

Electrical counter and Position display



ISI30, 31, 32, 33



Features

Type designation

ISI30

ISI31

ISI32

ISI33

Models

- Pulse counter triggering NPN, PNP, contact or 10...260 VAC/VDC pulse adding or subtracting
- Up and down counting mode triggering NPN, PNP
- Difference counter 10...260 VAC/VDC pulse
- Up and down counting mode 10...260 VAC/VDC pulse
- Position display triggering NPN, PNP
A 90° B phase evaluation x1
A 90° B phase evaluation x2

Common electrical data

Supply voltage	Internal lithium battery: approx. 8 years at +20 °C
Display	LCD, 8-digit, 8 mm high Option: Display back light about external supply voltage 24 VDC +/-20 %, 50 mA
Display range	-9999999...9999999
Overflow	In case of display overflow or underflow leading zeros and decimal points are displayed
Reset key	Electrically lockable
Connection	Screw terminals, RM 5.00, 8-pin
Rate cross section	4.0 mm ² single-wire 2.5 mm ² thin-wire AWG 12

Common ambient conditions

Operating temperature	-10...+55 °C
Ambient temperature	-10...+60 °C
Storage temperature	-20...+70 °C
Protection	Front IP 65
General rating	EN 61010 part1 (only AC version) Overvoltage protection categ. II Contamination factor 2
EMV	Interference emissions EN 55011 class B Interference immunity EN 61000-6-2

Common mechanical data

Housing	Switchboard housing 48 x 24 mm DIN 43700 dark grey RAL 7021
Switchboard cutout	22.2 ^{+0.3} x 45 ^{+0.6} mm
Mounting depth	Approx. 48 mm
Weight	Approx. 50 g

Scope of delivery

- Operating instruction D, E, F
- Clamping bracket, gasket
- Front frame for screw mounting fixing
- Front frame for clamping bracket fixing

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Type review ISI30 – Pulse counter

Without backlight With backlight	ISI30.010AA01 ISI30.010AB01	ISI30.012AA01 ISI30.012AB01	ISI30.013AA01 ISI30.013AB01
Model	NPN	PNP	AC/DC
Short description	Fast and slow processes	Fast and slow processes	Slow counting processes
Signal input INP A	Fast counting NPN 7 kHz	Fast counting PNP 12 kHz	Slow counting AC/DC 30 Hz
Signal input INP B	Slow counting NPN or contact 30 Hz	Slow counting NPN or contact 30 Hz	External reset AC/DC --
Mode (operating mode)	Adding or subtracting	Adding or subtracting	Adding

Type review ISI31 – Up and down counting mode/Difference counter

Without backlight With backlight	ISI31.010AA01 ISI31.010AB01	ISI31.011AA01 ISI31.011AB01	ISI31.013AA01 ISI31.013AB01
Model	NPN	PNP	AC/DC
Short description	Fast counting processes with direction signal (up/down) or difference counting	Fast counting processes with direction signal (up/down) or difference counting	Slowly difference counting
Signal input INP A	NPN, 7 kHz	PNP, 12 kHz	AC/DC, 30 Hz
Signal input INP B	NPN, 7 kHz	PNP, 12 kHz	AC/DC, 30 Hz
Mode (operating mode)	Counting with direction signal INP A – count input INP B – direction signal Difference counting INP A – adding INP B – subtracting	Counting with direction signal INP A – count input INP B – direction signal Difference counting INP A – adding INP B – subtracting	Difference counting INP A – subtracting INP B – adding

Type review ISI32, ISI33 – Position display

Without backlight With backlight	ISI33.010AA01 ISI33.010AB01	ISI33.011AA01 ISI33.011AB01	ISI32.013AA01 ISI32.013AB01
Model	NPN	PNP	AC/DC
Short description	For position display or length measuring in combination with an incremental encoder	For position display or length measuring in combination with an incremental encoder	For slow counting operations with direction control
Signal input INP A	Count input 0° NPN Count input 90° phase-shifted NPN 3 kHz	Count input 0° PNP Count input 90° phase-shifted PNP 6 kHz	Direction signal AC/DC Count input AC/DC 30 Hz
Mode (operating mode)	INP A 90° INP B x1 or INP A 90° INP B x2	INP A 90° INP B x1 or INP A 90° INP B x2	Counting with direction signal

Electrical counter and Position display



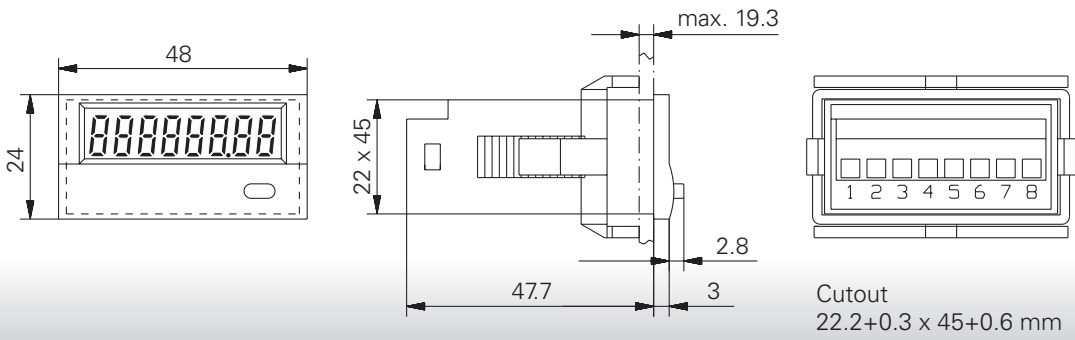
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Input specifications for NPN/PNP type		For AC/DC type	
INP A, INP B (Pin 1 + 2) NPN Active at negative flange Input resistance Approx. 1 MOhm Low level 0...0.7 V High level 3...30 V PNP Active at positive flange Input resistance Approx. 100 kOhm Low level 0...0.7 V High level 4...30 V		INP A, INP B (Pin 1 + 3) Optocoupler input 10...260 VAC/VDC, galvanic isolation, active at high signal Min. pulse duration 16 ms Max. frequency Approx. 30 Hz Low level 0...2 VAC/VDC High level 10...260 VAC/VDC Input resistance Approx. 160 kOhm	
Mode (Pin 5) NPN Operating mode change over Open Collector / contact input (switching to 0 V) Input resistance Approx. 2.2 MOhm Low level 0...0.7 V High level 3...5 V		Common AC/DC (Pin 2) Common connection for optocoupler inputs INP A, INP B	
Ext. Reset (Pin 3) NPN Reset input active at negative flange Open Collector / contact input (switching to 0 V) Input resistance Approx. 2.2 MOhm Low level 0...0.7 V High level 3...30 V Min. pulse duration 50 ms		Ext. reset (Pin 5) Reset input for ISI31.013 and ISI32.013 active at negative flange NPN Open Collector / contact input (switching to 0 V) Input resistance Approx. 2.2 MOhm Low level 0...0.7 V High level 3...30 V Min. pulse duration 50 ms	
Enable Front Reset (Pin 4) NPN Electrically lockable the reset key Open Collector / contact input (switching to 0 V) Input resistance Approx. 2.2 MOhm Low level 0...0.7 V High level 3...5 V		Enable Front Reset (Pin 4) NPN Electrically lockable the reset key Open Collector / contact input (switching to 0 V) Input resistance Approx. 2.2 MOhm Low level 0...0.7 V High level 3...5 V	
GND (Pin 6) Common connection for all inputs (reference potential)		GND (Pin 6) Common connection inputs (Pin 4, Pin 5)	
BL- (Pin 7) External voltage at backlight option		BL- (Pin 7) External voltage at backlight option	
BL0+ (Pin 8) External voltage at backlight option 24 VDC \pm 20 %, 50 mA		BL+ (Pin 8) External voltage at backlight option 24 VDC \pm 20 %, 50 mA	

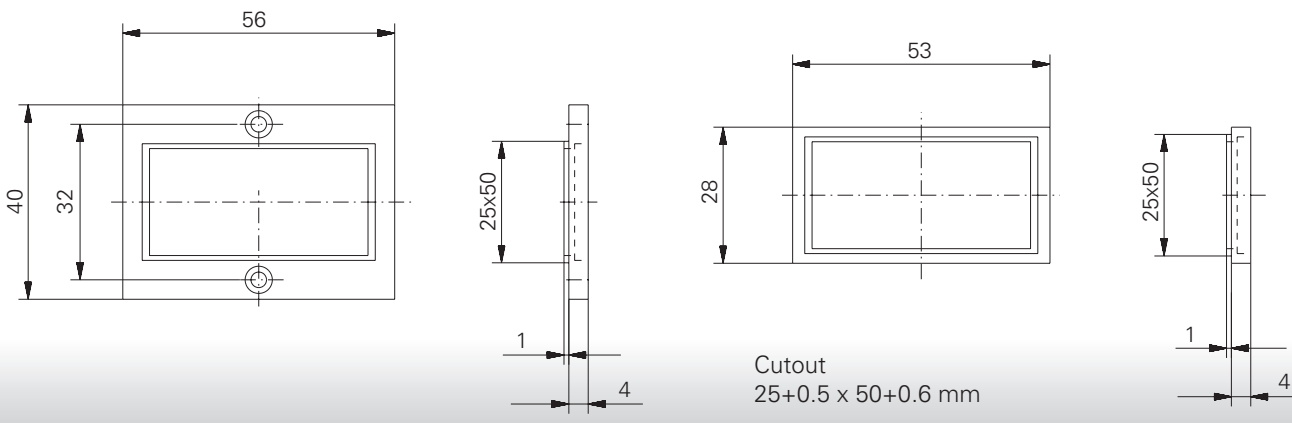
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Dimensions



Front frame for screw mounting fixing/clamping bracket fixing (scope of delivery)





Totalizer and Position Display

Features

Models	Totalizer Position Display
Functions	Scaling factor can be programmed 0.0001...9999.99 Counting mode can be programmed Reset key can be locked

Order designation

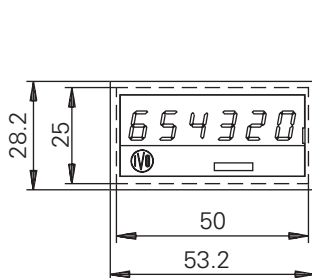
	Order no.	Fixture
	3	Front 53.2 x 28.2 clamping fixture
	4	Front 60 x 37.5 screw fixture
		Voltage
	3	12...24 VDC

N 208.5 A101

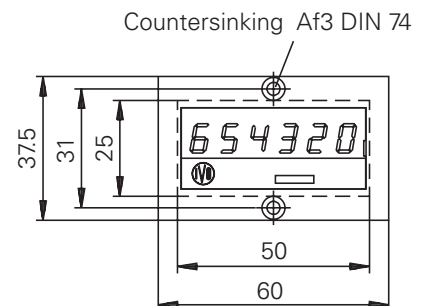
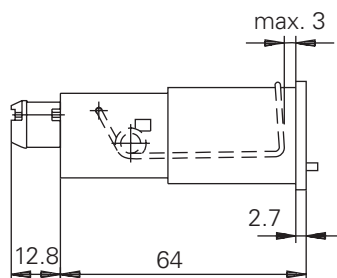
Mechanical data

Display	6-digit LED-display 7.6 mm high Decimal point can be programmed Suppression of leading zero Minus sign for negative values Display range -99999...999999
Operation	Short-stroke key for resetting and programming
Mounting	Front-plate installation
Fastening	By means of clamping or screw fixture
Type of connection	Plug-in screw terminals Grid 5 mm
Core cross-section	Max. 1.5 mm ²
Weight	Ca. 50 g
Housing material	Polycarbonate black, UL 94V-0

Dimensions and cutout size



Cutout 50.5 x 25.5 mm



Cutout 51 x 26 mm

N 208

Ambient conditions

Ambient temperature	0...+50 °C
Storage temperature	-20...+70 °C
Relative humidity	Max. relative humidity 80 %, at 25 °C, non-condensing
Protection	Front IP 40 to DIN 40050
General rating	EN 61010 Part 1 - Protection class II - Overvoltage protec. category II - Contamination factor 2
Interference immunity	EN 50082-2
Emitted interference	EN 50081-2

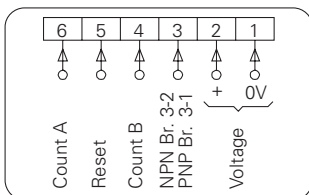
Electrical data

Supply voltage	12...24 VDC, 5 % residual ripple
Current consumption	80 mA
Signal inputs	Optocoupler inputs Count input A / B - control current 9...16 mA - breaking current < 0.5 mA - input resistance 1.65 kOhm Reset input - control current 5...8 mA - breaking current < 0.5 mA - input resistance 3.3 kOhm Can be coded as PNP / NPN via wire jumper to screw terminal
Input counting rate	To be programmed: 3 Hz, 25 Hz, 10 kHz
Data storage	> 10 years via EEPROM

Counting mode of signal inputs A / B

UP / DOWN, A - B, A + B, A 90° B x1, A 90° B x2, A 90° B x4

Pin assignments



Accessories

Order no.

Z 100.01A	Flexible transp. protective cover for 1 counter
Z 100.02A	Flexible transp. protective cover for 2 counters
Z 100.03A	Flexible transp. protective cover for 3 counters
Z 100.04A	Flexible transp. protective cover for 4 counters
Z 105.02A	Perspex cover mounted to front frame
Z 107.01A	Front frame cutout for 1 counter
Z 107.02A	Front frame cutout for 2 counters
Z 107.03A	Front frame cutout for 3 counters
Z 107.04A	Front frame cutout for 4 counters



Totalizer and Position Display

Features

Models	Totalizer Position Display
Functions	Start count can be programmed Scaling factor can be programmed 0.0001...9999.99 Interface RS485, RS422, RS232 Output contact at start count or zero Counting mode can be programmed (0.01...99.99 s) Can be connected to printer

Order designation

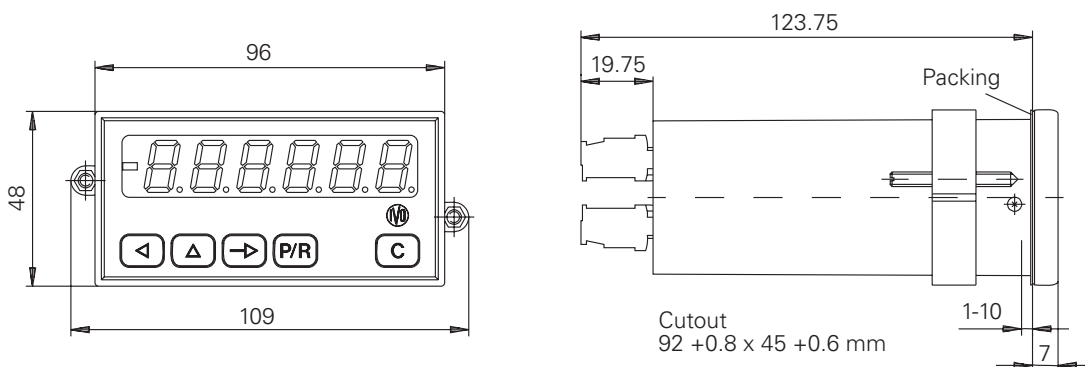
Order no.	Interface
0	Without interface
1	RS485
2	RS422
3	RS232
	Relay
0	Without relay
1	With relay
	Voltage
1	24 / 48 VAC
2	115 / 230 VAC
3	24 VDC 5% residual ripple

N 214. AX01

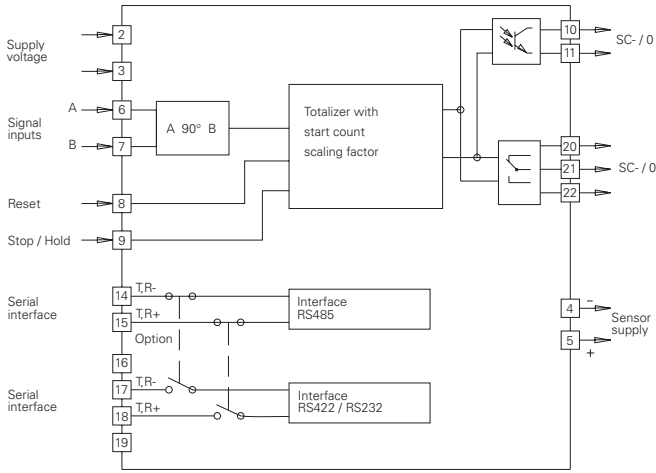
Mechanical data

Display	7-segment LED-display Real value 6-digit display, 14 mm high Decimal point can be programmed Suppression of leading zero Minus sign for negative values
Operation, keypad	Front membrane with short-stroke keys
Front dimensions	DIN housing 96 x 48 mm
Mounting	Front-plate installation
Fastening	Clamping frame
Weight	Version AC ca. 350 g Version DC ca. 250 g
Type of connection	Plug-in screw terminals Grid 5.08 mm
Core cross-section	Max. 1.5 mm ²
Housing material	Polycarbonate black, UL 94V-0
Membrane material	Polyester

Dimensions and cutout size



Block diagram



Counting mode of signal inputs A / B

UP / DOWN, A - B, A + B, A 90° B x1, A 90° B x2, A 90° B x4

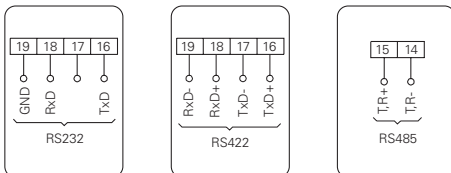
Ambient conditions

Ambient temperature	0...+50 °C
Storage temperature	-20...+70 °C
Relative humidity	Max. rel. humidity 80 %, at 25 °C, non-condensing
Protection	Front IP 65 to DIN 40050
General rating	EN 61010 Part 1 - Protection class II - Overvoltage protec. category II - Contamination factor 2
Interference immunity	EN 50082-2
Emitted interference	EN 50081-1

Electical data

Supply voltage	Choice of two voltages via switch on device. When supplied, always higher voltage adjusted. 115 / 230 VAC ± 10 % (50 / 60 Hz) 24 / 48 VAC ± 10 % (50 / 60 Hz) 24 VDC ± 10 %, 5 % residual ripple
Power consumption	7 VA, 5 W
sensor supply	12...26 VDC / max. 100 mA
Signal inputs	Comparator inputs PNP-, NPN-, sinus or Namur Without EX-protection Input resistance 3 kOhm Voltage level 4...40 V
Input counting rate	To be programmed: 3 Hz, 25 Hz, 10 kHz
Control inputs	2 control inputs for reset, stop, hold, print, etc.
Signal outputs	Can be programmed as momentary or permanent signals Impulse time can be programmed 0.01...9.99 s, tolerance: +0.01s
Relay signal outputs	1 floating center-zero relay Internal spark suppression Max. switching voltage 250 VAC Max. switching power 1 A Max. switching capacity 150 VA/30W
Electrical signal outputs	Optocoupler Max. switching voltage +40 V Max. switching power 15 mA
Data storage	> 10 years via EEPROM

Pin assignments for interface applications



Pin assignments

