

Totalizing Counters

Totalizing counters are generally used to register the number of events and to present the result in digital form. Our broad spectrum of totalizing counters incorporates – as do all Hengstler products – state-of-the-art technology, attractive design, outstanding quality and reliability.

Typical applications:

- Totalizing
- Quantity counting
- Production counting
- Staff recording
- Stroke counting
- Rev. counting
- Length measuring
- Flow rate recording
- Usage calculation
- Order and daily production value recording
- Event counting
- Machine life and maintenance counting
- Laboratory and sample counting
- Shift counting
- Totalizing 2 product lines
- Job data collection via interfaces

Electronic Totalizing Counters



Type	tico 731	tico 732	tico 734	tico 735P1
Features	<ul style="list-style-type: none"> ■ Small, compact, 5 different versions ■ Voltage supply via lithium cell or 12-24 VDC ■ 8-digit LCD or 6-digit LED display ■ Programmable counting frequency and active edge ■ High-voltage version for 12-250 VDC/AC input pulses ■ Optional with prescaling function; decimal point and output signal 	<ul style="list-style-type: none"> ■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter ■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC ■ 6-digit LCD or LED display ■ Offering a large variety of programmable functions ■ Without or with 1 or 2 presets ■ Freely adjustable prescaling ■ Programmable keyboard lock ■ Integrated totalizing counter 	<ul style="list-style-type: none"> ■ Totalizing counter with large, 8-digit LCD display; illuminated ■ Voltage supply via exchangeable lithium cell ■ Small mounting depth ■ Expandable by a variety of module options ■ 10 versions offering different functions (same design) 	<ul style="list-style-type: none"> ■ Large dual-colour, 5-digit LED display; digit height 18.5 mm ■ Programmable display colour ■ Upgrading options (e.g. RS 485) ■ Service-friendly due to plug-in system ■ Complete functions by 8 counter versions and 5 process indicators
Technical Data				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 32 short 48 x 24 x 60 long	48 x 48 x 93.5	72 x 36 x 36	96 x 48 x 100
Front panel cutout (mm)	45 x 22.5	45 x 45	68 x 33	92 x 45
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 8-digit, 12 mm	LED 5-digit, 18.5 mm Dual-colour
Protection	IP 65	IP 65	IP 65	IP 66
Supply voltage	Li battery, type 1+3, 12-24 VDC	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery	22-55 VDC / 20-50 VAC or 90-264 VAC
Inputs				
Input control	PNP/NPN, type 3 with 12-250 VDC/AC	PNP/NPN	PNP/NPN	PNP/NPN
Frequency	7.5 kHz / 30 Hz, type 3; 20 Hz	5 kHz / 30 Hz	10 kHz / 30 Hz	10 kHz / 200 Hz / 20 Hz
Prescaler	Optional, 0.001-99.999	0.001-999.999	Optional 0.0001-99.9999	0.0001-9.9999
Reset input	NPN type 1+2, type 3 with 12-250 VDC/AC NPN/PNP Type 4-5	PNP/NPN	NPN	NPN
Control inputs	Optional: 2 nd counter input, keyboard lock or gate input	2 nd counter input and gate input	Keyboard lock	2 nd counter input and keyboard lock
Counting mode				
Add mode	Standard	Programmable	Standard	
Difference mode	Optional type 5	Programmable	Optional	Programmable
Counting direction		Programmable		Programmable
Add/Add Mode		Programmable		Programmable
Phase Discriminator	Optional Type 4+5	Programmable	Optional	Programmable
Output	Optional as transistor PNP or display	Without, or with 1 or 2 relays and transistor outputs	Option as SSR output	Optional with 1 or 2 relays and transistor outputs
Page	62	69	72	75

Electronic Totalizing Counters



Type		signo 727		
Features	<ul style="list-style-type: none"> ■ Large 6-digit LED display ■ Voltage supply 12-24 VDC or 115/230 VAC ■ Connections via plug-in screw terminals ■ Very high counting frequency up to 40 kHz ■ With or without 2 limit values, for use as relay and transistor ■ Options: RS 232 or RS 485 			
Technical Data				
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 108			
Front panel cutout (mm)	92 x 45			
Display	LED 6-digit, 14 mm			
Protection	IP 54			
Supply voltage	12-24 VDC; 115/230 VAC			
Inputs				
Input control	PNP/NPN			
Frequency	40 kHz / 30 Hz			
Prescaler	0.0000-99.9999			
Reset input	PNP/NPN			
Control inputs	Gate input, reset enable and keylock input			
Counting mode				
Add Mode				
Difference mode	Programmable			
Counting direction	Programmable			
Add/Add Mode				
Phase Discriminator	1-,2-,4-fold programming			
Output	Version with 2 limit values; for use as relay or transistor			
Page	78			

Electromechanical Totalizing Counters



Type	Type 464-468	Type 864-868	Type 634 / 635	Type 635 iw
Features	<ul style="list-style-type: none"> ■ 4-, 6- or 8-digit display ■ With manual/electrical reset or without reset ■ Plugs into modular system 400 ■ Convenient for service 	<ul style="list-style-type: none"> ■ 4-, 6- or 8-digit display ■ With manual/electrical reset or without reset ■ Convenient for service 	<ul style="list-style-type: none"> ■ Small mounting dimensions ■ Low power consumption ■ Standard connections ■ Suitable for PCB mounting ■ Machine-solderable and washable 	<ul style="list-style-type: none"> ■ Small AC voltage counter ■ Low power consumption ■ Easy to install ■ Protection IP 66
Technical Data				
Dimensions (mm) (Width x Height x Depth)	50 x 25 x 75.5	56 x 40 x 72.5 55 x 28 x 72.5	25.2 x 31 x 14.6 30 x 20 x 40	30 x 20 x 58.3
Front panel cutout (mm)	50 x 25	52 x 27	27 x 14.2 only .8	27 x 14.4
No. of digits/ Digit height	4-8 depending on version/4 mm	6; 8 depending on version/4 mm	6, optional 7/ 4 mm (visual)	6/ 4 mm (visual)
Protection	IP 40	IP 40	IP 65	IP 66
Pulse voltage	24 VDC; 24 VAC; 115 VAC; 230 VAC	24 VDC; 24 VAC; 115 VAC; 230 VAC	5; 12; 24 VDC	24; 115; 230 VAC
Power consumption	DC 2.5 W, AC 2.75 VA	DC 2.5 W, AC 2.75 VA	50-440 mW depending on version	85-600 mW
Reset	Without reset, with manual or electrical reset, depending on version	Without reset or with manual reset, depending on version		
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C; optional - 40...+ 85 °C	-10...50 °C
Duty cycle	100 % at 25 °C	100 % at 25 °C	100 % at 25 °C	100 % at 25 °C
Accessories	Panel frame connection box			
Dimensions (mm) (including panel frame)	60 x 50 x 88			
Cutout (mm) (including panel frame)	55 x 29.5			
Page	85	87	89	92

Electromechanical Totalizing Counters



Type	Type 635 DIN	Type 872-877	Type 869	Type 853
Features	<ul style="list-style-type: none"> ■ For DIN rail mounting ■ Wide voltage range ■ Screw-type terminals ■ Without reset function 	<ul style="list-style-type: none"> ■ Small mounting dimensions ■ 4-,5-,6- or 7-digit display ■ Connections with AMP plug ■ For surface mounting or base mounting ■ With or without reset function 	<ul style="list-style-type: none"> ■ Small mounting dimensions ■ 6- or 7-digit display ■ Protection IP 54 ■ For base mounting, surface mounting or flush mounting 	<ul style="list-style-type: none"> ■ Surface mounting ■ Easy to install ■ Pushbutton reset
Technical Data				
Dimensions (mm) (Width x Height x Depth)	25.5 x 68.5 x 28	31.5- 38 x 26.5 x 75	46 x 46 x 55 with front panel; 40 x 24.5 x 55	53 x 100 x 26
Front panel cutout (mm)		32 - 38.5 x 27	40.5 x 25	
No. of digits/ Digit height	6/ 4 mm	4; 5; 6; 7 depending on version 4 mm	6 or 7, depending on version 4 mm	6/ 4 mm
Protection	IP 10	IP 40	IP 40	IP 10
Pulse voltage	5/12/24 VDC; 115/230 VAC	12; 24 VDC; 24; 110 230 VAC	24 VDC	24 VDC; 230 VAC
Power consumption	80 - 665 mW	DC 1.5 W, AC 2.5 VA	1.7 W	DC 2.75 W, AC 4 VA
Reset		Without reset or with manual reset, depending on version		Manual
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C	- 10...50 °C
Duty cycle	100 % at 25 °C	100 % at 25 °C	100 % at 25°	100 % at 25 °C
Accessories		Mounting base	Mounting base	
Page	94	96	98	100

Mechanical Totalizing Counters



Type	Type 205	Type 225	Colibri
Features	<ul style="list-style-type: none"> ■ Length counter with key reset ■ 7-digit display ■ Large digits, 8 mm 	<ul style="list-style-type: none"> ■ 6-digit revolution, length and stroke counter ■ Length counter PTB-approved ■ With key reset ■ Large digits, 6.5 mm 	<ul style="list-style-type: none"> ■ Non-contact counter with magnetic drive ■ Small mounting dimensions ■ Protection IP 66 ■ Maintenance-free operation ■ Easy to mount
Technical Data			
Dimensions (mm) (Width x Height x Depth)	92 x 80 x 48	132 x 70 x 74.2	27 x 25 x 20.2
No. of digits	7	6	6
Digit height	8 mm	6.5 mm	4 mm, visual digit height
Protection	IP 53		IP 66
Reset	Key reset	Manual, via reset key	
Drive	Both sides	Both sides, front, rear, bottom	Via Fe, N- or S-pole magnets
Torque/ Actuating distance	0.5 Ncm	1.2 Ncm, stroke counter 8 Ncm	Fe = 0.5 mm; N+ S pole magnets depending on strength
Max. speed	3000 digits/min	10.000 digits/min	
Max. stroke		800 strokes/min	
Transmission ratio	1:2 / 1:5 / 1: 10	1:1 / 1:5 / 1: 50	
Mounting	Baseplate	Baseplate	ZOB = Without plate ZBO = Top plate ZBH = Rear plate ZBL = Left plate
Accessories	Measuring wheels	Stroke lever, measuring wheels	Mounting plates, Hose clamps Magnets
Page	108	109	111

tico 731

Flexible Counter Series in DIN size 24 x 48 mm



- high contrast 8-digit LCD display or brilliant 6-digit LED display
- different supply voltages available:
 - independent of mains supply with lithium battery or
 - maintenance-free and environmentally friendly with 12-24 VDC supply
- also high-voltage input 12-250 VAC/VDC
- up to 8 different functions for each standard model:
 - 01 Pulse counter
 - 02 Tachometer (1/min)
 - 03 Time counter (display in hhhh:mm:ss)
 - 04 Time counter (display in hhhhhh,hh)
 - 05 Numerical display for the PLC (serial)
 - 06 Bidirectional position indicator
 - 07 Counter with differential mode
 - 08 Maintenance counter (on request)

OVERVIEW



Standard Models	Type 1	Type 2	Type 3	Type 4	Type 5
Hardware					
Display	8-digit LCD	8-digit LCD	8-digit LCD	8-digit LCD	6-digit LED
Supply voltage	Lithium battery	12 – 24 VDC	Lithium battery	12 – 24 VDC	12 – 24 VDC
Nominal data retention	7 years	NV-FRAM > 10 years	7 years	NV-Fram > 10 years	NV-Fram > 10 years
Active edge negative or positive edge programmable	x	x	x	x	x
Amplitude thresholds	< 0.7 and > 5 V, max. 30 V DC	< 0.7 and > 5 V, max. 30 V DC	< 3 V and > 12 V max. 250 V DC/AC	< 0.7 and > 5 V, max. 30 V DC	< 0.7 and > 5 V, max. 30 V DC
Counting frequency programmable	max. 7.5 kHz or 30 Hz attenuated	max. 7.5 kHz or 30 Hz attenuated	20 Hz	max. 7.5 kHz or 30 Hz attenuated	max. 7.5 kHz or 30 Hz attenuated
Control inputs	Reset and Keylock	Reset	Reset and Keylock	Reset and application input programmable	Reset and application input programmable
Keylock	external input	programmable	external input	programmable	programmable
Mounting depth	32 mm	32 mm	60 mm	60 mm	60 mm
Software					
Impulse counter	x	x	x	x	x
Tachometer 1/min	x	x		x	x
Time counter h : 1/100 h	x	x	x	x	x
Time counter h : min : s	x	x	x	x	x
Numerical display for PLC		x		x	x
Position indicator bi directional				x	x
Counter with differential mode					x
Maintenance counter (on request)					x

TYPE 1



TECHNICAL DATA

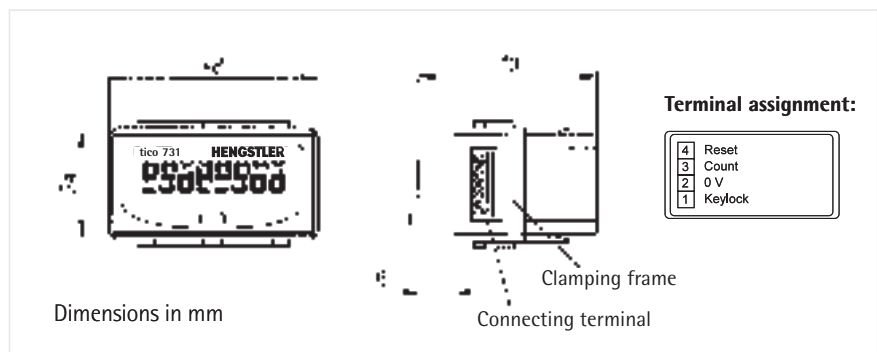
- LCD display
- Lithium battery
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- RESET: reset input with contact (negative, 30 Hz)
- KEYLOCK: locking of the reset key
- short case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 65, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U _b	internal lithium battery
Nominal data retention	lithium battery: 7 years

Inputs:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts)

Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, active edge negative attenuated 30 Hz
Reset lock	via Keylock input, bridged to 0 V
Counting frequency	max. 7.5 kHz

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

0 731 1 0 1 S

* Option: with plug-in screw terminals

Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhhhh.hh)

tico 731

TYPE 2



TECHNICAL DATA

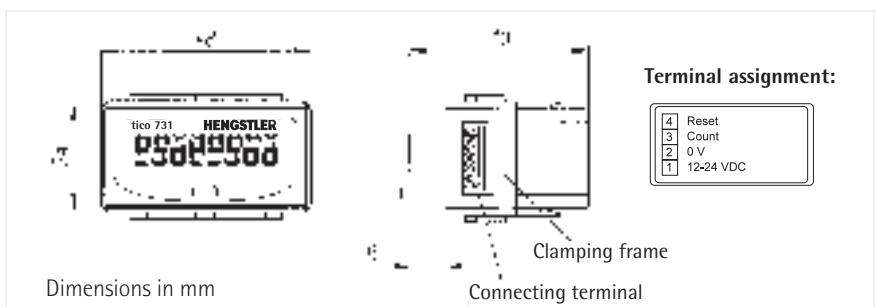
- LCD display
- DC supply voltage 12 – 24 V DC
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- RESET: reset input with contact (negative, 30 Hz)
- short case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mmounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 65, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U _b	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 5 mA
Nominal data retention	nonvolatile memory > 10 years

Inputs:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts)

Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, active edge negative attenuated 30 Hz
Reset lock	programmable via front key
Counting frequency	max. 7.5 kHz, transmission rate for numerical display: 100 Hz

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

0 731 2 0 1

* Option: with plug-in screw terminals

- Software function**
- 01 impulse counter
 - 02 tachometer (1/min)
 - 03 time counter (hhhh:mm:ss)
 - 04 time counter (hhhhh.hh)
 - 05 numerical display for PC

TYPE 3



TECHNICAL DATA

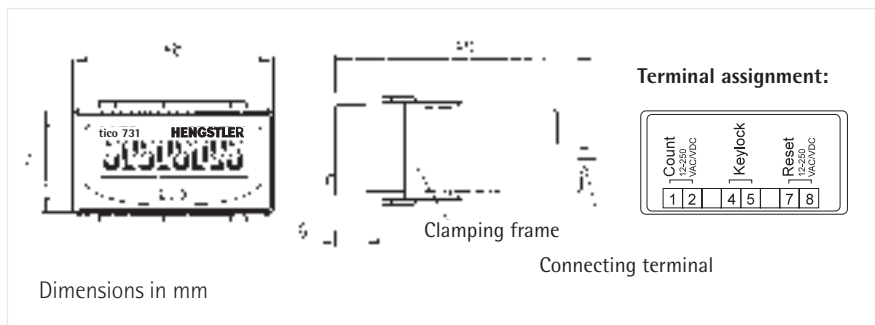
- LCD display
- Lithium battery
- COUNT: count input for voltage pulses 12-250 V AC/DC (20 Hz)
- RESET: reset input for voltage pulses 12-250 V AC/DC (20 Hz)
- KEYLOCK: locking of the reset key
- long case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 65, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	25 ms (20 Hz)
Display	8-digit LCD, 7 mm
Supply voltage U _b	internal lithium battery
Current consumption DC	lithium battery: 7 years

Inputs:	
Amplitude thresholds	high voltage input 20 Hz: < 3 V and > 12 V, max. 250 V DC/AC
Active edge	voltage input positive edge
Counting frequency	20 Hz

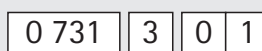
Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, positive circuit
Reset lock	by means of bridge on the keylock input

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731



Software function
01 impulse counter
 03 time counter (hhh:mm:ss)
 04 time counter (hhhhh.hh)

tico 731

TYPE 4



TECHNICAL DATA

Technical data

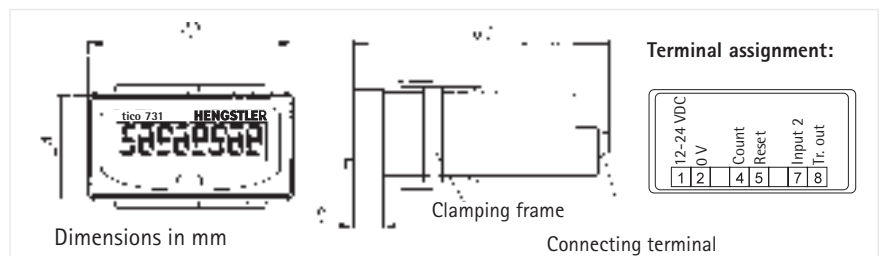
- LCD display
- 12-24 V DC supply voltage
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- INPUT 2: control input for temporary locking of count input (gate) or second count input with position indicator
- RESET: reset input
- OUT: transistor output for preset signal
- long case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 65, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U _b	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 50 mA
Nominal data retention	nonvolatile memory > 10 years

Count input:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts) with position indicator 2 kHz: active edge positive

Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, 30 Hz attenuated same edge as with count input
Input 2:	gate or second count channel; same edge as with count input
Reset lock	programmable via front key
Transistor output signal	PNP output
Voltage/switching current	voltage supply minus 2 V; max. 10 mA
Counting frequency	max. 7.5 kHz, transmission rate for numerical display: 1 kHz

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731



Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhhhh.hh)
- 05 numerical display for PLC
- 06 bidirectional position indicator

TYPE 5



TECHNICAL DATA

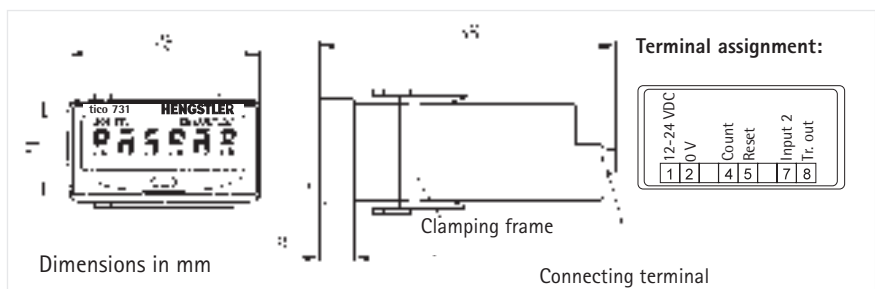
- LED display
- 12-24 V DC supply voltage
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- INPUT 2: control input for temporary locking of count input (gate) or second count input with position indicator
- RESET: reset input
- OUT: transistor output for preset signal
- long case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 65, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7,5 kHz)
Display	6-digit LCD, 7 mm
Supply voltage U _b	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 50 mA
Nominal data retention	nonvolatile memory > 10 years

Count input:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts) with position indicator 2 kHz

Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, same edge as count input
Input 2:	gate or second count channel
Reset lock	programmable via front key
Transistor output signal	PNP output
Voltage/switching current	supply minus 2 V; max. 10 mA
Counting frequency	max. 7.5 kHz, transmission rate for numerical display: 1 kHz

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

0 731	5	0	1
0 731	5	0	7

Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhh:hh)
- 05 numerical display for PLC
- 06 bidirectional position indicator
- 07 counter with differential mode (1 kHz)

tico 731

SPECIAL FUNCTIONS

ORDER NUMBERS SPECIAL VERSIONS

ORDER NUMBERS SPECIAL VERSIONS

Special functions

To best match your application, you can order special functions such as prescaler value, decimal point and preset value, which are permanently set by us before delivery. With the variable prescaler value you can adapt to already existing transfer ratios of your application. Small resolutions can be shown with the decimal point, e. g. for the position indicator or the tachometer.

A special feature is the possibility of displaying an information text in the display, e. g. for the surveillance of maintenance cycles. In this case the desired information is shown in the display after reaching the fixed preset value. You can display any text that can be created with the 7-segment alphabet, e. g. STOP, HELP, FILTER etc.

Special functions for	Impulse counter	Tacho-meter	Time counter	Numerical display	Position indicator	Differential counter
Prescaler value 0.000015 to 65535,99998	x	x			x	x
Decimal point 0 to 3 positions behind the comma	x	x			x	x
Preset value 0 to 99 999 999	x		x			
Information text (on reaching the preset value) LCD = 8 characters LED = 6 characters	x		x			

Choose version and basic function:

Model tico 731



* Option: with plug-in screw terminals only for standard model 1, 2

- Standard version:**
- 1 Standard model 1
 - 2 Standard model 2
 - 3 Standard model 3
 - 4 Standard model 4
 - 5 Standard model 5

- Function:**
- 1 Impulse counter
 - 2 Tachometer (1/min)¹⁾
 - 3 Time counter (hhhh:mm:ss)
 - 4 Time counter (hhhhh.hh)
 - 6 Position indicator (2-channel)²⁾
 - 7 Counter with differential mode³⁾

- 1) not available for standard type 3
- 2) not available for standard types 1, 2, 3
- 3) only available for standard type 5

Please state the desired special version on your order:

- P: (Value);** Prescaler value: 0.000015 to 65535,99998⁴⁾
Basety 4 and 5: to 99,999
- D: (Value);** Decimal point: 0 to 3 positions after the dot⁴⁾
- V: (Value);** Preset value: 0 to 99 999 999⁵⁾
- T: (Text);** The information text displayed on reaching the preset value can be built up as required from the 7-segment alphabet

- 4) not available for time counters
- 5) not available for tachometers and position indicator

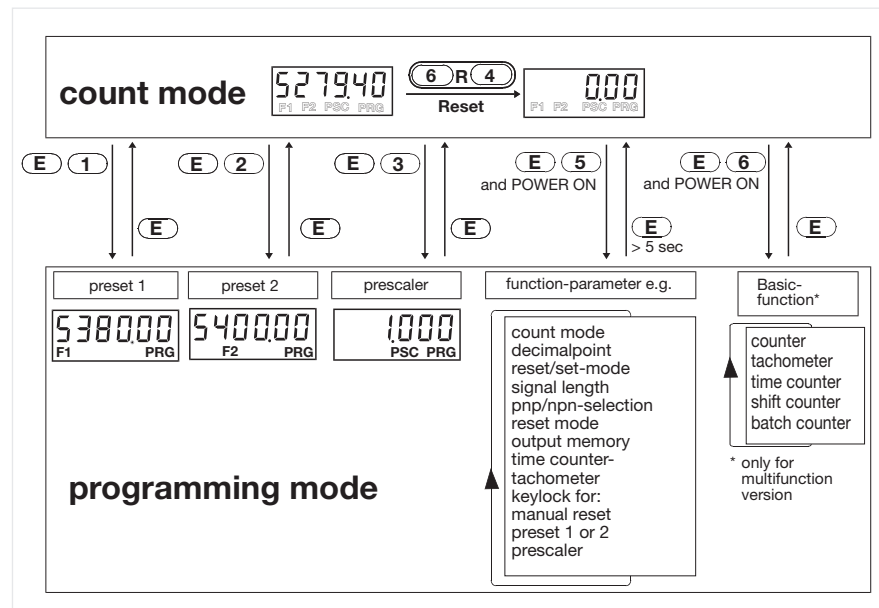
Bi-directional



- high-contrast LED or LCD-Display, 6 digits
- small and compact DIN dimensions 48 x 48 mm
- easy operation by one key per digit
- direct access to parameters
- available with 1 or 2 presets
- transistor and relay with changeover contact, for each preset
- with integrated separate totalizer
- 5 basic functions easily programmable: counter, tachometer, time counter, shift counter and batch counter
- display range from - 99999 to 999999

Totalizing
Counters

PROGRAMMING



The important values, preset 1, preset 2, prescaler and separate totalizer can be directly selected. It is necessary only to press the relevant button and the E-button together. To make the operation still more easy, access to those values can be locked separately. All other system parameters like operation and count modes are laid down in a common operation level. These parameters are usually programmed once only during the first initiation.

tico 732

Technical data

TECHNICAL DATA

General

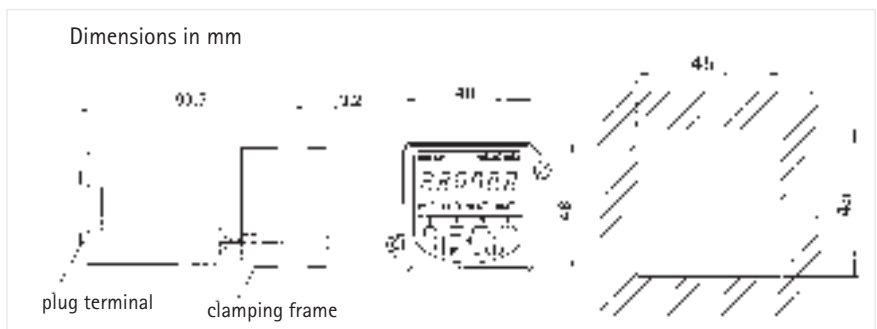
Display	LED or LCD, 6 digits, leading zero suppression, decimal point
Digit height	LED 7.6 mm; LCD 9 mm
Supply voltage	12...24 VDC; 24 VAC; 115 VAC; 230 VAC; 50/60 Hz depending on version
Current consumption	12...24 VDC < 150 mA 100/115/230 VAC < 50 mA; including sensor supply
Sensor supply	only when AC operated: 12 ... 30 VDC, max 50 mA
Data retention	non-volatile memory > 10 years
Operating temperature	0 ... +50 °C
Storage temperature	- 20 ... + 70 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Protection class (IEC 144)	front side IP 65, terminals IP 20
Vibro stability	10 m/s ² (10...150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to VDE 0411, DIN 57411, protection class II
Approvals	UL + CUL E 96337
Amplitude thresholds	< 2 V and > 8 V or < 2 V and > 3.8 V with TTL level, max 40 VDC
Active edge	programmable; positive with pnp input; negative with npn input
Pulse shape	any (squarewave 1:1 for max. frequency)
Input resistance	approx. 5 kOhm (static)
Counting frequency	max. 5 kHz (2.5 kHz bi-directional)
Prescaler	programmable from 0.001 to 9.999 (999.999)
Count inputs A, B	- phase discriminator with single evaluation - differential mode (add/sub) - count direction mode - totalizing mode (add/add)
Pulse length min.	17 ms (30 Hz), 100 µs (5 kHz)
Control input C	- manual reset possible - external reset, static or dynamic, programmable, pulse length > 5 ms - automatic reset when main preset has been reached (programmable)
Relay	changeover contact max. 250 VAC / 30 VDC, min. 5 V AC/DC max. 1 A, min. 10 mA, delay < 5 ms
Transistor	pnp output 12...24 VDC max 10 mA of DC-supply; 12...30 VDC max. 10 mA of AC-supply
Method	time interval (1/Tau)
Display range	1/min or 1/sec
Min input frequency	0.125 Hz = 8 sec
Alarms	2 alarms with programmable start-up-suppression
Time bases	programmable; sec, min., h or hh.mm.ss
Resolution	programmable 1; 0.1; 0.01; 0.001
Function	single pulse measurement (short time meter) or cumulated counting (hour meter)
Count mode	pulse width or period measurement (start-stop)

Counter

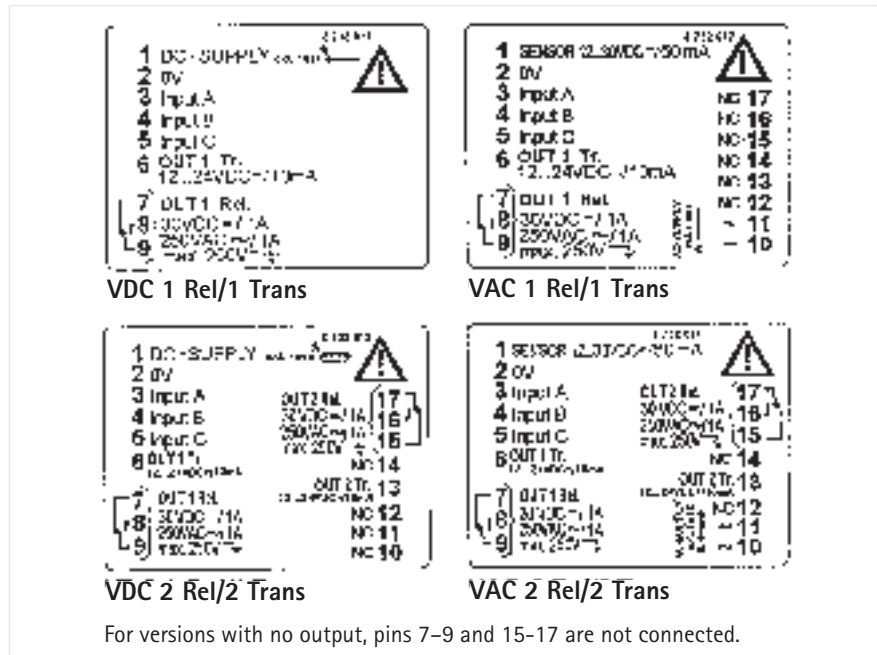
Tacho

Time-counter

DIMENSIONS

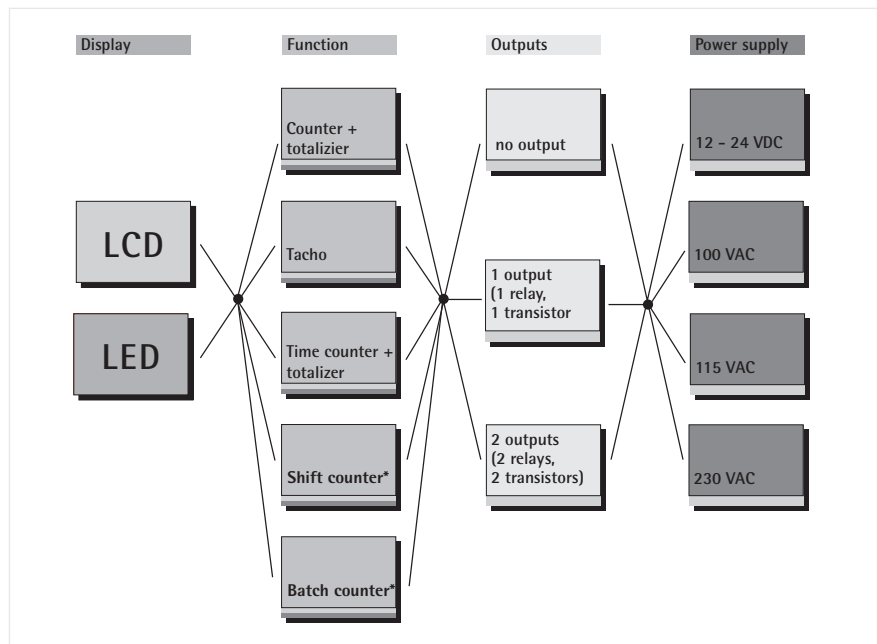


CONNECTION DIAGRAM



Totalizing
Counters

POSSIBLE VARIANTS



ORDER INFORMATION

Display	Preset	12-24 VDC	24 VAC	115 VAC	230 VAC
LCD	-	0 732 000	0 732 071	0 732 037	0 732 001
LCD	1	0 732 002	0 732 073 ¹	0 732 039 ¹	0 732 003
LCD	2	0 732 012	0 732 078	0 732 049	0 732 013
LED	-	0 732 018	0 732 080	0 732 055	0 732 019
LED	1	0 732 020	0 732 082 ¹	0 732 057	0 732 021
LED	2	0 732 030	0 732 087	0 732 067	0 732 031

Important: Only versions with 2 presets or without preset can be used as tachometers.

tico 734



MODEL OVERVIEW

Totalizer (0 734 000)
8 digit, reset key can be enabled/disabled via enable input

Add/Subtract Totalizer (0 734 001)
8 digit differential counter, A-B, prescaler 0.0001 to 99.9999, decimal point, count offset range from -999,999 to 999,999, reset key can be enabled/disabled.

Flexible Counter Series in DIN size 36 x 72 mm

- LCD display, 8 digits, 12 mm height, excellent contrast through
- Backlighting with a 10-28 VDC supply
- Lithium battery power supply
- Decimal point, input scaling, count direction, output mode, etc. programmable, depending on model
- Programming reduced to a minimum for easy handling and set-up
- CE approval, IP 65, NEMA 4
- Suitable for TTL
- Mounting depth 29 mm

The family **tico 734** consists of ten models:

- 0 734 000 Totalizer without scaling
- 0 734 001 Add/Subtract totalizer
- 0 734 002 Position indicator
- 0 734 003 Tachometer
- 0 734 004 Programmable rate meter
- 0 734 005 Rate meter with totalizer
- 0 734 006 Time counter
- 0 734 007 Preset counter
- 0 734 008 Time preset counter
- 0 734 009 Rate meter 005; with total and pulsed output

Reset — 4	5 — Res.En.	4 Remote reset, NPN
30 Hz — 3	6 NC	3 Input A, 30 Hz, NPN
10 kHz — 2	7 NC	2 Input A, 10 kHz, PNP
0V — 1	8 — 10-28 VDC	1 0V, Common
		5 Front panel reset enable
		6 Not used
		7 Not used
		8 DC-supply for backlighting

Suitable option modules: 1 734 0.. 10, 12, 14, 17, 19

Reset — 4	5 — Progr.	4 Remote reset, NPN
A:30 Hz — 3	6 — B:30 Hz	3 Input A, 30 Hz, NPN incrementing
A:10 kHz — 2	7 — B:10 kHz	2 Input A, 10 kHz, PNP incrementing
0V — 1	8 — 10-28 VDC	1 0V, Common
		5 Program enable
		6 Input B, 30 Hz, NPN, decrementing
		7 Input B, 10 kHz, PNP, decrementing
		8 DC-supply for backlighting

Suitable option modules: 1 734 0.. 10, 12, 14, 17, 19

Power Supply

Internal	Single or dual lithium 3 V battery (CR 1/2 AA), typical life time of 5 years (10 yrs w/2 batteries). „Lo BAT“ display flashes approximately 2 weeks prior to end of battery life.
----------	---

Display

via Option Module	120/240 VAC provides 12 VDC for display backlighting and reduces battery load in models with SSR output
-------------------	---

Count Inputs

Display	LCD, 12 mm height, 8 digits for counters
Backlighting	Whole display area can be backlit with a 10–28 VDC supply, green–yellow colour
High Speed Input (2)	PNP, ≤ 28 VDC, max. 10 kHz (50 % duty cycle), Low < 1.0 V, High > 2.0 V, impulse > 45 μs, impedance 1 MΩ
Low Speed Input (3)	NPN, ≤ 28 VDC, max. 30 Hz (50 % duty cycle), Low < 1.0 V, High > 2.0 V, impedance 1 MΩ
High Voltage Option Module	100..260 VAC/DC, 30 Hz, 1 MΩ, with internal connection to input (3)

Control Inputs

Low Voltage Option Module	5..30 VAC/DC, 30 Hz, 17 kOhm, with internal connection to input (3)
Enable Input (5)	NPN, 28 VDC, level sensitive
Reset Input (4)	NPN, 28 VDC, edge triggered, max. 30 Hz (50 % duty cycle)

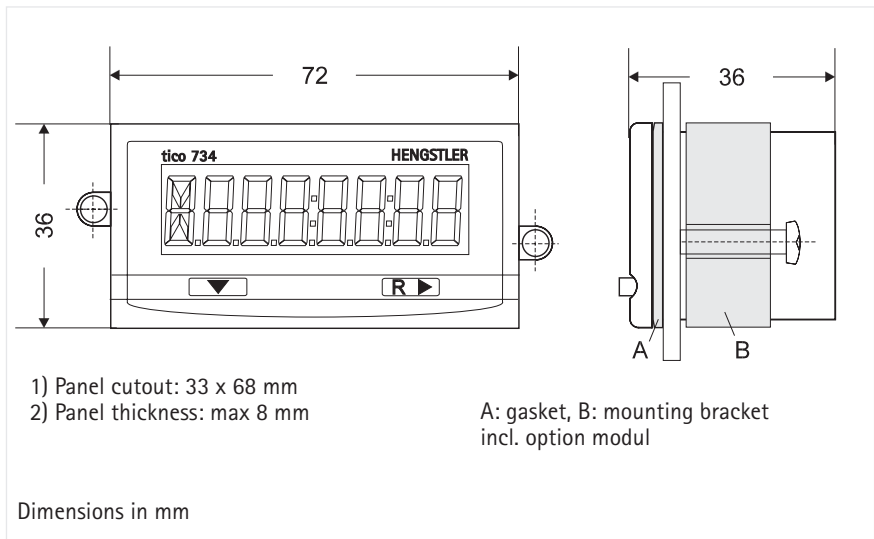
Physical

Mounting	Front panel mounting with mounting bracket
Dimensions	DIN 36 x 72 mm, 36 mm total depth, total width 83 mm

Environmental

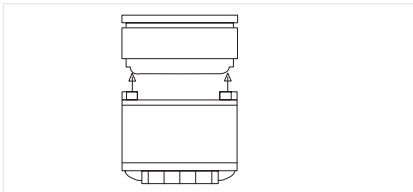
Panel Cutout	33 ^{+0.3} mm x 68 ^{+0.3} mm, depth behind panel < 29 mm
Panel Thickness	max. 8 mm
Front Panel Rating	IP 65.
Operating and Storage Temperature	0 °C to + 55 °C - 20 °C to + 60 °C
General	DIN EN 61010 part 1 / VDE 0411 part 1 Protection according to class II, Contamination level 2 Overvoltage category II

DIMENSIONS



tico 734

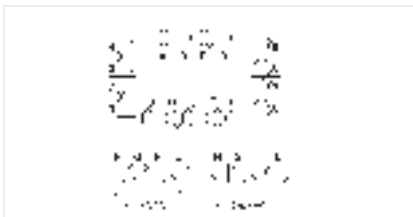
OPTION MODULES



FUNCTIONS OVERVIEW

TECHNICAL DATA

WIRING



ORDERING INFORMATION

Technical data

With the Option Modules, the **tico 734** can be functionally extended and adapted to special application conditions. The following option functions are available:

- AC power supply providing sensor supply 10-20 VDC / 50 mA and 12 V supply for display backlighting (supports the battery in models with SSR output)
- Relay output, changeover contact, 5 A, 120/240 VAC or 30 VDC
- High voltage input (100..260 VAC/DC, max. 30 Hz, 200 KΩ)

1734 ...

	Connections	010	011	012	013	014	015	016	017	018	019	020
High Voltage Input	C-D	x		x	x		x					
Relay 1 x change over	A-B-J		x		x		x	x		x		x
AC power Supply	E-F, G-H			x		x	x	x			x	x
Low Voltage Input	C-D								x	x	x	x

Power Supply (E-H)	115 VAC or 230 VAC (see wiring), frequency 50/60 Hz. Terminal (8) provides an unregulated 10-20 VDC supply for powering sensors up to 50 mA
Relay Output (A-B-J)	Type: SPDT (Form C) mechanical relay; Operate Time: 6 ms 5A, 120/240 VAC or 30 VDC, silver alloy Electrical Life: > 500 000 operations, Mechanical Life: > 10 million operations
High Voltage Input (C-D)	Voltage Range: 100 to 260 VAC or VDC Count Speed: max. 30 Hz. (duty cycle 50 %) Minimum Pulse Width: 12 ms; Impedance: 200 kOhm
Low Voltage Input (C-D)	Voltage Range: 5 to 30 VAC or VDC Count Speed: max. 30 Hz. (duty cycle 50 %) Minimum Pulse Width: 12 ms; Impedance: 127 kOhm
Mounting	Attaching on back of instrument
Dimensions	42 x 69 mm, depth 58 mm, total depth behind panel with instrument 82 mm
Temperature	Operating: -0° C to +50° C; Storage -40° C to +90° C;
General	DIN EN 61010 part 1, Protection according to class II Contamination level 2; Overvoltage category II

All modules contain 17 terminals. The exact functions that are present are determined by the model of instrument and option module (see Functions Overview).

1-8 Connection to instrument (refer to appropriate operating instructions)

A	Normally Open Relay Contact
B	Relay Common
J	Normally Closed Relay Contact
C-D	High or Low Voltage Input, no polarity, (provides NPN signal on terminal 3)
E-F	115 VAC Line winding I
G-H	115 VAC Line winding II

Panel Instruments	
Totaliser	0 734 000
Add/Subtract Totalizer	0 734 001
Position Indicator	0 734 002
Tachometer	0 734 003
Programmable Rate Meter	0 734 004
Rate Meter with Totalizer	0 734 005
Elapsed Time Indicator	0 734 006
Preset Counter	0 734 007
Preset Timer	0 734 008
Rate Meter with Total and Pulsed Output	0 734 009
Lithiumbattery	E3533 355

Option Modules	
HV Input	1 734 010
Relay	1 734 011
AC Power	1 734 012
HV Input and Relay	1 734 013
HV Input and Power	1 734 014
Power and Relay	1 734 015
HV Input/Power/Relay	1 734 016
LV Input	1 734 017
LV Input and Relay	1 734 018
LV Input and Power	1 734 019
LV Input/Power/Relay	1 734 020

Flexible Counter Series, Dual tico 735

Colour Display in DIN size 48 x 96 mm

COUNTING - MEASURING - INDICATING - MONITORING - TRANSMITTING



FEATURES

Because of the unlimited number of measurements it can handle, the **tico 735** device family is equally well suited to applications in the world of impulse and time counting as to those in the processing area.

If you are looking for display clarity and high levels of accuracy, then the **tico 735** is the right choice for you. The dual-colour display is unique, highlighting an alarm situation or an excess value at a single glance. You can program your own choice of display colour to indicate normal or alarm conditions.

- Brilliant 18.5 mm high dual-colour red/green LED display with programmable colour settings
- As standard, all models have limit or preset values
- Scaling available as standard
- Universal Power Supply 90...264 V AC or 20...50 V AC/DC
- Simple structured operation with switchable help function

- External Program Lockout
- DIN housing 48 x 96 mm, mounting depth < 100 mm
- Conveniently sized Screw Terminals
- Large keys offer safety and ease of operation

- NPN and Relay Outputs
- Option: RS 485 ASCII protocol serial interface for all versions. "Remote Display" version receives process values over RS 485

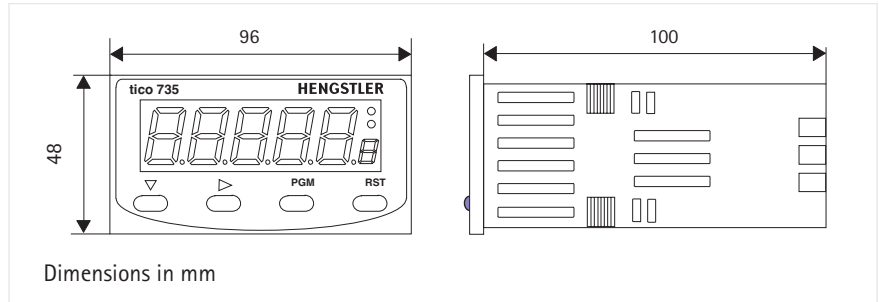
Totalizer

Input Modes, Features	Value Range
A+B, A-B, Direction, Quad	0...99999
Preset Value used for colour switching	0...99999

tico 735

Technical data

DIMENSIONS



Display and Keyboard

Primary Display	Red/Green, 7 segment LED, 5 digits, height 18.5 mm
Secondary Display	single digit 7 segment LED, height 7 mm, red/green
Output Indicators	2 red LEDs for OUT 1 and OUT 2 status
Keyboard	4 rubber keys for programming and manual reset

Physical

Front Dimensions	DIN 48 mm x 96 mm, 110 mm total depth
Mounting	Front panel mounting (mounting bracket supplied)
Panel Cutout	45 mm x 92 mm, panel thickness max 12 mm
Construction	Front carrier with PCBs can be pulled out
Terminals	Screw Type (combination head)

Operating conditions

Power Supply	90 - 264 V AC 50/60 Hz (electrically separated from all inputs and outputs) or 20...50 V AC / 22...55 V DC
Temperature	Operation: 0 °C to +55 °C (32 °F to 131 °F) Storage: -20 °C to +60 °C (-4 °F to 176 °F)
Relative Humidity	0 to 90 %, non-condensing

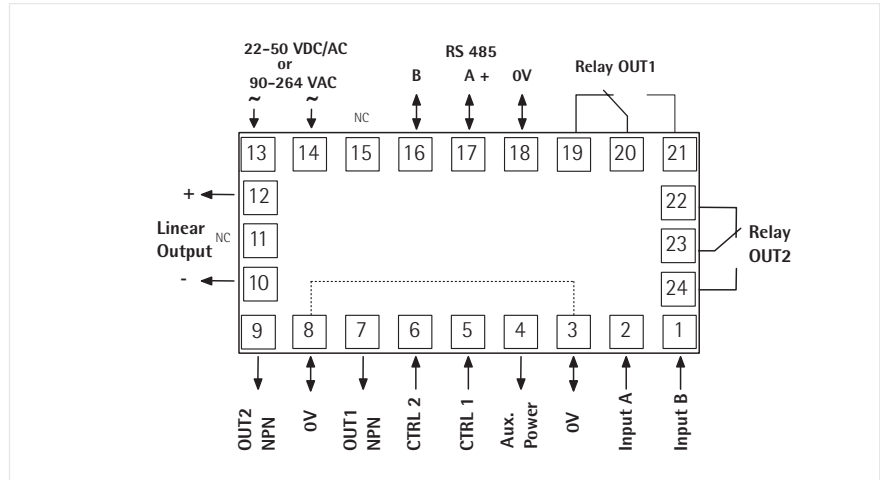
Approvals

Protection	Frontpanel IP 66
CE	EN 50082-1/92-95; EN 50081-1/92, -2/94
Safety	DIN EN 61010 part 1; protection according to class II
General	UL, CUL, Overvoltage cat. II, Contamination level 2

Option RS 485

Type	RS 485, serial asynchronous, Open ASCII, Master-Slave, up to 99 zones
Parameters	9600...1200 Bd, 1 start, 7 data, 1 stop, even parity

TERMINALS



Count Inputs

Active Edge with PNP	NPN or PNP programmable; capable of TTL; 30 V DC max
Active Edge with NPN	High ≥ 3.0 V, Low < 2.0 V or open; 10 kOhm to 0 V
Frequency	20 Hz, 200 Hz or 10 kHz programmable

Control Inputs

CTRL 1 (Reset)	NPN; High ≥ 3.0 V or open, Low < 2.0 V; 4,7 kOhm to V+ edge sensitive; 25 ms min., max 30 V DC
CTRL 2 (Progr. security))	NPN; High ≥ 3.0 V or open, Low < 2.0 V; 4,7 kOhm to V+ level sensitive; 25 ms min.; max 30 V DC

Special Features

- Display colour programmable
- Preset Lockout and Reset Disable programmable
- Program Security via CTRL 2
- Scaling available as standard

ORDERING DATA

Type 0735 P

Output Relay 2
 0 none
 1 with Relay 2
 nicht für Funktion 1, 6, 7

Interfaces
 0 none
 5 with RS 485

0 7 3 5 P

Function	Linear Output	Power Supply
1 Totalizer	0 none	0 90...264 V AC
2 Position Indicator	3 with 4-20 mA (only with function 2, 4, 5)	2 20...50 V AC or 22...55 V DC
4 Tacho/Rate Meter		
5 Rate + Totalizer		
6 Time Counter		
7 1 Preset Counter	Option modul	Ordering code
8 2 Preset Counter	RS 485 Interface	1 901 004
9 Batch Counter		

Totalizing Counters

signo 727.1



APPLICATION FIELDS

DISPLAY

PROGRAMMING

Position Indicator with/without Limit Values

- Large, 6-digit, 14 mm high LED display
- Prescaler
- 2 variable limit values
- Easy direct selection by 2 function keys
- Relay output with two change-over contacts
- Connection by plug-in screw terminals
- Chain value or absolute value indication
- Small compact design in DIN dimensions 48 x 96 mm
- Electronic value retention, non polluting – no battery
- npn/pnp programming of inputs
- Optional with RS 232/RS 485 interface

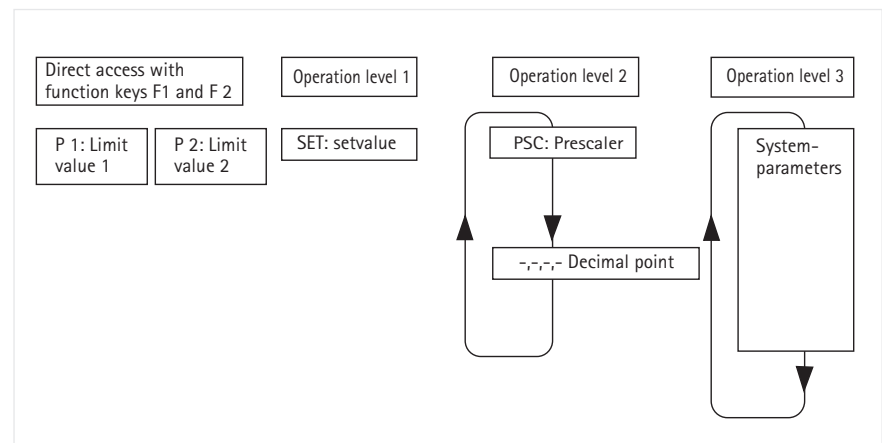
Indication of infeed values, lengths, support- or machine positions, totalizing values etc. The coupling to the machine may be effected e. g. with an incremental shaft encoder from the wide and comprehensive Hengstler program of types RI 30 to RI 58.

6-digit LED display with 14 mm high digits, easy to read, decimal point can be programmed



Section A: shows the actual count value when in counting mode, and the changeable parameters when in programming mode.

Section B: LED indicators showing the active output signal, and in programming mode indicating the changeable parameter.



Programming of signo 727 is possible by direct access and in the 3 operation levels.

Direct access: Limit value 1, Limit value 2 are set with the function keys F1, F2

Operation level 1: Set value

Operation level 2: Includes prescaler and decimal point

Operation level 3: Includes system parameters, which are normally programmed during start-up procedure only.

Unauthorized programming of the signo 727 is prevented by a control input, which can lock the operation levels.

TECHNICAL DATA

Display	7-segment LED, 6 digits, suppression of leading zeros, programmable decimal point
Digit Height	14 mm
Power Supply Voltage U_b	12 ... 24 VDC or 115/230 VAC, depending on version
Current Consumption	12 ... 24 VDC < 250 mA, 115/230 VAC < 60 mA
Sensor Supply	AC operation: 12 ... 24 VDC, DC operation: $U_b - 2 V$, $I_{max.} = 60 mA$
Data Retention	non-volatile memory > 10 years
Operating Temperature	0 ... 50 °C
Storage Temperature	-20 ... +70 °C
Electrical Connection	plug-in terminals
Mounting	with clamping frame
Protection Class (IEC 144)	front side IP 54, terminals IP 20
Noise Immunity EMC	severity according to IEC 801, part 2 + part 4
Vibrostability	10 m/s ² (10 ... 150 Hz) according to IEC 68-part 2-6
Shock Stability	100 m/s ² (18 ms) according to IEC 68-part 2-27
General Rating	according to VDE 0411, DIN 57411, protection class II

Inputs:

Switching Level	< 2 V and > 8 V, max. 40 VDC
Active Edge	positive when pnp input negative when npn input
Pulse Shape	any (square 1:1 at max. frequency)
Input Resistance	approx. 5 kΩ (static)
Count Input	with prescaler programmable 0.0005 bis 99.9999 – as phase discriminator input with single, double or quadruple evaluation – as differential input – as up/down input
Pulse Duration	12,5 μs (40 kHz), 17 ms (30 Hz)
Count Frequency max.	40 kHz or 30 Hz

Control Input:

Application Input 1	static, pulse duration > 3 ms
Display-Hold or Reset-enable, (programmable)	
Application Input 2	(Reset functions)
Reset and/or Chain-Reset, (programmable)	pulse duration > 3 ms or > 17 ms
Gate	static, pulse duration > 12 μs / > 17 ms
Keylock	static, pulse duration > 3 ms

Outputs:

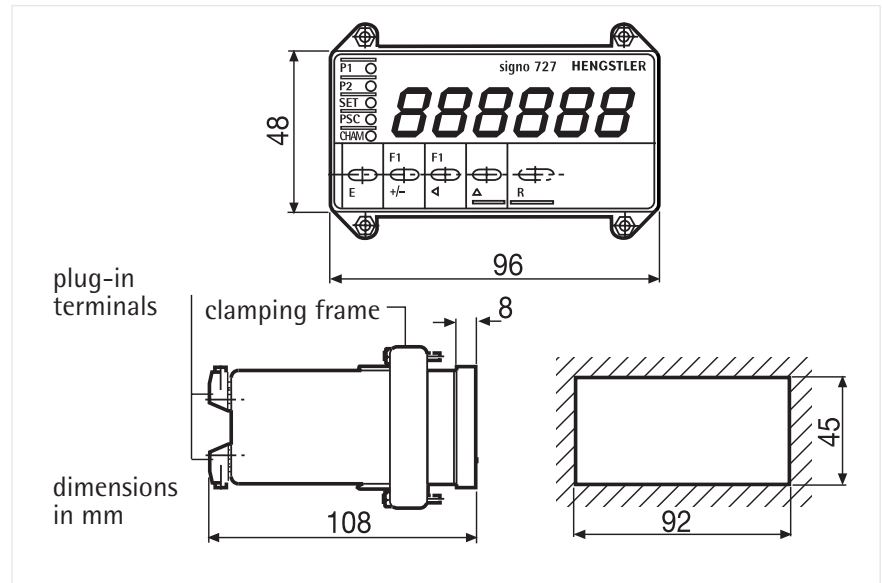
Relay*	Out 1 and Out 2
Contact Type	changeover relay
Switching Voltage	max. 250 VAC / 30 VDC, min. 5 VAC/DC
Switching Current	max. 1A, min. 10 mA
Transistor*	Out 1 and Out 2, PNP, 10 mA

* for versions with limit value only

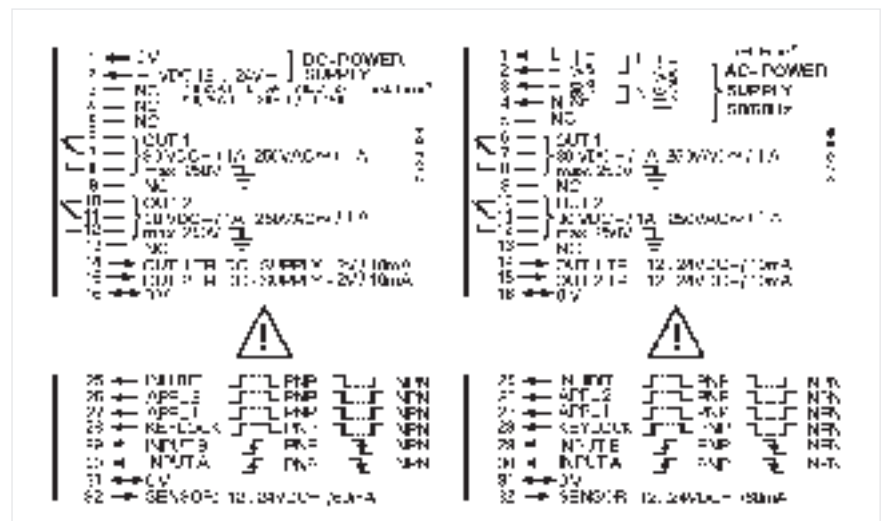
signo 727.1

Technical data

DIMENSIONS



CONNECTION DIAGRAM



(here with Limit values)

ORDER INFORMATION

Type	Supply	Ordering code
signo 727 without limit values	12 ... 24 VDC	0 727 101
signo 727 without limit values	115/230 VAC	0 727 102
signo 727 with 2 limit values	12 ... 24 VDC	0 727 121
signo 727 with 2 limit values	115/230 VAC	0 727 122

This counter is available with several interfaces. See next pages.

Variable Preset Counter and Position indicator with Interface RS 485 / RS 232

signo 723
signo 727



TECHNICAL DATA

- Large 6 digit LED display, 14 mm
- Up-/down counter, 6 digits, with different count modes and prescaler
- 2 preset values or 2 limit values
- Transistor outputs (PNP) and relay outputs (changeover contacts)
- Compact DIN 48 x 96 mm
- Easy manual operation with function keys
- Interface: RS 485 or RS 232

Power Supply Voltage	12...24 VDC or 115/230 VAC
Sensor Supply	AC-operation: 12...24 VDC, DC-operation: Vop=2V, I _{max.} = 60 mA

Inputs:

Switching Level	< 2 V and > 8 V, max. 40 VDC
Active Edge	positive PNP or negative NPN programmable
Count Input	with prescaler programmable 0.0005 ... 99.9999 - as phase discriminator input with single, double or quadruple evaluation - as differential input - as up/down input
Count Frequency max.	40 kHz or 30 Hz
Control Inputs	Reset, Gate, Hold and Keylock

Outputs:

Relay	Out 1 and Out 2 with changeover contact, 1 A, 250 VAC/30 VDC
Transistor	Out 1 and Out 2 with PNP-Output, 10 mA
Maximum length	15 m

Input R x D

Typical input resistance	5 kOhm
Max input voltage	30 V

Input T x D

Output voltage	8 V
Output current max.	20 mA

Terminals A and B

Typical input resistance	12 kOhm
Max input voltage	- 7 .. + 12 V
Output level	High: 3.5 V, Low: 1.3 V
Output current max.	60 mA
Maximum bus length	2000 m
Data transfer rate	1200, 2400, 4800 Baud
Data format	7 bits, even parity 8 bits, no parity
Stop bits	1
Protocol	Hengstler TP3 or ASCII (depending on version)

For further technical information please refer to the pages describing signo 723.1 and signo 727.1

RS 232

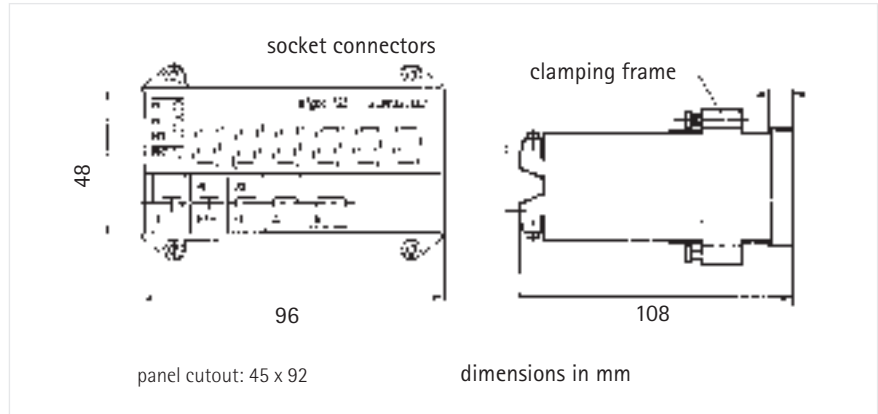
RS 485

Protocol

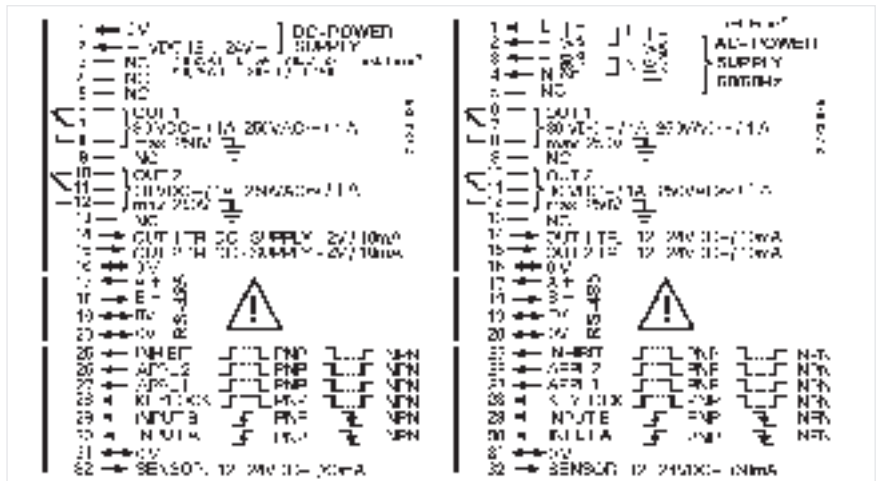
signo 723 signo 727

DIMENSIONS

Technical data



CONNECTION DIAGRAM



(here with interface RS 485)

PRINTER PROTOCOL FOR 723.1

Protocol	Standard ASCII
Baudrate	1200, 2400, 4800 Baud
Data format	7 Bits, even Parity, 1 Stop bit 8 Bits, no Parity, 1 Stop bit
Line and Form Feeds	programmable before and after printout
Cutter Control	programmable

PRINT MASKS

The counter allows for the programming of 5 different print masks	
Mask 0	only Count Value
Mask 1	Counters: <value>
Mask 2	Counter: <value>
Mask 3	Counter: <value> Preset1: <value> Preset2: <value> Set: <value> Prescaler: <value>
Mask 5	Length: <value> m

Technical data

signo 723
signo 727

ORDER INFORMATION

Counter

Version with interface		12...24 VDC	115/230 VAC
signo 723 Printersoftware	RS232	0 723 150M1	0 723 151M1
signo 723 TP3 Protocol	RS232	0 723 150M3	0 723 151M3
	RS485	0 723 160M3	0 723 161M3
signo 727 TP3 Protocol	RS232	0 727 150M3	0 727 151M3
	RS485	0 727 160M3	0 727 161M3

Counter with time counter

signo 723 TP3 Protocol	RS485	0 723 125	0 723 126
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PC-driversoftware for TP3 Protocol

Windows 3.X	0 723 165
Windows 95 / NT	0 723 167
DOS (ab 3.2) vt3com.exe	0 723 166
TP3.com	0 723 168

RTC Converter RS 485 / RS 232

RTC	0 723 169
Plug-in power supply for RTC	3 560 032
Connection cable RTC-PC (RS 232), 5 m	1 723 055

RTC



DIMENSIONS

CONNECTION DIAGRAMS

Remote Terminal Converter

The RTC is needed if more than one counter is to be connected to the PC or if the distance between the machine and the PC is longer than 15 m.

- up to 31 counters can be connected to the RTC via RS 485 bus
- Connection RTC - PC is a standard RS 232
- optimally tuned for operation with the Hengstler Software HTS (Hengstler Terminal Server)
- Power supply 12..24 VDC or 12..18 VAC, max. 2 VA (plug-in power supply available as accessory)

width 115 mm / height 38 mm / depth 165 mm

Connector ST 1

pin	signal
1	AC/DC
2	Earth
3	AC/DC

Connector ST 3

pin	signal
1.3	RS 485 A +
2.4	RS 485 B -
5	Earth

Connector ST 2

pin	signal	description
1	DCD	Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

signo 723
signo 727



EXAMPLE

```
' Logical counter adress  
Const CounterAddress = 25  
' registers of a counter  
Const CounterValue = 0  
Const Preset1 = 1  
Const Preset2 = 2  
Const Chain = 3
```

Windows Software HTS for Counters

- Guided Setup
- A program group and start icon are created automatically
- Setup registers the OLE attributes of HTS in the Windows registry
- DDE- and OLE Server

Reading and writing a counter from within MS Excel:

```
' read counter and insert result in table 1  
Sub Read_Counter()  
    Set Hts = GetObject(Class:="Hengstler.TerminalServer.10")  
    Result = Hts.ReadRegister(CounterAddress; CounterValue)  
    Sheets(„Table1“).Cells(6; 2).Value= Result  
Ende Sub  
  
Sub Write_Counter()  
    Data = Sheets(„Table1“).Cells(2; 2).Value  
    Set Hts = HoleObject(Class:="Hengstler.TerminalServer.10")  
    Result = Hts.WriteRegister(CounterAddress; CounterValue; Data)  
Ende Sub
```

Plug-in Totalizing Counters, Types 464-468 Modular System 400



Counter



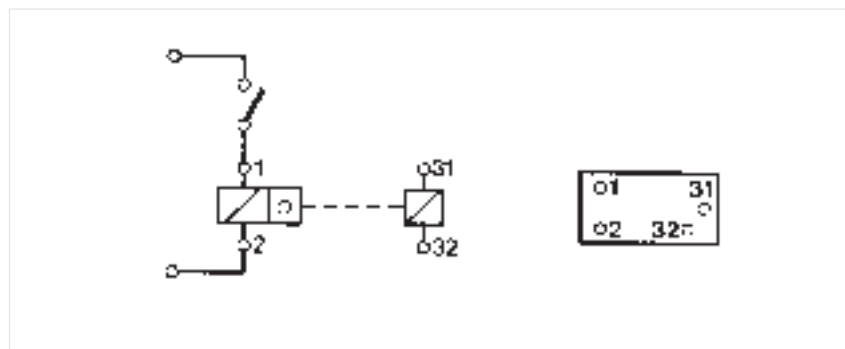
Counter with connection box and panel frame

- 4, 6, or 8-digit display
- with manual/electrical reset or without reset
- Simple installation
- Easy maintenance through plug-in system
- Can be combined with other counters in the modular system

TECHNICAL DATA

Display	4, 6 or 8-digit, depending on version
Digit height	4 mm
Supply voltage V_{op}	according to order information, tolerance $\pm 10\%$ 230 VAC $+6\%$ - 10%
Power consumption	DC counter: counter 2.5 W/VA, reset magnet 12 W/VA AC counter: counter 2.75 W/VA, reset magnet 16 W/VA
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 20 ... + 70 °C
Protection class (EN 60529)	front IP 40; connections IP 00
Vibro-stability	50 m/s ² acc. to IEC 068-2-6
Shock stability	600 m/s ² (6 ms) acc. to IEC 068-2-27
General design	acc. to DIN VDE 0435; contamination level 2 VDE 0110
Maintenance-free operation	counter 2×10^7 , reset magnet 1.5×10^6 pulses
Duty cycle at 25 °C	Counter 100 %, reset magnet: DC 20 % max. 2 min., AC 10 % max. 1 min.
Weight	approx. 90 g
Approvals	UL: E 176396
Count input	adding
Pulse length min.	DC counter: counter 20 ms, reset magnet 200 ms AC counter: counter 50 ms, reset magnet 200 ms
Counting frequency max.	DC counter: counter 25 Hz, reset magnet 1 per s AC counter: counter 10 Hz, reset magnet 1 per 2 s
Pulse duty factor	counter 1:1, reset magnet: DC 1:5, AC 1:10
Reset	depending on version - manual with button or key - electric (version with reset magnet) - without reset

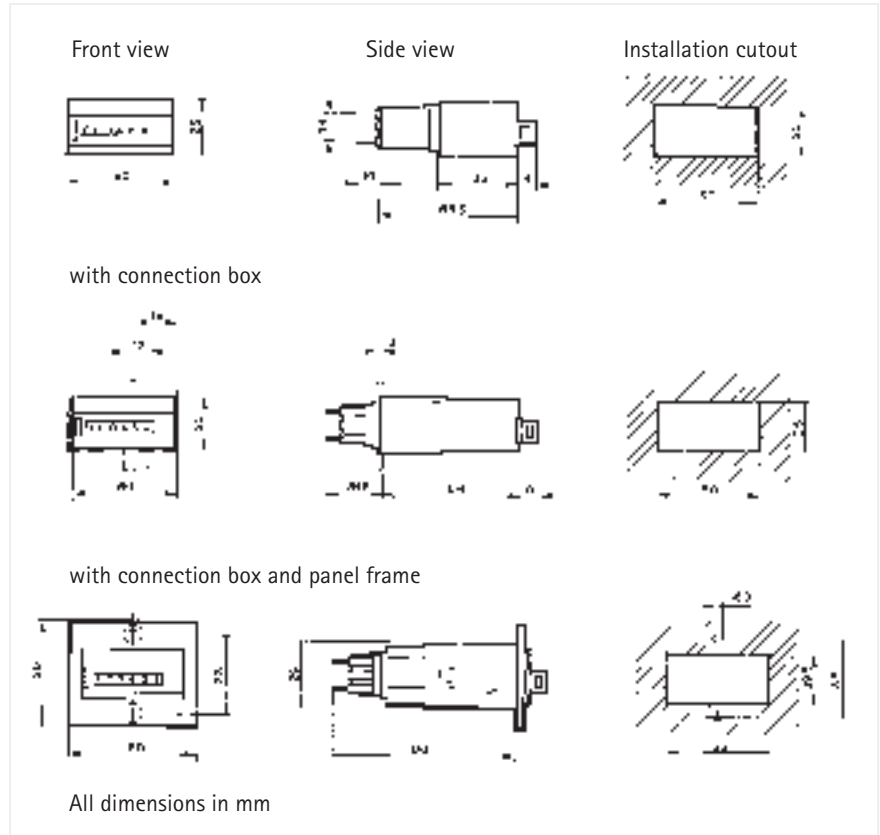
CONNECTION DIAGRAM



Types 464-468

Technical data

DIMENSIONS



ORDER INFORMATION

Counter

	4 digits		6 digits		8 digits	
Voltage	button reset.	el. reset	button reset	el. reset	w/o reset	without reset
24 V DC	0 465 165	0 465 765	0 464 165	0 464 765	0 466 165	0 468 165
24 V AC	0 465 186	0 465 786	0 464 186	0 464 786	0 466 186	0 468 186
115 V AC	0 465 189	0 465 789	0 464 189	0 464 789	0 466 189	0 468 189
230 V AC	0 465 190	0 465 790	0 464 190	0 464 790	0 466 190	0 468 190

Standard accessories

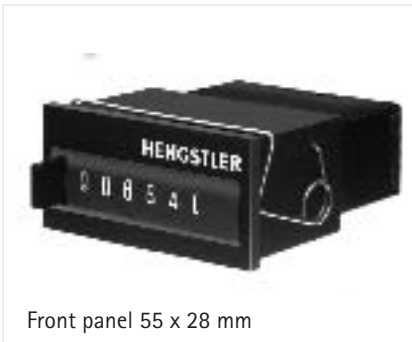
connection box	ordering code 1 405 464,
Panel frame, black	ordering code 1 405 491,
Key-reset system	ordering code + SR e.g. 0 465 165 SR
Case, covers	see accessories

Inquire for other versions

Totalizing Counters Types 864–868 for Front Panel Mounting



Front panel 56 x 40 mm



Front panel 55 x 28 mm

- 6 or 8-digit display
- with manual/electrical reset or without reset
- Simple installation
- Various front panel sizes

TECHNICAL DATA

Display	6 or 8-digit, depending on version
Digit height	4 mm
Supply voltage V_{op}	according to order information, tolerance $\pm 10\%$ 230 VAC $\pm 6-10\%$
Power consumption	DC counter: counter 2.5 W/VA, reset magnet 12 W/VA AC counter: counter 2.75 W/VA, reset magnet 16 W/VA
Operating temperature	$-10 \dots +50\text{ }^{\circ}\text{C}$
Storage temperature	$-20 \dots +70\text{ }^{\circ}\text{C}$
Protection class (EN 60529)	front IP 40; connections IP 00
Vibro-stability	50 m/s ² acc. to IEC 068-2-6
Shock stability	600 m/s ² (6 ms) acc. to IEC 068-2-27
General design	acc. to DIN VDE 0435; contamination level 2 VDE 0110
Maintenance-free operation	counter 2×10^7 , reset magnet 1.5×10^6 pulses
Duty cycle at 25 °C	counter 100 %, reset magnet: DC 20 %, max. 2 min., AC 10 %, max. 1 min.
Weight	approx. 90 g
Count input	adding
Pulse length min.	DC counter: counter 20 ms, reset magnet 200 ms AC counter: counter 50 ms, reset magnet 200 ms
Counting frequency max.	DC counter 25 Hz, reset magnet 1 per s AC counter 10 Hz, reset magnet 1 per 2 s
Pulse duty factor	counter 1:1, reset magnet: DC 1:5, AC 1:10
Reset	depending on version - manual with button or key - electric (version with reset magnet) - without reset

Totalizing Counters „mini-i“ Type 634/635



TYPE VERSIONS

TECHNICAL DATA

- Miniature size
- Low power consumption
- Electrical connections in standard grid
- Suitable for PCB mounting
- Machine-solderable and washable versions available
- Protection class IP 65

Type 634: Counter with high immunity against magnetic interference.
 Type 635: Counter with high shock stability.

Display	6-digit	
Digit height	4 mm, visual	
Supply voltage V_{op}	according to order information, tolerance $\pm 10\%$	
Power consumption	Type 634: approx. 50 mW ... 440 mW according Version Type 635: 5...12 VDC 80 mW 24 VDC 160 mW	
Operating temperature	- 10 ... + 50 °C	
Storage temperature	- 40 ... + 85 °C	
El. connection	Versions .1 and .3 with solder pins, .7 and .8 with wiring posts $\varnothing 0.6$ mm, cable length < 30 m	
Mounting	Versions .1 and .3 on PCB's, .7 with wiring posts, .8 with locating spring	
Mounting position	horizontal	
Protection class (EN 60529)	Type .1 and .3	IP 65 Housing, IP 00 Connections
	Type .7 and .8	IP 66 Front, IP 00 Connections
	Type 8	IP 40 Front in Frontpanel
Vibro stability	Type 634: 20 m/s ² (10...500 Hz) acc. to IEC 068-2-6 Type 635: 30 m/s ² (10...500 Hz) acc. to IEC 068-2-6	
Shock stability	Type 634: 2000 m/s ² acc. to IEC 068-2-27 Type 635: 3500 m/s ² acc. to IEC 068-2-27	
General design	according EN 61010-1	
Contamination Level	2	
Protection	according to class II	
Overvoltage category	II	
Susceptibility to magnetic interference	Type 634 at 100 kA/m (PTB) no effect	
Maintenance-free operation	10 million pulses	
Duty cycle at 25 °C	100 %	
Weight	approx. 10 g	
Pulse length min.	50 ms	
Counting frequency max.	10 Hz	
Reset	none	

Technical data

Type 634/635

ORDER INFORMATION



Type 634

		634.1	634.3	634.7	634.8
Voltage	Ω	Ordering code	Ordering code	Ordering code	Ordering code
5 VDC	335	0 634 132	0 634 332	0 634 712	0 634 812
12 VDC	335 + RV 330 Ω^1	0 634 128	0 634 328	0 634 708	0 634 808
24 VDC	335 + RV 1K Ω^1	0 634 130	0 634 330	0 634 710	0 634 810

Type 634

		635.1	635.3	635.7	635.8
Voltage	Ω	Ordering code	Ordering code	Ordering code	Ordering code
5 VDC	320	0 635 132	0 635 332	0 635 712*	0 635 812
12 VDC	1860	0 635 128	0 635 328*	0 635 708	0 635 808
24 VDC	3720	0 635 130	0 635 330	0 635 710	0 635 810
Connection leads 150 mm			red	1 634 008	1 634 008
			black	1 634 007	1 634 007

* on request

Inquire for optional mounting position and further voltages
1 RV internal

Type 635



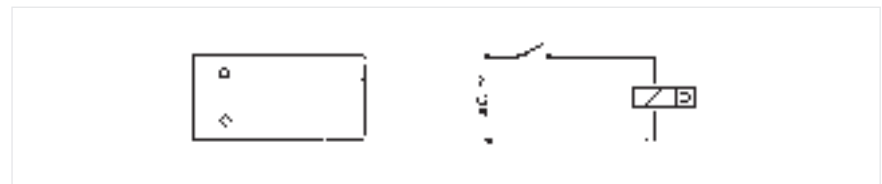
TECHNICAL DATA

„mini-iw“ for AC Voltage

- Miniature size
- Low power consumption
- Simple installation
- Protection class IP 65

Display	6-digit
Digit height	4 mm, visual
Supply voltage V_{Op}	according to order information, tolerance $\pm 10\%$,
Power consumption	at 24 VAC: 85 mW, at 115 VAC: 310 mW, at 230 VAC: 600 mW
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 40 ... + 85 °C
El. connection	screw connection
Mounting	with clamping frame
Mounting position	horizontal
Protection class (EN 60529)	IP 65 Frontside, IP 00 Connections IP 40 Front in Frontpanel
Vibrostability	30 m/s ² (10 ... 500 Hz) acc. to IEC 068-2-6
Shock stability	800 m/s ² (6 ms) acc. to IEC 068-2-27
General design	according EN 61010-1
Contamination Level	2
Protection	according to class II
Overvoltage category	II
Maintenance-free operation	10 million pulses
Duty cycle at 25 °C	100 %
Weight	approx. 20 g
Count input	adding
Pulse length min.	50 ms
Counting frequency	10 Hz
Pulse duty factor	1:1
Reset	none

CONNECTION DIAGRAM



Type 635

for DIN-Rail Attachment

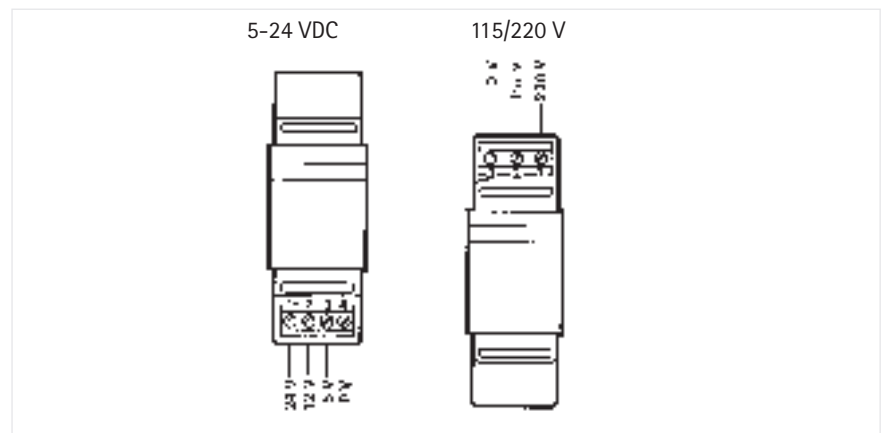


- DIN rail attachment
- Wide voltage range
- Screw terminal connection
- No reset

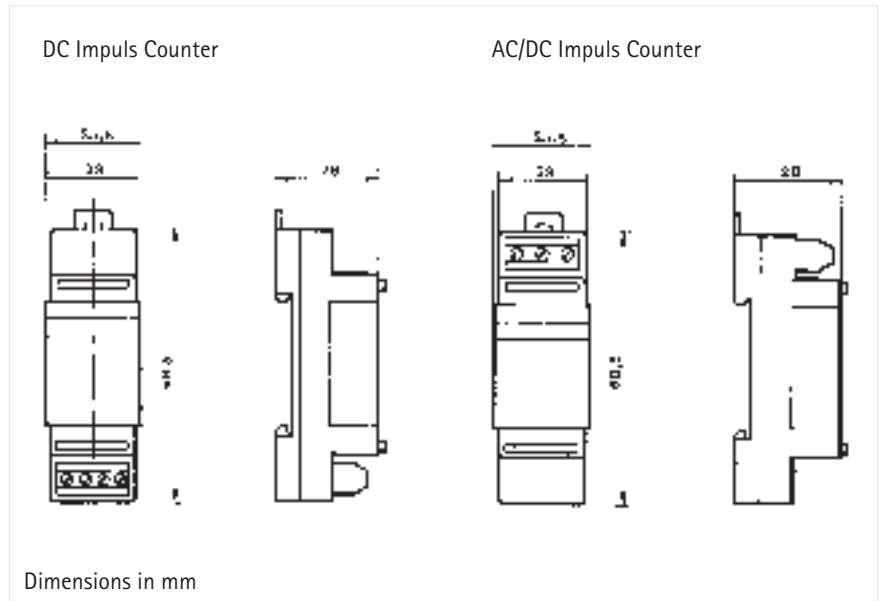
TECHNICAL DATA

Display	6-digit
Digit height	4 mm, visual
Supply voltage V_{op}	5, 12, 24 VDC or 115/220 VDC/VAC, dep. on version DC version $\pm 10\%$, 230 VAC $+6 -10\%$
Power consumption	80 mW on 5 VDC, 200 mW on 12 VDC, 400 mW on 24 VDC, 350 mW on 115 VAC, 665 mW on 220 VAC
Max. residual ripple	DC operation: 48 %
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 40 ... + 85 °C
El. connection	screw terminals, max. 2.5 mm ²
Mounting	35 mm DIN rail
Protection class (IEC 144)	IP 10
Vibrostability	50 m/s ² acc. to IEC 068-2-6
Shock stability	2000 m/s ² (3 ms) acc. to IEC 068-2-27
General design	acc. to VDE 0435; contamination class 2 acc. to VDE 0110
Duty cycle at 25 °C	100 %
Maintenance-free	10 ⁷ pulses
Weight	approx. 40 g
Count input	adding
Pulse length min.	50 ms
Counting frequency max.	10 Hz
Pulse duty factor	1:1
Reset	none

CONNECTION DIAGRAM



DIMENSIONS



ORDER INFORMATION

Supply voltage 5, 12 and 24 VDC	Ordering code 0 635 532
Supply voltage 24 VAC	Ordering code 0 635 541
Supply voltage 115 and 230 VDC/VAC	Ordering code 0 635 550

Totalizing
Counters

Types 872–877



Rear screw mounting



Front panel mounted

TECHNICAL DATA

Totalizing Counters „Piccolo“

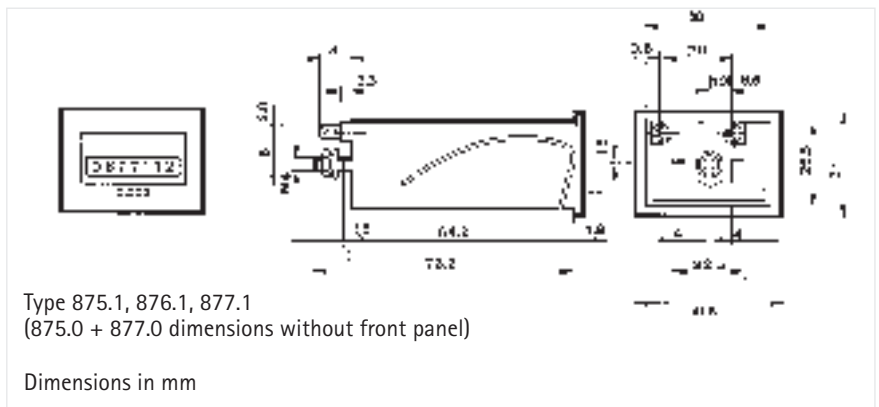
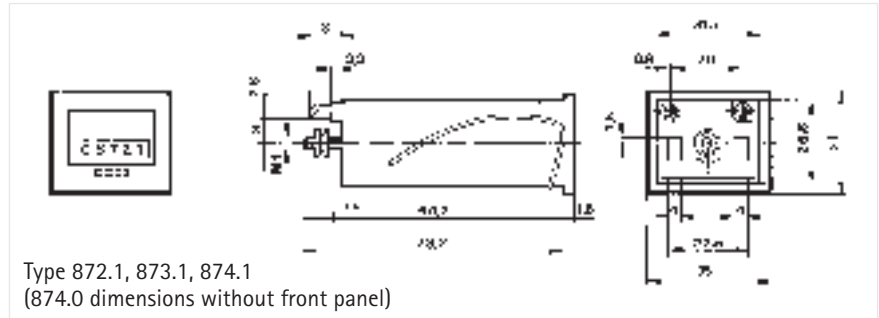
- Miniature size
- 4, 5, 6 or 7-digit display
- Connection with AMP plug
- With or without reset
- Simple attachment

Display	4, 5, 6 or 7-digit, depending on version
Digit height	4 mm
Supply voltage V_{op}	according to order information table $\pm 10\%$, 230 VAC $+6-10\%$
Current consumption	DC versions 1.5 W; AC versions 2.5 VA
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 20 ... + 85 °C
El. connection	AMP plug 0.8 x 2.8 mm
Mounting	Central or clamping spring attachment, depending on version
Protection class (EN 60529)	Typ 872/874/876/877 - front IP 40 - connections IP 00
	Typ 873/875 - front IP 30 - connections IP 00
General design	EN 61010-1 Protection class II Contamination class 2 Overvoltage category II
Noise emittance EMC	EN 50081-2
Noise immunity EMC	EN 50082-2
Duty cycle at 25 °C	100 %
Maintenance-free operation	10^7 pulses
Weight	approx. 80 g
Approvals	UL: E 41784-6
Count input	adding
Pulse length min.	DC versions 25 ms, AC versions 50 ms
Counting frequency max.	DC versions 20 Hz, AC versions 10 Hz
Pulse duty factor	1:1
Reset	depending on version - manual with button - none

CONNECTION DIAGRAM



DIMENSIONS



ORDER INFORMATION

Counters with central attachment

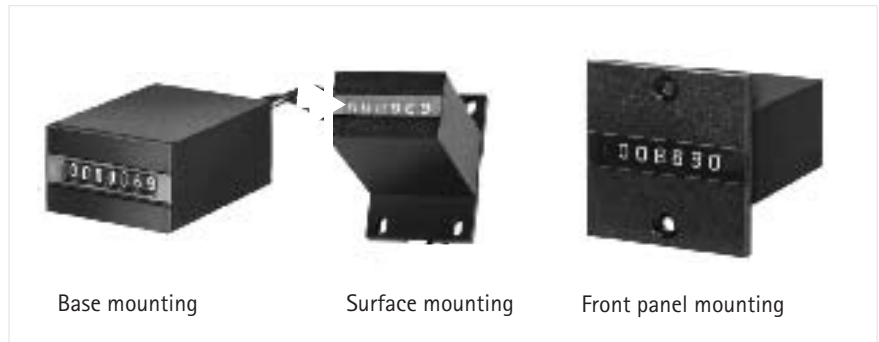
Voltage	Ω
12 V DC	120
24 V DC	375
24 V AC	190
110 V AC	5000
230 V AC	6000
Attaching socket	

5-digit without reset		with reset	7-digit without reset	
0 874 026*		0 875 026	0 877 026	
0 874 027		0 875 027	0 877 027	
			0 877 032	
0 874 033			0 877 033	
0 874 034		0 875 034	0 877 034	
2 873 026		2 875 004	2 875 004	

Counters with front panel attachment

Voltage	Ω
12 V DC	120
24 V DC	375
24 V AC	190
110 V AC	5000
230 V AC	6000

4-digit without reset		with reset	5-digit without reset		with reset	6-digit without reset		7-digit without reset
0 872 106	0 873 106	0 874 106	0 875 106	0 876 106	0 877 106			
0 872 107	0 873 107	0 874 107	0 875 107	0 876 107	0 877 107			
	0 873 112		0 875 112	0 876 112	0 877 112			
0 872 113	0 873 113	0 874 113	0 875 113	0 876 113	0 877 113			
0 872 114	0 873 114	0 874 114	0 875 114	0 876 114	0 877 114			



- Miniature size
- 6 or 7-digit, depending on version
- Protection class IP 40
- No reset

TECHNICAL DATA

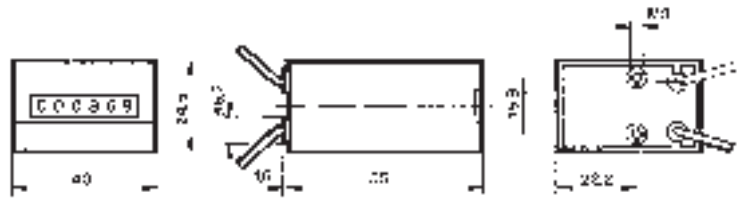
Display	6 or 7 -digit, depending on version
Digit height	4 mm
Supply voltage V_{op}	24 VDC
Power consumption	1.7 W
Residual ripple	< 48 %
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 40 ... + 85 °C
El. connection	flexible lead connection 250 mm, Ord. code 0 869 107 for 150 mm
Protection class (IEC 144)	front IP 54, connections IP 00
Vibrostability	50 m/s ² (10 ... 500 Hz) acc. to IEC 068-2-6
Shock stability	300 m/s ² (6 ms) acc. to IEC 068-2-27
General design	EN 61010-1
	Protection class II
	Contamination class 2
	Overvoltage category II
Duty cycle at 25 °C	100 %
Maintenance-free operation	10 ⁷ pulses
Weight	approx. 80 g
Count input	adding
Pulse length min.	25 ms
Counting frequency max.	20 Hz
Pulse duty factor	1:1
Reset	none

CONNECTION DIAGRAM

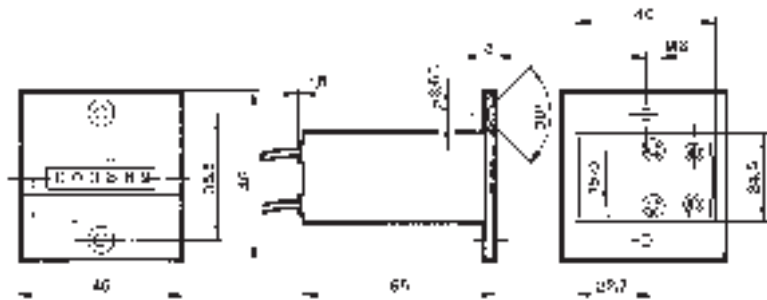


DIMENSIONS

Rear screw mounting



Front panel mounting



Dimensions in mm

ORDER INFORMATION

	Ordering code	Ordering code
Version	6-digit	7-digit
Base mounting	0 869 207	0 869 007
Front panel mounting	0 869 307	0 869 107
Attaching socket	1 869 026	

Type 853

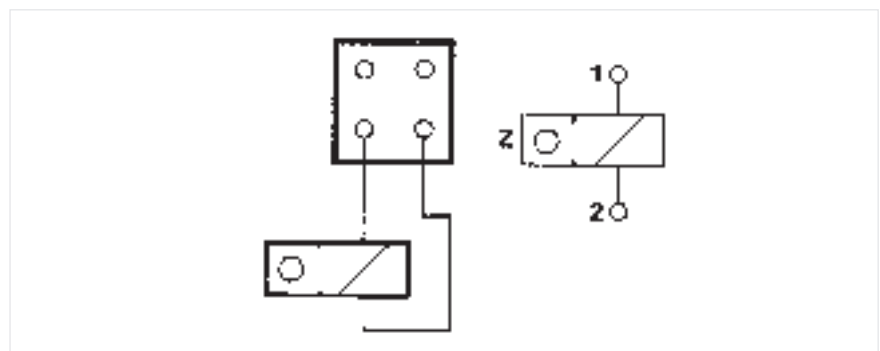


TECHNICAL DATA

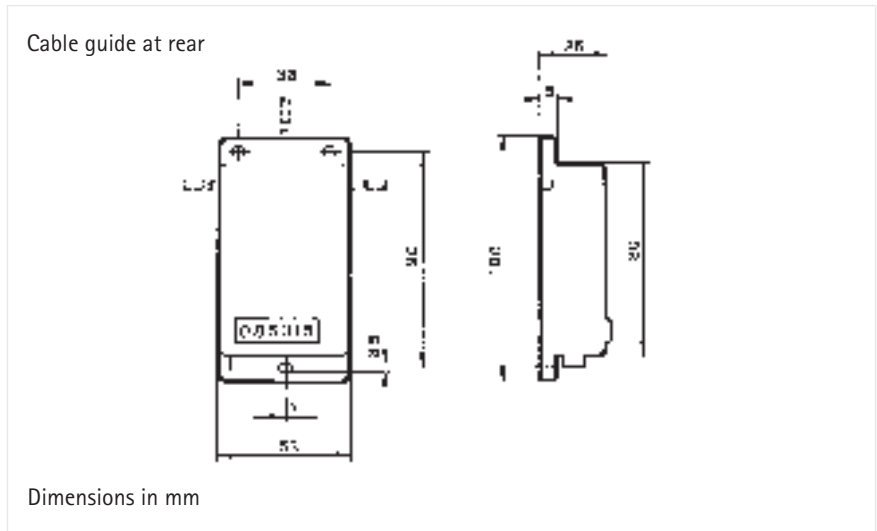
- 6-digit display
- Button reset
- Simple installation

Display	6-digit
Digit height	4 mm
Supply voltage V_{Op}	24 VDC \pm 10 % or 230 VAC +6 - 10 %, depending on version
Power consumption	DC counter: 2.75 W, AC counter: 4 VA
Operating temperature	- 10 ... + 40 °C
Storage temperature	- 40 ... + 85 °C
Protection class (EN 60529)	IP 40
Electrical connection	terminal connection inside case
Vibrostability	50 m/s ² (10 ... 50 Hz) acc. to IEC 068-2-6
Shock stability	300 m/s ² (6 ms) acc. to IEC 068-2-27
General design	acc. to DIN VDE 0435; insulation group C
Maintenance-free operation	4 x 10 ⁷ pulses
Duty cycle at 25 °C	100 %
Weight	approx. 150 g
Count input	adding
Pulse length min.	DC counter: 20 ms, AC counter: 50 ms
Counting frequency max.	DC counter: 25 Hz, AC counter: 10 Hz
Pulse duty factor	1:1
Reset	manual with button or key

CONNECTION DIAGRAM



DIMENSIONS



ORDER INFORMATION
Counter

Standard accessory

Base mounting 24 VDC	Ordering code	0 853 165
Base mounting 230 VAC	Ordering code	0 853 190
Key reset	Ordering code	1 405 402

Further voltages available on request.

Totalizing
Counters

Types 344-346



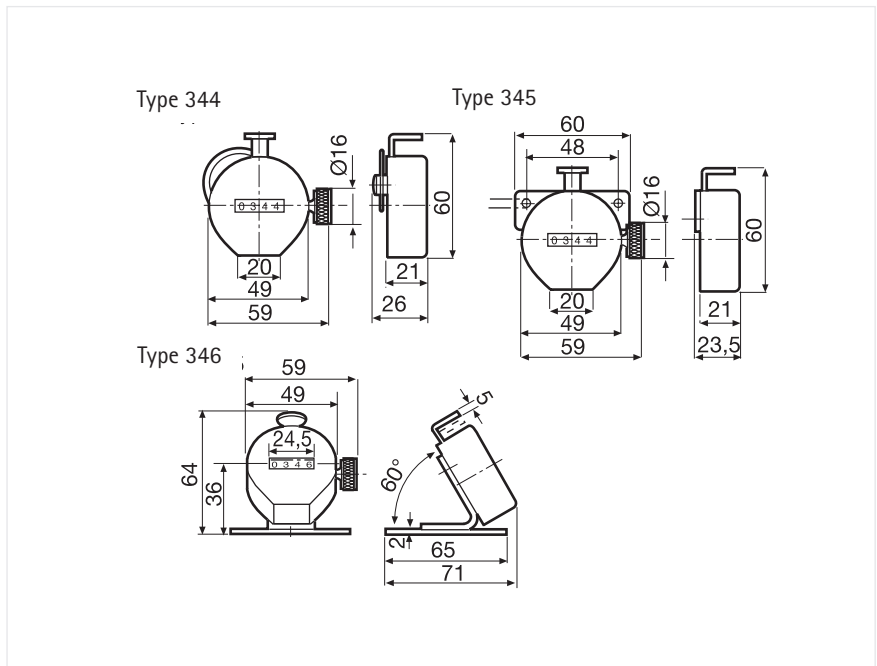
Type 344

TECHNICAL DATA

- 4-digit display
- Resettable with rotary knob
- Rugged, easy to operate
- Maintenance-free operation

Display	4-digit
Digit height	4 mm
Mounting	depending on version, handheld with thumb ring, wall or table-mounted
Cover	plastic (ASB) red, metal on request
Weight	approx. 95 g
Counting mode	adding, 1 stroke = 1 increment
Reset	rotary knob on the right-hand side

DIMENSIONS



ORDER INFORMATION

Hand tallys with thumb ring	Ordering code 0 344 001
Hand tallys for wall-mounting	Ordering code 0 345 001
Hand tallys for table-mounting	Ordering code 0 346 001

Revolution- or Stroke Counters

Types 101/103 301/309



- 4- or 5 digit display
- Without reset
- With or without case
- Miniature size

CASE

Counters in this series are available with surface-mounting case, with flush-mounting case or without any housing.

TECHNICAL DATA

Display	4 or 5-digit, depending on version
Digit height	4.2 mm
Mounting	depending on version
Case	plastic (POM) black
Weight	approx. 5 g, with case approx. 9 g
Counting mode	Revolution counter: + (-) adding in the specified direction, subtracting in reverse direction. Stroke Counter: + is fixed, adding
Transmission ratio	1:1 or 1:10, depending on version
Max. speed	Revolution counter: 1.000 rpm, at a transmission ratio of 1:10 max. 100 rpm. Stroke counter: max. 500 strokes/min., switching distance min. 46°, max. 49°
Torque	Revolution counter: 0.05 Ncm, Stroke counter: 1.0 Ncm
Reset	none

DIMENSIONS

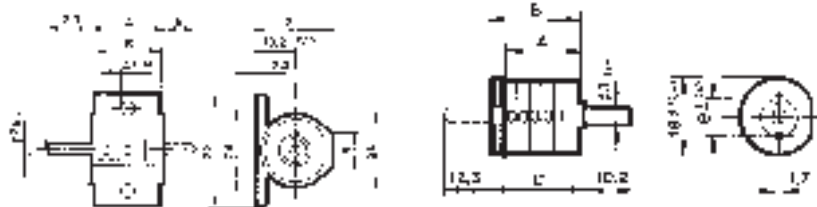
Type 101/301
surface-mounting case

Type 101/301 surface mounting case

	A	B
4	19.5	18.5
5	22.5	21.5

Type 101/301 without case

	A	B	C
4	13.5	15.5	17.6
5	16.5	18.5	20.6



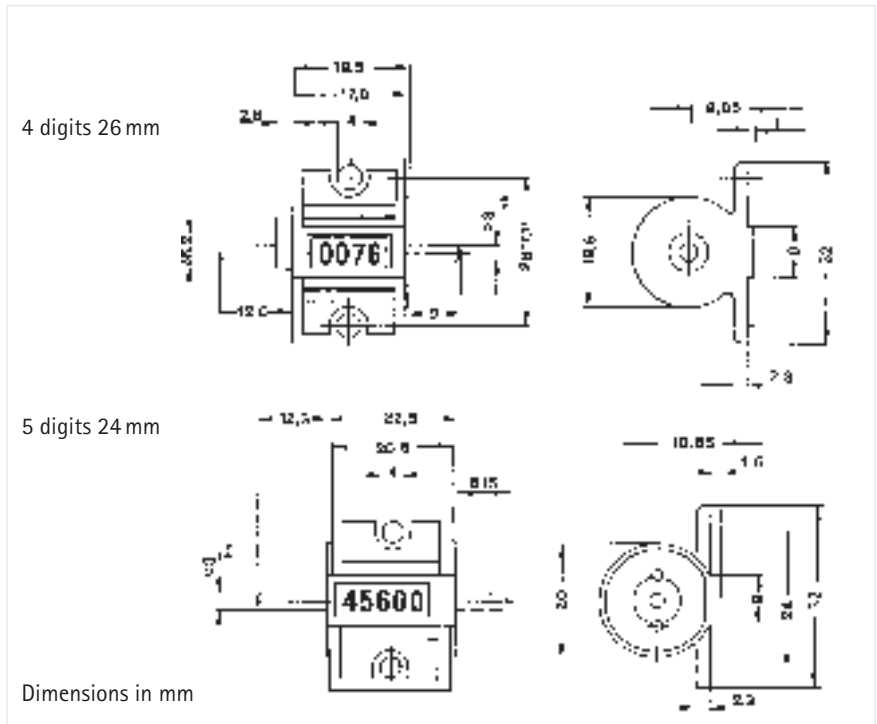
Dimensions in mm

Types 101/103 301/309

DIMENSIONS

Typ 103/309 flush mounting case

Technical data



ORDER INFORMATION Revolution Counters

Ratio

Case	Number of digits	Actuation/sense of rotation				
		Bz	Bw	Bz	Bw	
1:1	Surface	4	0 101 605	0 101 606*	0 101 607	0 101 608
		5	0 101 609	0 101 610	–	–
	flush	4	0 103 605	0 103 606	0 103 607	0 103 608
		5	–	–	–	–
1:10	Surface	4	0 101 505	0 101 506	0 101 507	0 101 508
		5	0 101 613	0 101 614*	0 101 615*	0 101 616
	flush	4	0 103 505	0 103 506	0 103 507	0 103 508

Stroke Counter

Case	Number of digits	Actuation/sense of rotation			
		Bz	Bw	Bz	Bw
Surface	4	0 301 505	0 301 506	0 301 507	0 301 508
	5	0 301 509	0 301 510	0 301 511	0 301 512
flush	4	0 309 505*	0 309 506*	0 309 507*	0 309 508*
	5	0 309 509	0 309 510*	0 309 511*	0 309 512*
without	4	0 301 401*	0 309 402	–	–
	5	0 301 405*	–	0 301 407*	0 301 408*

Stroke lever 0 600 007

For further stroke levers see accessories

* on request
Inquire for other versions

Revolution and Stroke Counters Type 125 with Button Reset

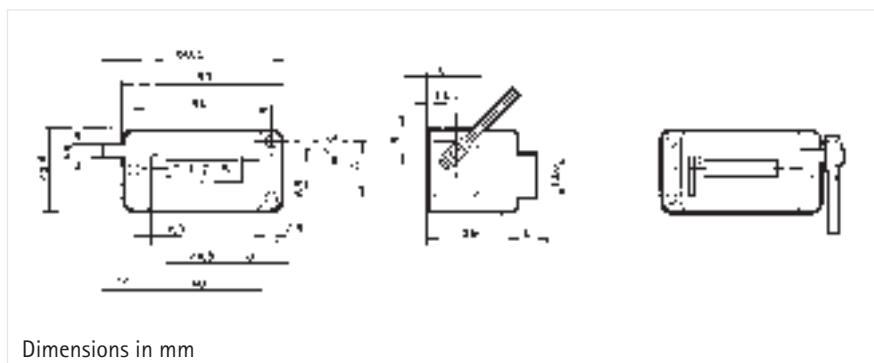


- 4 or 5-digit display
- With button reset
- Miniature size
- Protection class IP 50

TECHNICAL DATA

Display	4 or 5-digit, depending on version
Digit height	4 mm
Base plate	burnished sheet steel
Case	plastic, (PPO), glassfibre-reinforced, black
Cover	plastic (ASB) grey, (on request also available in black)
Weight	approx. 50 g
Counting mode	revolution counter: + (-), stroke counter: +
Transmission ratio	1:1 or 1:10, depending on version
Max. speed	1.500 rpm, with transmission 1:10 500 rpm (revolution counter only)
Switching distance	min. 18° (only stroke counter)
Max. stroke rate	500 strokes/min (stroke counter only)
Reset	manual reset with button
⚠	Don't push the reset pushbutton during the process

DIMENSIONS



ORDER INFORMATION

Revolution counter

Stroke counter

Actuation	Sense of rotation	4-digit, transmission ratio		5-digit, transmission ratio	
		1:1	1:10	1:1	1:10
☐	Bz	0 125 101	0 125 111	0 125 105	0 125 115
☐	Bw	0 125 102	0 125 112	0 125 106	0 125 116
☐	Bz	0 125 103	0 125 113	–	–
☐	Bw	0 125 104	0 125 114	0 125 108	0 125 118
☐	Bz	0 125 301	–	0 125 305	–
☐	Bw	0 125 302	–	0 125 306	–
☐	Bz	0 125 303	–	0 125 307	–
☐	Bw	0 125 304	–	0 125 308	–

Stroke lever Ordering code 0 600 026 Other stroke levers available on request

Type 125

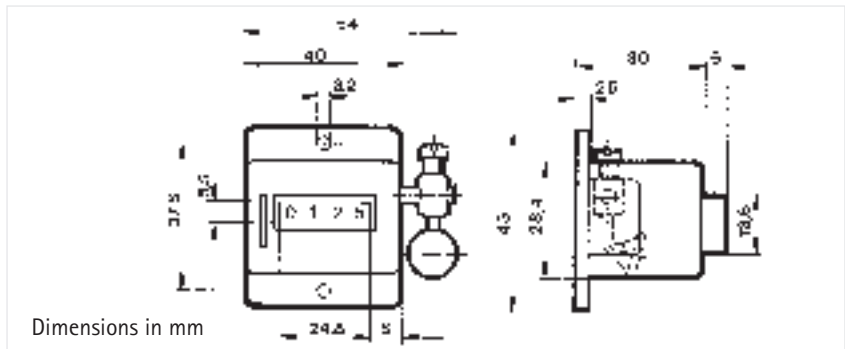


TECHNICAL DATA

- 4-digit display
- Button reset
- Rugged, easy to operate
- Maintenance-free operation

Display	4-digit
Digit height	4 mm
Mounting	wall-mounted, magnetic attaching plate available
Cover	plastic (ASB) grey
Baseplate	sheet steel, burnished
Weight	approx. 70 g
Counting mode	adding, 1 stroke = 1 increment
Reset	manual with button
⚠	Don't push the reset pushbutton during the process

DIMENSIONS



ORDER INFORMATION

Counter	Ordering code 0 125 342
Accessory stroke lever	Ordering code 0 600 065
Magnetic attaching plate	Ordering code 1 125 009

Revolution, Length, Stroke Counters

Type 150

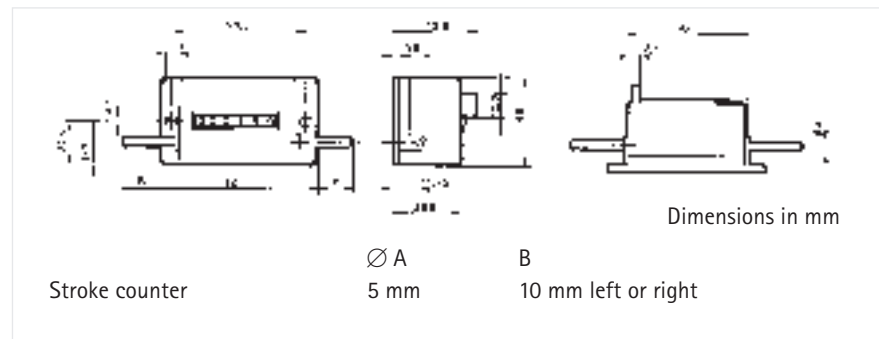


TECHNICAL DATA

- Approved for calibration applications by the PTB (German Federal Institute for Physics and Technology)
- With button reset
- 6-digit display
- Protection class IP 50

Display	6-digit
Digit height	4 mm
Case	plastic, (PA), glassfibre-reinforced, black
Cover	plastic (ASB), grey
Weight	approx. 70 g
Counting mode	+ (-), stroke counter: +
Transmission ratio	1:1, 1:2 or 1:10, depending on version
Max. speed	revolution counter: 3000 rpm, length counter 1500 rpm
Max. stroke rate	500 strokes/min (stroke counter only)
Torque	approx. 0.2 Ncm, stroke counter: approx. 5 Ncm
Actuating travel	min. 37° max. 43° (stroke counter only)
Reset	- with button, tactile touch 12 N - key reset available on request
	Don't push the reset pushbutton during the process

DIMENSIONS



ORDER INFORMATION

Revolution counter
Length counter
Stroke counter

Actuation	Sense of rotation	Indication	Unit	Transm. ratio 1:1 Ordering code	Transm. ratio 1:2 Ordering code	Transm. ratio 1:10 Ordering code
	Bz	999 999		-	-	0 150 103
	Bw	999 999		-	-	0 150 104
	Bz	99 999.9	m/dm	-	0 150 201	-
	Bw	99 999.9	m/dm	-	0 150 202	-
	Bz	999 999		0 150 301	-	-
	Bw	999 999		0 150 302	-	-
	Bz	999 999		0 150 303	-	-
	Bw	999 999		0 150 304	-	-

Stroke lever 0 600 003 For further stroke levers see accessories
Protective cover Ordering code 2 150 056*

* on request
For measuring wheels see accessories. Inquire for other versions.

Type 205

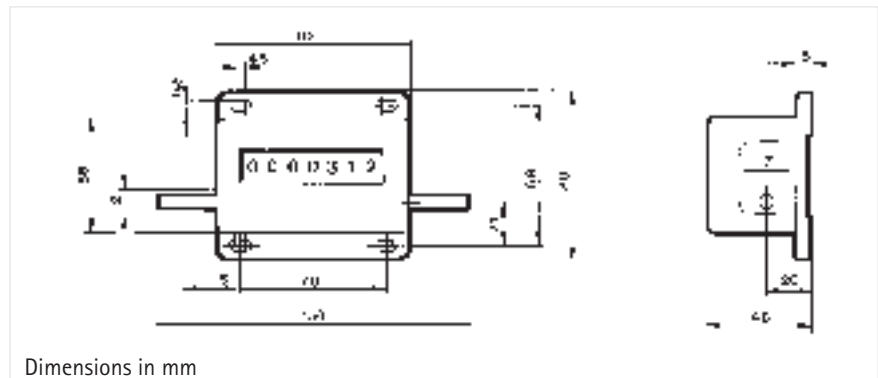


TECHNICAL DATA

- 7-digit display
- Large 8 mm digits
- With key reset
- Protection class IP 53

Display	7-digit (999999.9 m/dm)
Digit height	8 mm
Protection class (DIN 4050)	IP 53
Case	die-cast zinc, black
Cover	plastic (ASB), grey
Weight	approx. 430 g
Counting mode	+ (-) adding in specified direction, subtracting in reverse
Transmission ratio	1:2, 1:5 or 1:10, depending on version
Max. speed	3000 digits/min
Torque	0.5 Ncm
Reset	manual reset with removable key on either side
⚠	Don't push the reset pushbutton during the process

DIMENSIONS



ORDER INFORMATION

Actuation	Sense of rotation	Transmission ratio 1:2	Transmission ratio 1:5	Transmission ratio 1:10
☐	Bz	0 205 003	0 205 001	0 205 005
☐	Bw	-	0 205 002	0 205 006

Inquire for other versions
For measuring wheels see accessories

Revolution, Length, Stroke Counters

Type 225

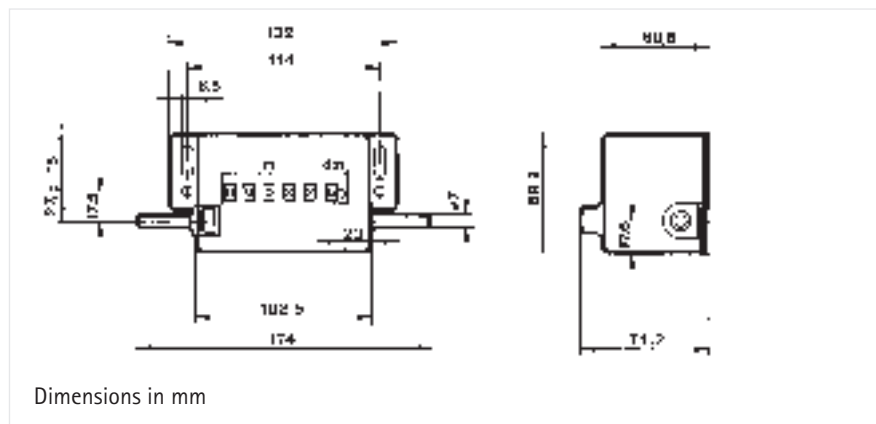


- Approved for length counting by the PTB (German Federal Institute für Physics and Technology)
- 6-digit display
- Large digits, 6.5 mm high
- Button reset
- Counter with suspension device
- Adjustable counterweight
- 6-digit display m/dm or m/cm
- Button reset

TECHNICAL DATA

Display	6-digit
Digit height	6.5 mm
Base plate	burnished sheet steel
Case	die-cast metal
Cover	plastic (ASB), grey
Weight	approx. 750 g
	Counter with suspension device and downward weight approx. 2.400 kp. Downward weight can be shifted in order to regulate contact pressure
Counting mode	+ (-), stroke counter: +
Transmission ratio	1:1, length counter 1:5 or 1:50
Max. speed	10000 digits/min, stroke counter 800 strokes/min
Torque	1.2 Ncm, stroke counter 8.0 Ncm
Actuating angle	min. 38°, max. 55° (stroke counter only)
Reset	button reset, secured against unauthorized operation
⚠	Don't push the reset pushbutton during the process

DIMENSIONS

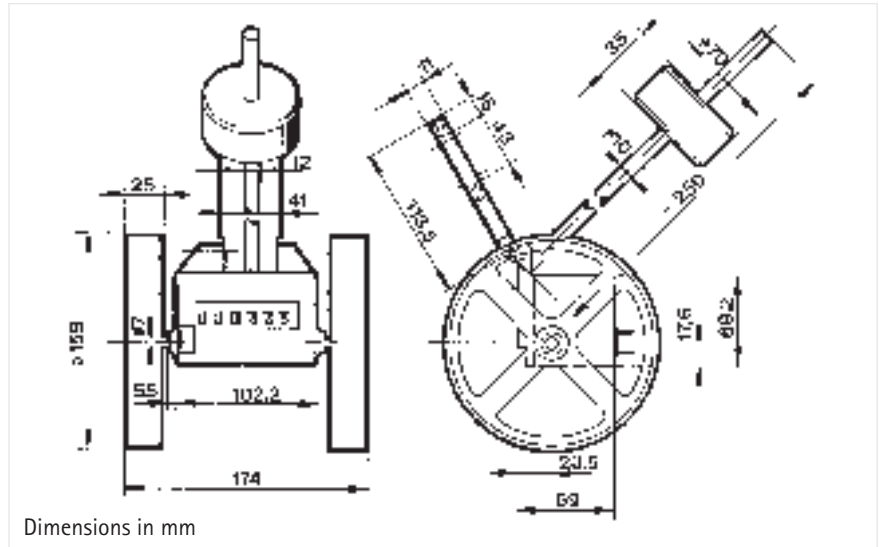


Type 225

Technical data

DIMENSIONS

Counter with suspension device



Dimensions in mm

ORDER INFORMATION

- Revolution counter
- Length counter
- Length counter with suspension device
- Stroke counter

Actuation	Sense of rotation	Indication Unit	Trans. ratio 1:1		Trans. ratio 1:5		Trans. ratio 1:50	
			Ord. code	Unit	Ord. code	Unit	Ord. code	Unit
<input type="checkbox"/>	Bz	999 999	0 225 001	-	-	-	-	-
<input type="checkbox"/>	Bw	999 999	0 225 002	-	-	-	-	-
<input type="checkbox"/>	Bz	99 999.9 m/dm	-	0 225 003 m/dm	0 225 007 m/cm	-	-	-
<input type="checkbox"/>	Bw	99 999.9 m/dm	-	0 225 004 m/dm	0 225 008 m/cm	-	-	-
<input type="checkbox"/>	Bz	99 999.9 m/dm	-	0 225 501 m/dm	0 225 505 m/cm	-	-	-
<input type="checkbox"/>	Bw	99 999.9 m/dm	-	0 225 502 m/dm	0 225 506 m/cm	-	-	-
<input type="checkbox"/>	Bz	999 999	0 225 301	-	-	-	-	-
<input type="checkbox"/>	Bw	999 999	0 225 302	-	-	-	-	-
Stroke lever		Ordering code 0 600 005	For other stroke levers see accessories					
Panel frame		Ordering code 1 250 056	See accessories for description					

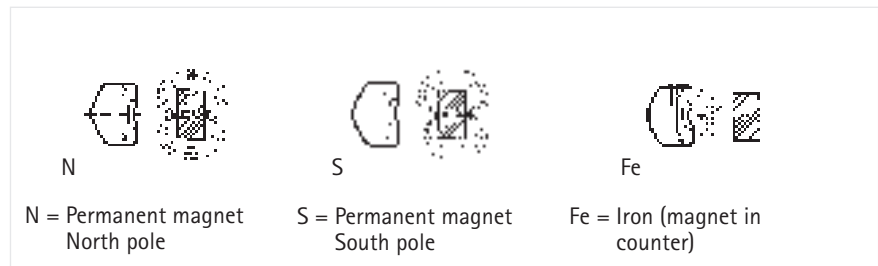
* on request

For measuring wheel see accessories, they are not included in normal delivery



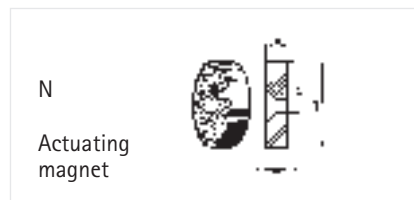
MAGNETIC ACTUATION

- Contactless counting
- Miniature size
- Simple installation
- Protection class IP 66
- Maintenance-free operation



Actuation is effected by a magnetic field. With suitable magnets it is possible to achieve actuating distances of up to 50 mm. The direction of approach of the actuating magnet is not critical. When choosing a counter, it is important to observe the correct polarity of the actuator (see Figure).

ACTUATING MAGNETS



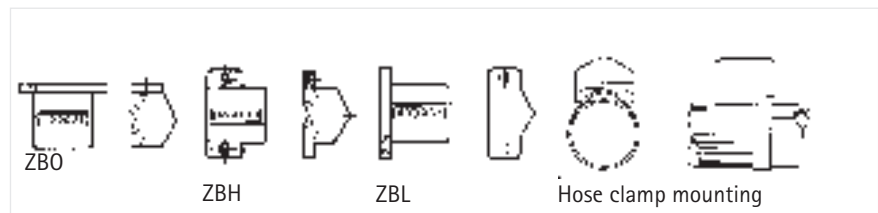
We supply suitable magnets for actuating this counter. The magnet core consists of barium iron (hard ferrite 22/17 acc. to DIN 17 410). For attachment (centre hole) only screws made of non-magnetic material may be used.

DIMENSIONS OF ACTUATING MAGNETS

Ordering code	D	d	H
3 532 023	15.2 mm	3.2 mm	6 mm
3 532 024	31.0 mm	5.3 mm	15 mm

ATTACHMENT

"Colibri" is available for several means of attachment:



ZOB = Counter without attachment plate
 ZBO = Counter with attachment plate top
 ZBL = Counter with attachment plate left
 ZBH = Counter with attachment plate behind

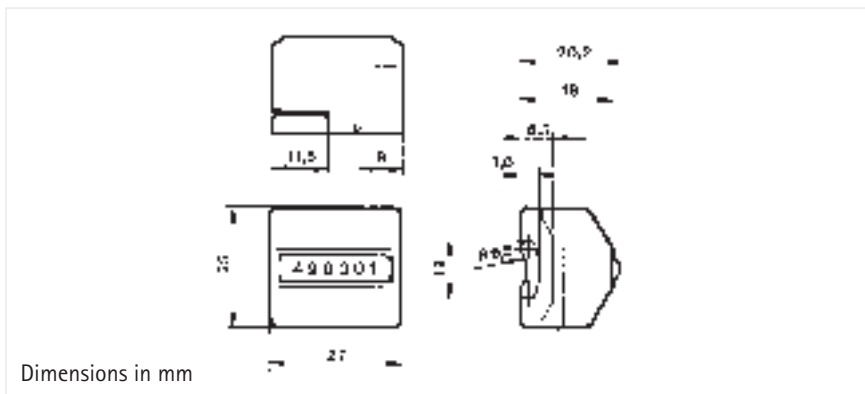
Colibri 490

Technical data

TECHNICAL DATA

Display	6-digit
Digit height	4 mm, visual
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 40 ... + 60 °C
Mounting	depending on version
Mounting position	any
Protection class (DIN 4050)	IP 65
Vibrostability	20 m/s ² (10...150 Hz) acc. to IEC 068-2-6
Shock stability	2.000 m/s ² (3 ms) acc. to IEC 068-2-27
Maintenance-free operation	10 million increments
Case	Makrolon
Weight	approx. 12 g
Counting mode	adding
Actuation	with conventional permanent magnets
Actuating distance	Fe-version 0.5 mm N and S magnets see order information
Response flux density	> 10 mT (100 Gauss)
Release flux density	< 4 mT (40 Gauss)
Actuating speed	2 m/s
Counting frequency max.	20 digits/s
Reset	none

DIMENSIONS



ORDER INFORMATION

	Ordering code	Ordering code	Ordering code
Counter without attachment accessories	North pole 0 490 001	South pole 0 490 002	Fe 0 490 003
Attachment plates	ZBO 2 490 011	ZBL 2 490 012	ZBH 2 490 005
Hose clamps	20 ... 32 mm 3 515 055	25 ... 40 mm 3 515 050*	40 ... 60 mm 3 515 057

Actuating magnets (North pole)

Distance 10 mm	Distance 30 mm	Magnetic plate 6 mm
3 532 023	3 532 024	3 532 025

* on request