Measurement Indicator – External Power Supply
EP2/2-I incremental

Datasheet

lilll tec
Messtechnik eK

- Incremental distance and angle measurement in combination with magnetic and optical measuring systems
- Digital position determination in mechanical and plant engineering
- Industry 4.0 can be networked via an interface

LED-Display; 6-digits   LED-Display; 8-digits (optional)

Functions

Functions (freely programmable via front keys)	• incremental measurement function (ABS-/REL) • freezing function • actual value storage • offset value, selectable • dimensional compensation (optional) • mm/Inch switchover
Suitable for	• incremental rotary encoders series SCA, SCH, EN, WIG • magnetic encoders series LHR5, EHP
Further functions (on request)	• 2 counting inputs/differential measurement • angle calculation • speed measurement • pulse measurement • mass compensation • tolerance window function • slave connectivity via RS485

Mechanical Data

|	
Display	LED-Display; 6-digits or LED-Display; 8-digits (optional)
Digit height	~ 14 mm
Dimensions (installation housing) Dimensions (control panel cut-out) Dimensions (mounting housing)	47 x 95 x 79 mm (L x W x H) 46 x 94 x 75 mm (L x W x H) 62 x 117 x 136 mm (L x W x H)
Measuring range	999.999; -99.999 (6-digits) 99999.999; -9999.999 (8-digits)
Accessories	• mounting housing (single, double, or triple) • mounting brackets

Electrical Data

Power supply Encoder supply	15 - 30 VDC or 115/230 VAC (on request) 5 VDC or 24 VDC

Current consumption
    no-load
    operation
	
	30 mA
	<130 mA

Counting frequency	< 1 MHz (Line Driver) < 250 kHz (Push-Pull)
Electrical connection	Connector
Interface	RS485; RS232 and USB via adapter (optional)
Protection class	IP40 (installation housing front side); further protection classes on request

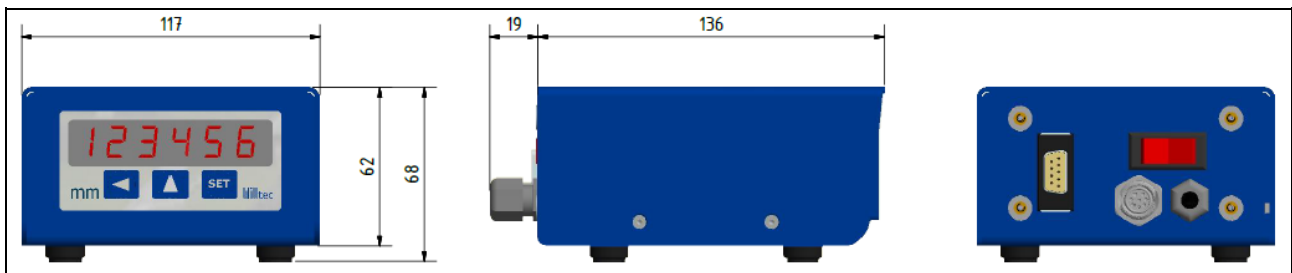Measure | Indicate | Control | Sensors | Mechanics | Accessory

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Dimensions

Measurement indicator EP2/2-I incremental in installation housing
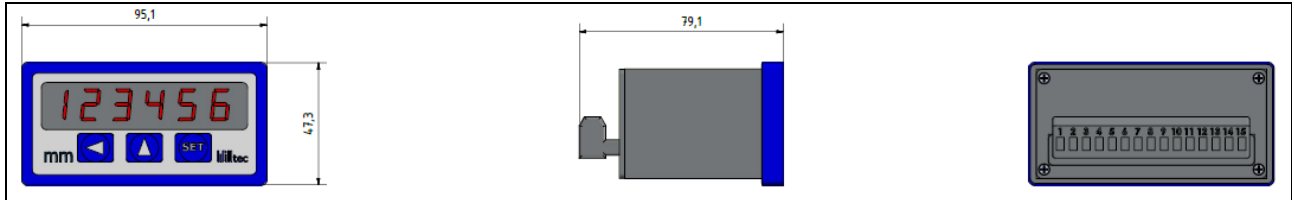
Dimensions

Measurement indicator EP2/2-I incremental in mounting housing (with housing feet)

Accessories

Mounting brackets for measurement indicator in mounting housing / borehole interval for mounting
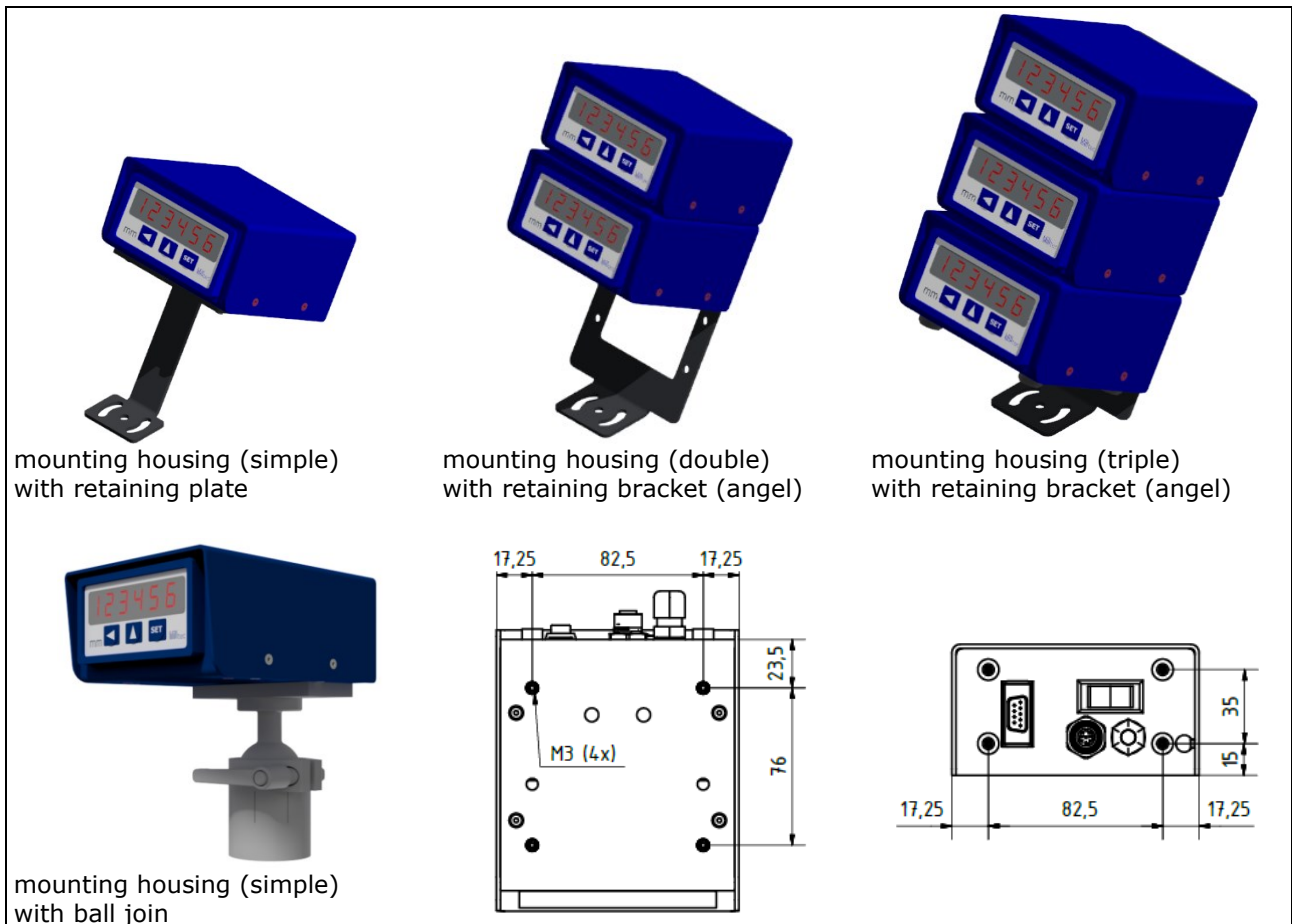
mounting housing (simple)
with retaining plate

mounting housing (double)
with retaining bracket (angel)

mounting housing (triple)
with retaining bracket (angel)

mounting housing (simple)
with ball join

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Pin assignment

Measurement indicator EP2/2-I incremental in mounting housing: 15-pole terminal strip, rear

PIN	Function/Signal	Note
1	Encoder supply +5 VDC or +24 VDC	max. 100 mA
2	Channel A	PP-version, the channels /A, /B and /Index are not connected
3	Channel /A	
4	Channel B	
5	Channel /B	
6	Channel Index	
7	Channel /Index	
8	GND	
9	RESET-Input +	5/24 VDC plus-switching
10	Special input/output +	5/24 VDC plus-switching or open collector (optional)
11	RS485 - DÜB	
12	RS485 - DÜA	
13	PE	protective conductor
14	Power supply +15 - 30 VDC	optional 115/230 VAC
15	Power supply +15 - 30 VDC	

External circuit

External switch attached by the customer.
Submitted to external reset: menu item 9 setting to rFS.

Pin 9 and 10
+5 VDC or +24 VDC
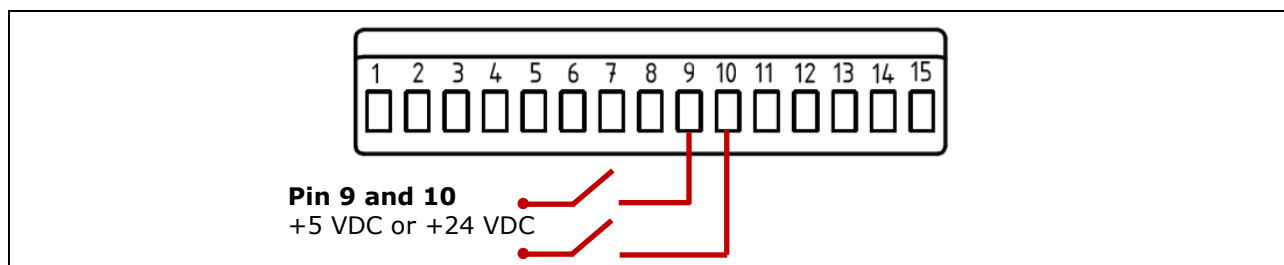
Pin assignment

Magnetic encoder – incremental (example): LHR5/1
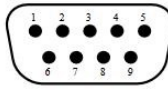
Function/Signal	PIN Encoder input
Terminal strip 15-pole at enclosure housing	CO8 8-pole
Encoder supply +5 VDC or +24 VDC	8
Channel A	6
Channel /A	5
Channel B	3
Channel /B	4
Channel Index	1
Channel /Index	2
GND	7

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PIN Assignment

Measurement indicator EP2/2-I incremental in mounting housing:

The connection of the serial interface RS485 or RS232 is effected via PIN 8 (GND), 3 (DÜB; RxD) and 8 (DÜA; TxD)

PIN	Function/Signal	SUB-D	
	Terminal strip 15-pole at enclosure housing	RS485	RS232
1	Encoder supply +5 VDC or +24 VDC		
2	Channel A		TxD
3	Channel /A	Data B (+)	RxD
4	Channel B		
5	Channel /B		
6	Channel Index		
7	Channel /Index		
8	GND	Channel A (-)	
9	RESET-Input +		V+
10	Special input/output +		
11	RS485 - DÜB		
12	RS485 - DÜA		
13	PE		
14	Power supply +15 - 30 VDC		
15	Power supply +15 - 30 VDC		

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Ordering example Measurement indicator EP2/2-I incremental

Type/Display	EP2/2 - I - PP - 24 - X - X
EP2	
Type**/Display**	
/2 = Display; 6-digits	
/28 = Display; 8-digits	
Incremental	
Encoder input	
PP = **Push Pull**	
LD5 = Line Driver 5 V	
LD24 = Line Driver 24 V	
Power supply	
24 = 15 - 30 VDC	
230 = 230 (115) VAC	
Interface	
X = none	
RS485 (terminal clamp)	
RS232 (adapter if version is EG, installation housing)	
USB (adapter if version is EG, installation housing)	
Function	

Function

X	= none
Inch	= mm/Inch switchover (without incremental measurement function)
MK	= mass compensation
D2	= 2 counting inputs/differential measurement
OV	= without sign
SE	= special input
TOL	= tolerance window
MSF	= multi-scaling
OFF	= multi-offset value, selectable

Further functions (optional) on request:
- angle calculation
- speed measurement
- pulse measurement

* Extension ordering example if version is mounting housing (AG) and accessories (electrical connections and mounting brackets) refer to the following page.

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Ordering example Measurement indicator EP2/2-I incremental

* Measurement indicator EP2/2-I incremental in mounting housing (if version is AG) and accessories

Typ/Anzeige	**AG1** -	**BL** -	**PG** -	**CO8** -	**X** -	**H1**
EP2						
Enclosure housing						
AG1 = mounting housing (simple)						
AG2 = mounting housing (double)						
AG3 = mounting housing (triple)						
Color (housing)						
BL = blue						
SG = slate grey						
UV						
PG = PG cable gland						
230 = 230 VAC connector 3-pole, On/Off switch						
24 = 24 VDC connector 4-pole, On/Off switch						
Encoder connection						
PG = PG cable gland						
CO8 = socket 8-pole						
Individual						
Interface						
X = none (with housing feet)						
SubD = Sub-D						
Mounting bracket						
X = none						
H1 = retaining plate						
H2 = retaining bracket (angel)						
KG = ball join						

Ordering example:
Measurement indicator in installation housing (EG):   **EP2/2-I-PP-24-X-X-EG**
Mounting housing (AG) and accessories: **AG1-BL-PG-CO8-X-H1**

Please note:
If the measurement indicator is ordered together with the mounting housing (AG) and accessories, they will be delivered as assembled.

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Instruction manual - compact

Display

Key position	Left	Center	Right
Symbol /Key function	◄ Arrow left /selection key „position"	▲ Arrow up /selection key „value"	**SET** SET /selection key „menu" and save key
Display mode	Resetting the displayed ABS-/REL-values to zero or press SET-value for 1 to 10 seconds; depending on the programming (7 tSE).	Switching ABS-/REL-value, REL-value is displayed by the flashing decimal point.	Switch to programming mode by pressing the SET-key for 30 seconds. By pressing the SET-key once, freezes the display for a moment; this requires the Efr function to be switched on (see menu item 15 Efr). If Efr=OFF, an offset value (≠zero) can be added. The decimal point flashes when functions are activated.
Programming mode	Change one digit to the left.	Increase the selected digit by one or change parameter.	Adopt value and switch to the next menu item.
Startup sequence: display test (88.888.888), version display, measuring value			

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Programming

Menu	Designation	Selectable range	Default	Menu
1 rEF	Reference value	-99999 … 999999	0	Value (reference value) on which is set during reset
2 OFF	Offset value	-99999 … 999999	0	Can be switched on (see display mode above)
3 SF	Scaling factor	0,00001 … 9,99999	1,00000	Example: encoder 1000, spindle 5 mm, display 1/100 mm -> scaling factor = 500/(4x1000) = 0,1250
4 Sdi	Divisor	1, 10, 100, 1000	1	Additional divisor to set the scale more precisely
5 dP	Decimal places	0; 0.0; 0.00; 0.000	0.0	Setting the decimal point to up to 3 decimal places
6 dir	Counting direction	UP, dn	UP	Counting direction of the measuring system: UP = positive counting in clockwise direction; dn = negative counting in counterclockwise direction
7 tSE	Release RESET button	OFF 1, 3, 5, 10 SEC	5 SEC	Switched off or the number of seconds you must press the Arrow left/selection key "position" to reset the display
8 trE	Release ABS-/REL-button	On, OFF	On	REL-value is indicated by flashing decimal points
9 rES	Function RESET input	IndEX, rFS	rFS	rFS = reset if reference connection is active, IndEX = reset if reference connection and A, B, IndEX = high
10 bri	Display brightness	1 … 5	5	1= darkest level 5= brightest level
11 ISP	Actual value memory	On, OFF	On	
12 Adr	Device address	001 … 255	001	For interface only
13 Efr	Freezing function	OFF, 3, 5, 10 SEC	OFF	By pressing the SET-key once, freezes the display for a moment; the internal counter continues to count.
14 dc	Device code	00000 … 99999	00000	For internal use only

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