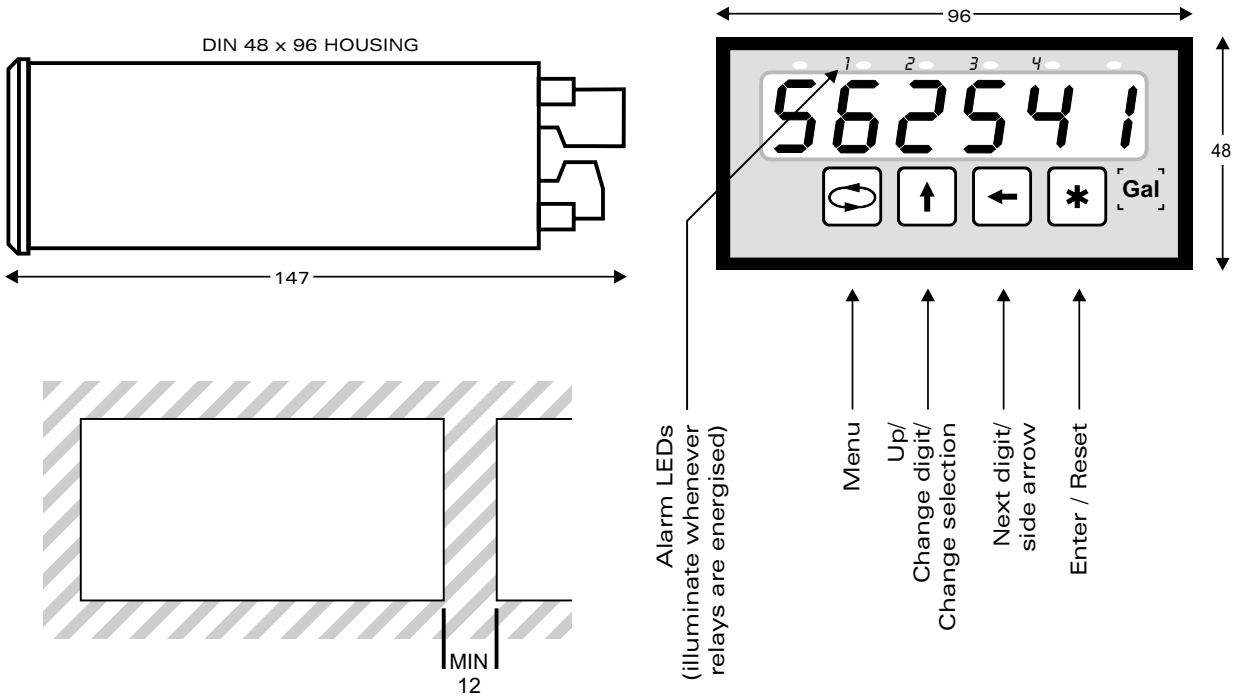
ORDERING EXAMPLE

Option modules (see page 2)

MODEL 5012-Q - 3001P - 3003

Model type :	Quadrature input
Auxiliary supply :	230 VAC
Analog output :	4 - 20 mA
Alarm setpoints :	2 setpoints with solid state relays

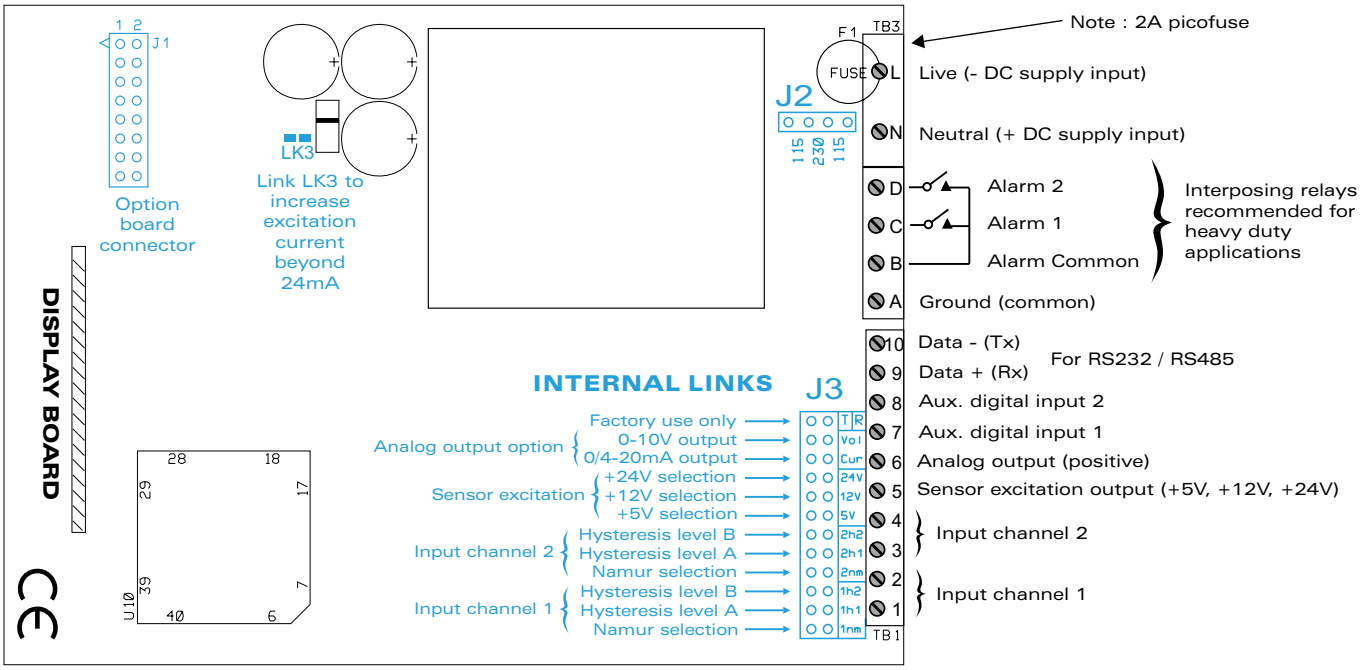
FRONT PANEL DIMENSIONS & CUTOUT



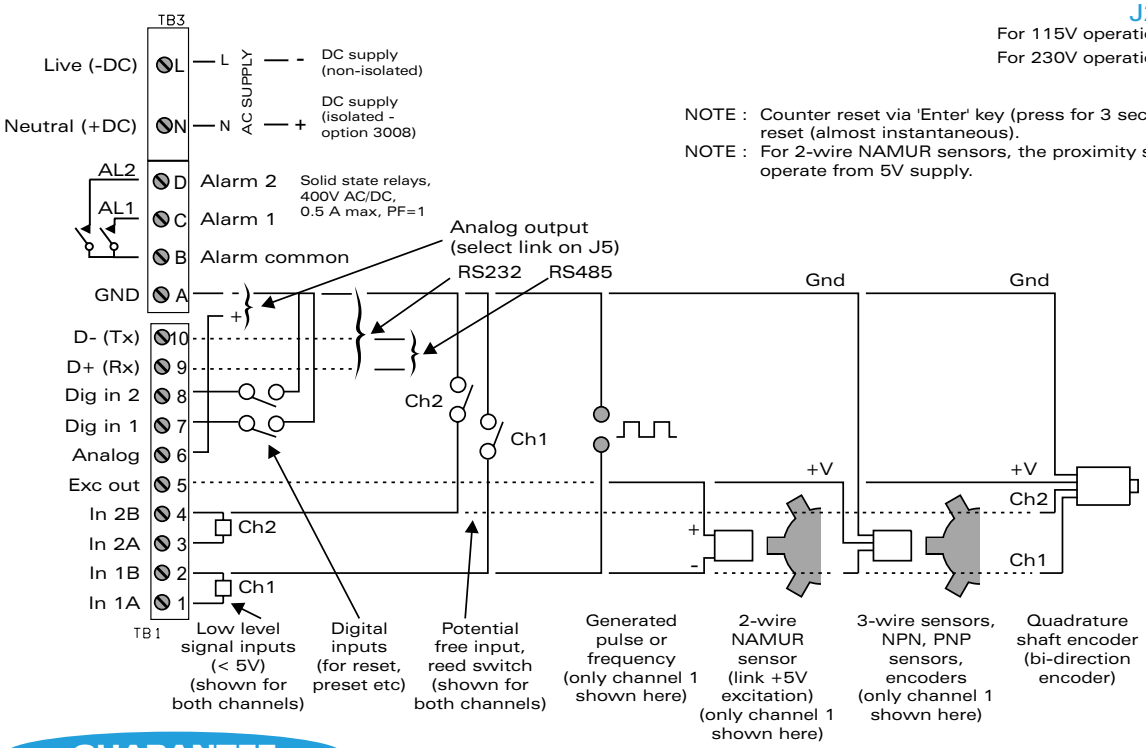
DIN 48 x 96 industrial strength single piece housing
Flame retardant ABS plastic, meets UL 94 V-0 flamability rating
IP53 rating (front panel)
IP65 (with optional panel seal added)

Dimension in mm

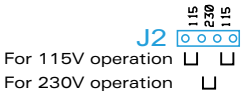
PINOUT



APPLICATION EXAMPLES



POWER SUPPLY LINKS



NOTE : Counter reset via 'Enter' key (press for 3 seconds) or via external reset (almost instantaneous).
NOTE : For 2-wire NAMUR sensors, the proximity switch must be able to operate from 5V supply.

GUARANTEE

This product is guaranteed against faulty workmanship or defective material, for a period of 3 (three) years from date of delivery by Instrotech.

Instrotech undertakes to replace without charge all defective equipment which is returned to it (transportation costs prepaid) during the period of guarantee, provided there is no evidence that the equipment has been abused or mishandled in any way.

Instrotech reserves the right to alter any specification without notice.

DISTRIBUTED BY:

Rev 1.1 - 22/09/99 - 4012b+