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Pulse counters, electromechanical

Mini counters

6 or 7 digits without reset (AC+DC)

W16 / W17



The mini totalizers W16 and W17 are not resettable, and have been designed for various front panel sizes in a wide variety of applications.

They offer an excellent price / performance ratio and are easy to operate.

Characteristics

- 6- or 7-digit miniature pulse counters, adding without reset.
- Low power consumption.
- Available for all common DC and AC voltages.
- Versions available for DIN 48 x 24 mm and many other panel mount dimensions as well as for other types, e.g. PCB mount.

Benefits

- Long service life / Protection IP41 (front side).

Applications

Battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting.

Type series

Description / mounting	Panel mount dim.	Housing	Display	6 digits	7 digits
Panel mount + mounting clip, 34 x 23 mm [1.34 x 0.91"]	31 x 20 mm [0.79 x 0.25"]	plastic	front side	W16.20	-
Panel mount + mounting clip, 48 x 24 mm [1.89 x 0.94"]	45 x 22.2 mm [1.77 x 0.87"]	plastic	front side	-	W17.50
PCB mount, lying		sheet steel	on the top	W16.60	-
Panel mount + mounting clip, 42 x 28 mm [1.65 x 1.10"]	37.5 x 23.5 mm [1.48 x 0.93"]	plastic	front side	-	W17.90

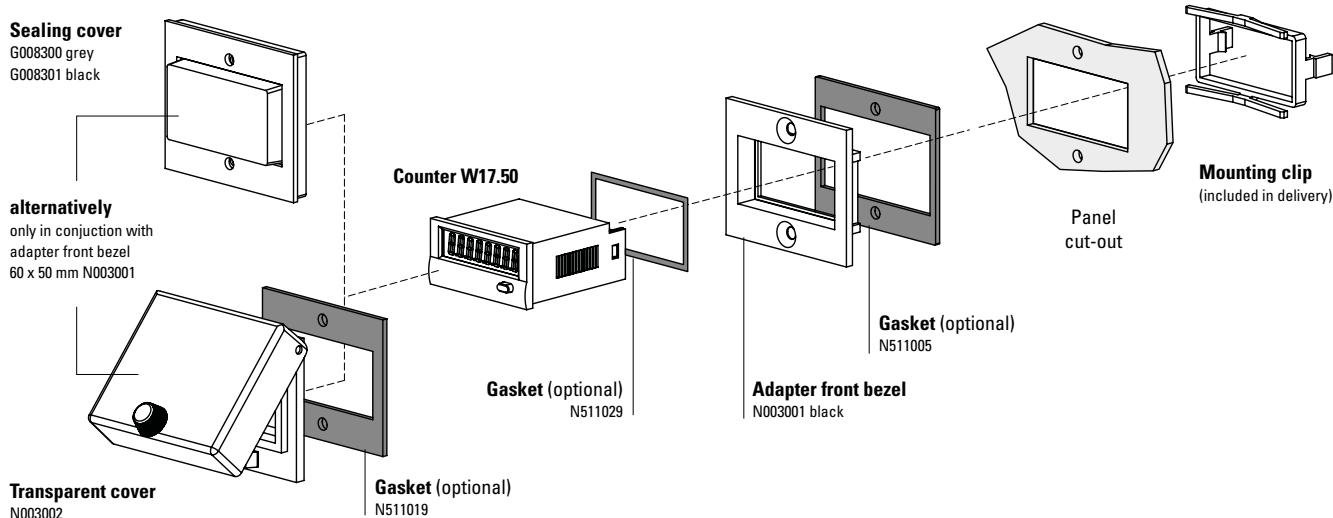
Order information

- Art. no.
- For special voltages, please give type, voltage, kind of voltage and series e.g.: W16.20, 9 V DC, 05, black

Pulse counters, electromechanical

Mini counters	6 or 7 digits without reset (AC+DC)	W16 / W17
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Accessories / Mounting examples (for W17.50 only)



		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		53 x 28 mm [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	T008165 T008180	N511015
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	T008161 T008181	N511045
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	162704Set	—
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	N003001	N511005
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	T008883	—
Sealing cover IP65		K1	only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	G008300 G008301	—
Transparent cover IP65		1 Dv (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / black	N003002	N511019
Gasket counter			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		N511029 N511034	
Mounting frame		cut-out 50 x 25 mm [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300004	—
Enclosure blind		48 x 24 mm [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	G003836	—

Pulse counters, electromechanical

Mini counters	6 or 7 digits without reset (AC+DC)	W16 / W17
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Technical data		
Electrical connection	panel mount, base mount	flying leads, AWG 22 approx. 150 mm [5.91"] $\varnothing$ 0.34 mm ² , 6 mm [0.24"] stripped wire ends, tinned
	PCB mount	round pin $\varnothing$ 1.6 mm [0.063"]
Rated voltage	type 05 (8 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15 %, -5 %)
	type 0 (10 Hz)	12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 %
	type a0 (10 Hz)	24 / 48 / 115 / 230 V AC, $\pm$ 10 %
Cycle duration factor	100 %	
Height of figures	4 x 1.7 mm [0.16 x 0.067"]	
Color of figures	white on black	
Counting mechanism shaft	stainless steel	
Operating temperature	-10 °C ... +50 °C [+14 °F ... +122 °F] (non-condensing)	
Relative humidity at +30 °C [+86 °F]	$\leq$ 80 % (non-condensing)	
Altitude	up to 2000 m [6562']	
Mounting position	any	
Operating life	> 50 x 10 ⁶ pulses	
Protection	IP41 (front side)	
Weight	approx. 50 g [1.76 oz]	
Device safety	designed to	EN 61010 part 1
	protection class	2
	application area	pollution level 2

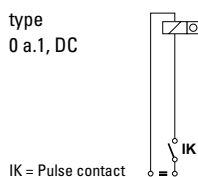
Options		
Electrical connection	· round pins $\varnothing$ 1.6 mm [0.063"] and push on connectors	(Art. no.: 1.XX1.XXX.XXX)
	· with flat pin 0.8 x 2.8 mm [0.032 x 0.11"]	(Art. no.: 1.XX9.XXX.XXX)
	· with flat pin 0.8 x 6.3 mm [0.032 x 0.25"] and push on connectors	(Art. no.: 1.XX7.XXX.XXX)
	· with open screw terminals	(Art. no.: 1.XX4.XXX.XXX.023)
Color of housing (availability see table)	grey	Art. no.: X.XXX.XX0.XXX
	black	Art. no.: X.XXX.XX1.XXX
Extended temperature range	on request	
With lens for digit height 5 or 6.3 mm	on request	

Approvals		
CE compliant in accordance with		
EMC Directive	2014/30/EU	
RoHS Directive	2011/65/EU	
Low Voltage Directive	2014/35/EU	

Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
V DC	05	8 Hz	50 ms	75 ms	50 mW	5 %
V DC	0	10 Hz	50 ms	50 ms	0.5 W ($\leq$ 115 V) 1 W (185 V)	48 %
V AC	a0	10 Hz	50 ms	50 ms	0.75 VA ($\leq$ 115 V) 1.5 VA (230 V)	—

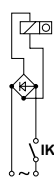
Connection diagram

type
0 a.1, DC



IK = Pulse contact

type
a, AC



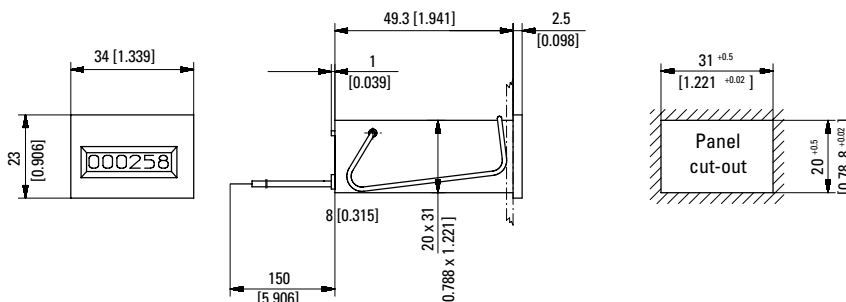
Pulse counters, electromechanical

Mini counters	6 or 7 digits without reset (AC+DC)	W16 / W17
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Panel mount with mounting clip

Panel mount dimensions 31 x 20 [1.22 x 0.79]

Type W16.20



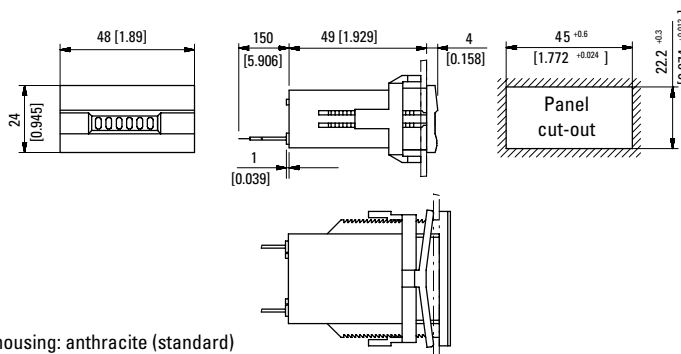
Color of housing black: Art. no. 1.160.201.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	Further stock types:
W16.20	DC (8 Hz) / 05	6 digits	1.160.200.049	1.160.200.050			1.160.201.013 ¹⁾
	DC (10 Hz) / 0		1.160.200.012	1.160.200.013			1.160.201.056 ¹⁾
	AC (10 Hz) / a0			1.160.200.051	1.160.200.054	1.160.200.056	1.160.200.033 ¹⁾

Panel mount with mounting clip 48 x 24 [1.89 x 0.94]

Panel mount dimensions 45 x 22.2 [1.77 x 0.87]

Type W17.50



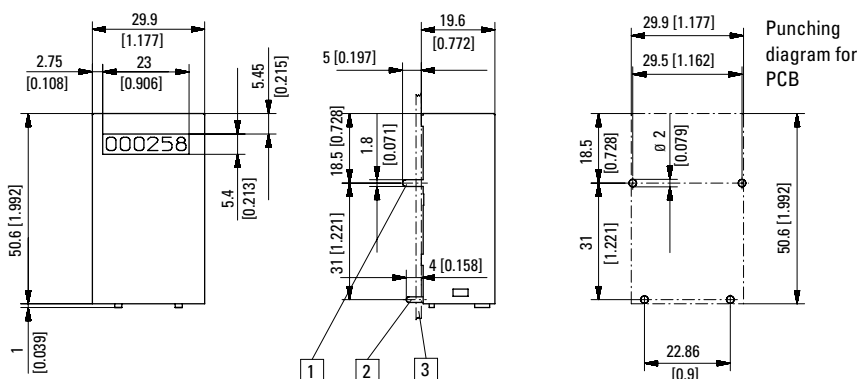
Color of housing: anthracite (standard)

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
W17.50	DC (8 Hz) / 05	7 digits	1.740.500.049.550	1.740.500.050.550			
	DC (10 Hz) / 0		1.740.500.012.550	1.740.500.013.550 ¹⁾			
	AC (10 Hz) / a0			1.740.500.051.550	1.740.500.054.550	1.740.500.056.550 ¹⁾	

PCB mount, sheet steel

Display wide side

Type W16.60



1) Mounting pins 1.8 x 0.4 [0.071 x 0.016] 2) Coil connections $\varnothing$ 0.16 [0.006] 3) PCB

Color of housing blue (zinc-plated)

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
W16.60	DC (10 Hz) / 0	6 digits	1.160.601.012	1.160.601.013			

Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Mini counters

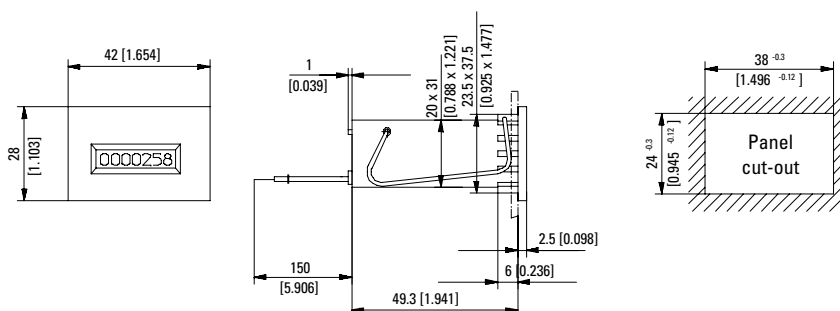
6 or 7 digits without reset (AC+DC)

W16 / W17

Panel mount with mounting clip

Panel mount dimensions 37.5 x 23.5 [1.48 x 0.93]

Type W17.90



Color of housing black: Art. no. 1.XXX.901.XXX

Type	Voltage	Display	Art. no.				
			12 V	24 V	115 V	230 V	
W17.90	DC (8 Hz) / 05	7 digits	1.740.900.049	1.740.900.050	1.740.900.054	1.740.900.056	
	DC (10 Hz) / 0		1.740.900.012	1.740.900.013			
	AC (10 Hz) / a0						

Pulse counters, electromechanical

Mini counters

5 digits with reset (AC+DC)

W15



The mini totalizers W15 are manually resettable and have been designed for various front panel sizes in a wide variety of applications.

They offer an excellent price / performance ratio and are easy to operate.

Characteristics

- 5-digit miniature pulse counter, adding with manual reset.
- Low power consumption.
- Available for all common DC and AC voltages.
- DIN housing 48 x 24 mm available.

Benefits

- Long service life (50 million pulses).
- Ideal for battery operation and electronic switching operations.

Applications

Machines and appliances, battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting.

Type series

Description	Panel mount dimensions	Housing	Display	Type
Panel mount with mounting clip, 34 x 23 mm [1.34 x 0.91"]	31 x 20 mm [1.22 x 0.79"]	plastic	front side	W15.21
Panel mount with mounting clip, 48 x 24 mm [1.89 x 0.94"]	45 x 22 mm [1.77 x 0.87"]	plastic	front side	W15.51

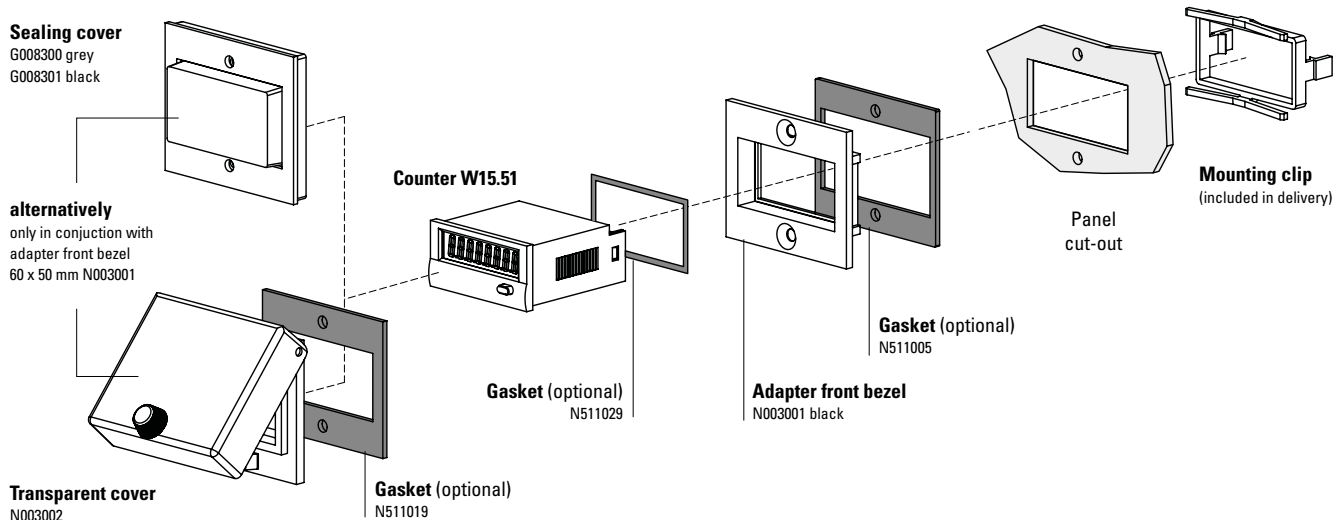
Order information

- Art. no.
- For special voltages, please give type, voltage, kind of voltage and series e.g.:
W15.21, 4.5 V DC/0 black

Pulse counters, electromechanical

Mini counters	5 digits with reset (AC+DC)	W15
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Accessories / Mounting examples (for W15.51 only)



		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		53 x 28 mm [2.09 x 1.10"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black anthracite	T008165 T008180	N511015
		56 x 40 mm [2.20 x 1.57"]	for cut-out 50 x 25 mm [1.97 x 0.98"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black anthracite	T008161 T008181	N511045
		72 x 36 mm [2.83 x 1.42"]	for cut-out 68 x 33 mm [2.68 x 1.30"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black and silver anodised as set	162704Set	—
		60 x 50 mm [2.36 x 1.97"]	for cut-out 54 x 29 mm [2.13 x 1.14"] to cut-out 45 x 22.2 mm [1.77 x 0.94"] screw mounting	black	N003001	N511005
		48 x 48 mm [1.89 x 1.89"]	for cut-out 45 x 45 mm [1.77 x 1.77"] to cut-out 45 x 22.2 mm [1.77 x 0.94"]	black	T008883	—
Sealing cover IP65		K1	only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / grey transparent / black	G008300 G008301	—
Transparent cover IP65		1 Dv (mounted on bezel)	cover lockable, for cut-out 54 x 29 mm [2.13 x 1.14"], only in conjunction with adapter front bezel 60 x 50 mm N003001	transparent / black	N003002	N511019
Gasket counter			48 x 24 mm (for installation in adapter front bezel) 49 x 25 mm		N511029 N511034	
Mounting frame		cut-out 50 x 25 mm [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300004	—
Enclosure blind		48 x 24 mm [1.89 x 0.94"]	for cut-out 45 x 22.2 mm [1.77 x 0.94"] and cut-out 50 x 25 mm [1.97 x 0.98"]	anthracite	G003836	—

Pulse counters, electromechanical

Mini counters	5 digits with reset (AC+DC)	W15
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Technical data		
Electrical connection	standard	flying leads, AWG 22 approx. 150 mm [5.91"] $\varnothing$ 0.34 mm ² , 6 mm [0.24"] stripped wire ends, tinned
Rated voltage	type 05 (8 Hz) type 0 (10 Hz) type a0 (10 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15 %, -5 %) 12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 % 12 / 24 / 48 / 115 / 230 V AC, $\pm$ 10 %
Cycle duration factor		100 %
Height of figures		approx. 4 x 1.7 mm [0.16 x 0.067"]
Color of figures		white on black
Counting mechanism shaft		stainless steel
Operating temperature		-10 °C ... +50 °C [+14 °F ... +122 °F] (non-condensing)
Relative humidity at +30 °C [+86 °F]		$\leq$ 80 % (non-condensing)
Altitude		up to 2000 m [6562']
Mounting position		any
Operating life		> 50 x 10 ⁶ pulses
Protection		IP40 (front side)
Weight		approx. 52 g [1.83 oz]
Device safety	designed to protection class application area	EN 61010 part 1 2 pollution level 2

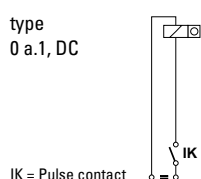
Options	
Electrical connection	- pin $\varnothing$ 1.5 mm with push on connectors (Art. no.: 1.151.X1X.XXX) - with flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and flat push on connectors (Art. no.: 1.159.X1X.XXX) - with flat pin 0.8 x 6.3 mm [0.032 x 0.25"] and flat push on connectors (Art. no.: 1.157.XXX.XXX) - with screw terminal (Art. no.: 1.154.XXX.XXX.023)
Color of housing (availability see table)	grey Art. no.: X.XXX.XX0.XXX black Art. no.: X.XXX.XX1.XXX
Extended temperature range	on request

Approvals	
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
V DC	05	8 Hz	50 ms	75 ms	130 mW	5 %
V DC	0	10 Hz	50 ms	50 ms	0.5 W ($\leq$ 115 V) 1 W (185 V)	48 %
V AC	a0	10 Hz	50 ms	50 ms	0.75 VA ($\leq$ 115 V) 1.5 VA (230 V)	—

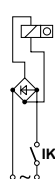
Connection diagram

type
0 a.1, DC



IK = Pulse contact

type
a, AC



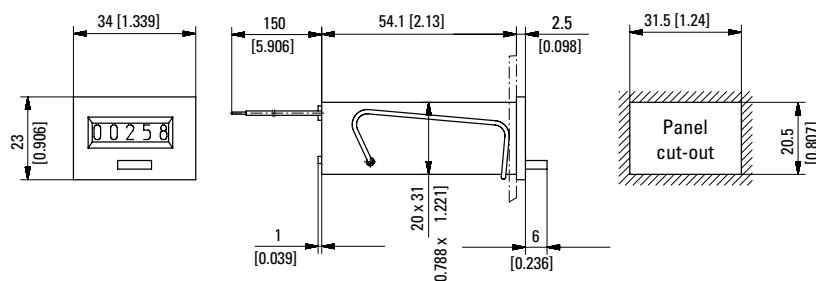
Pulse counters, electromechanical

Mini counters	5 digits with reset (AC+DC)	W15
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Panel mount with mounting clip

Panel mount dimensions 31 x 20 [1.22 x 0.79]

Type W15.21



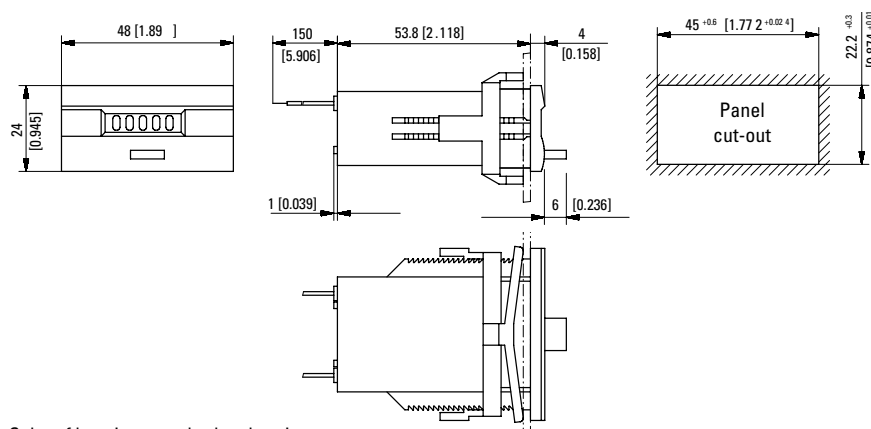
Color of housing black: Art. no. 1.150.211.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
W15.21	DC (8 Hz) / 05	5 digits	1.150.210.049	1.150.210.050		
	DC (10 Hz) / 0		1.150.210.012	1.150.210.013 ¹⁾		
	AC (10 Hz) / a0			1.150.210.051	1.150.210.054	1.150.210.056 ¹⁾
Further stock types:			1.150.211.013 ¹⁾ 1.150.211.056 ¹⁾			

Panel mount with mounting clip

Panel mount dimensions 45 x 22 [1.77 x 0.87]

Type W15.51



Color of housing: standard anthracite

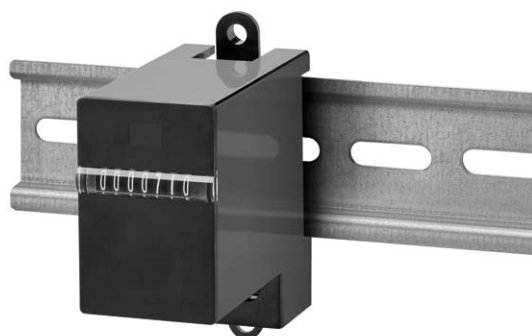
Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
W15.51	DC (8 Hz) / 05	5 digits	1.150.510.049.550	1.150.510.050.550		
	DC (10 Hz) / 0		1.150.510.012.550 ¹⁾	1.150.510.013.550 ¹⁾		
	AC (10 Hz) / a0			1.150.510.051.550	1.150.510.054.550	1.150.510.056.550 ¹⁾

Pulse counters, electromechanical

Micro counters

High shock resistance, for DIN-rail (AC+DC)

SK07



The micro-totalizers SK07 boast a very high level of shock resistance.

Their DIN-rail mounting allows them to be installed quickly and easily in a wide range of application areas.

Characteristics

- 7-digit micro-totalizers.
- Rail mounting to EN 50022.
- Base mount counters.
- Large optical figures.
- Low power consumption.
- Small dimensions.

Benefits

- High shock resistance.
- Stores values if power fails.
- Long service life.

Applications

General quantity counting, installation in control cabinets and distribution boxes.

Type series

Description

Base mounting and rail mounting

Type

SK07.1

Order information

- Art. no.
- For options please give exact counter type, voltage and options e.g.: SK07.1 – 9 V DC/0 – temperature range -20 °C ... +70 °C [-4 °F ... +158 °F]

Technical data

Electrical connection	clamp terminal for cable diameter up to 2.5 mm ² , tightening torque max. 0.8 Nm
Power consumption – at 20 °C [68 °F]	
at 10 Hz (type 0)	approx. 50 mW
at 25 Hz (type 1)	approx. 250 mW
at 10 Hz (type a0)	approx. 800 mVA
Rated voltage	type 0 1.5/3/4.5/5/6/12 V DC, -10 %, +20 %
	type 1 3/4.5/5/6/12/24 V DC, ±10 %
	type a0 12/24/115/230 V AC, ±10 %
Counting frequency	max. 10 and 25 Hz
Pulse duration	at 10 Hz min. 50 ms (type 0 and a0)
	at 25 Hz min. 20 ms (type 1)
Cycle duration factor	100 %
Number of digits	7
Counting system	adding
Height of figures (optical)	4 x 1.2 mm [0.16 x 0.047"]
Color of figures	white on black
Reset	no reset
Operating temperature	-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)
Relative humidity at +30 °C [+86 °F]	≤ 80 % (non-condensing)
Altitude	up to 2000 m [6562']
Mounting position	horizontal, other on request
Operating life	> 50 x 10 ⁶ pulses

Protection	IP50 (front side)
Housing	plastic black PC (Polycarbonate)
Weight	55 g [1.94 oz]
Device safety	designed to protection class 2
	application area pollution level 2

Options

- electrical connection: flat pin 0.8 x 6.3 mm [0.032 x 0.25"], Art. no.: 1.1X2.X01.XXX.011
- different voltages
- different digit colors
- different temperature range depends on type
-30 °C ... +85 °C [-22 °F ... +185 °F] or
-20 °C ... +70 °C [-4 °F ... +158 °F]

Approvals

UL compliant in accordance with File no. E128604

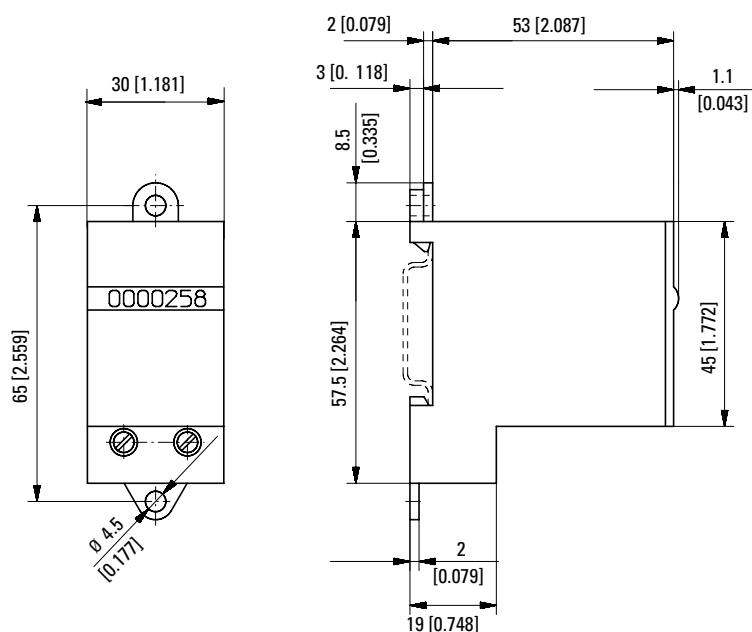
CE compliant in accordance with

EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Pulse counters, electromechanical

Micro counters	High shock resistance, for DIN-rail (AC+DC)	SK07
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Base- and rail mounting
Type SK07.1



Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
SK07.1	DC (10 Hz) / 0	7 digits	1.132.101.012	1.132.101.013 ¹⁾			
	DC (25 Hz) / 1		1.132.101.032	1.132.101.033 ¹⁾			
	AC (10 Hz) / a0			1.132.101.051 ¹⁾	1.132.101.054 ¹⁾	1.132.101.056 ¹⁾	

Hour meters / timers, electromechanical

Dual function counters	Pulse + time for DIN rail (AC+DC)	SHC77
------------------------	-----------------------------------	-------



The counter combinations SHC77 comprise an hour meter and a totalizer. They can be controlled both simultaneously and separately.

These DIN rail mount counters have a reduced mounting depth. They can be used in many different fields of application.

Characteristics

- Hour meter and totalizer in one single device
optional: counters controlled separately.
- Without reset.
- High shock resistance.
- Magnified large figures.
- Protection IP52 (on the front side).
- Data retention in case of power failure.

- Long service life.
- UL-approved.

Applications

General counting, alarm systems, pay stations, electricity meters, vending and gaming machines, copying machines, medical equipment, car washes, lifts, heating burners.

Type series

Description	Type	Options
Dual function counter, common connections	SHC77	SHC77: The two meters are connected in parallel, this means, that the adding counter registers the total number of events and the time meter the total operating time of the device.
Dual function counter, separate connections	SHC77.60	SHC77.60: Hour meter and adding counter have two separate connections. This version is available for either AC or DC version (not mixed).
Order information: Art. no. (for special voltages etc. indicate exact counter types, voltage and frequency e.g. SHC77, 120 V AC, 60 Hz)		

General technical data

Operating indicator of the hour meter	AC	fast rotating wheels with red dashes: 99999.99 h
	DC	1/100 h display turns continuously by 1 digit per 36 s: 999999.99 h
Height of figures	4 x 1.7 mm [0.16 x 0.067"] optical	
Color of figures	hour meter	hours: white figures on black
	1/10 u. 1/100 h adding counter	red figures on black white figures on black
Operating temperature	-15 °C ... +50 °C [+5 °F ... +122 °F] (non-condensing)	
Relative humidity at +30 °C [+86 °F]	≤ 80 % (non-condensing)	
Altitude	up to 2000 m [6562']	
Mounting position	any	

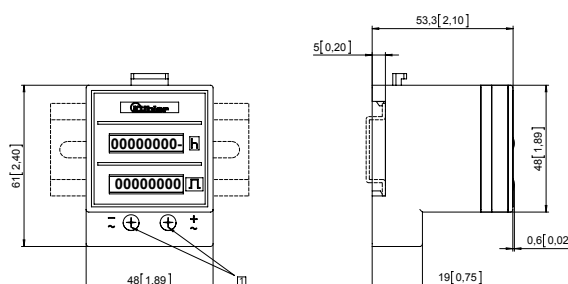
Electrical characteristics

Electrical connection	SHC77	screw terminal (tightening torque max. 0.8 Nm)
	SHC77.60	2 x cable – 2 x 0.5 mm ² [AWG20] NYFAZ, 0.5 m [1.64'] hour meter red/black adding counter grey
Power consumption	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz	approx. 1.43 VA
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V
	DC	10 ... 30/36 ... 80/100 ... 130 V
On time	100 %	
Count mode	adding	
Accuracy	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
Reset	no reset	
Test voltage	2500 V AC, 50 Hz	
Device safety	designed to protection class	EN 61010 part 1
	application area	2 pollution level 2

Hour meters / timers, electromechanical

Dual function counters		Pulse + time for DIN rail (AC+DC)	SHC77
Mechanical characteristics			
Protection	IP52 (front side) when built-in		
Housing color	black (standard)		
Weight	SHC77	85 g [3.00 oz]	
	SHC77.60	105 g [3.70 oz]	
Approvals			
UL compliant in accordance with		File no. E128604	
CE compliant in accordance with			
		EMC Directive	2014/30/EU
		RoHS Directive	2011/65/EU
		Low Voltage Directive	2014/35/EU

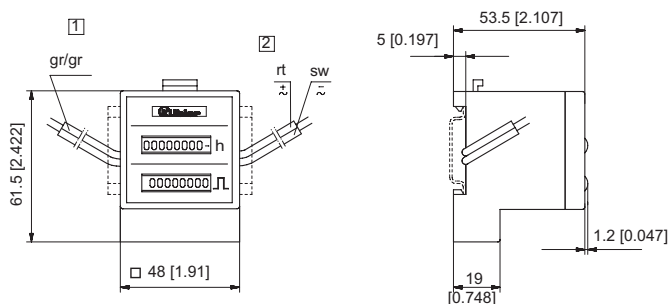
Dual function counter with common connections Type SHC77



1 screw terminal

Type	Display	Voltage	Art. no. 10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC77	7/8 digits	AC (50 Hz)		3.553.401.071		3.553.401.072	3.553.401.074	3.553.401.075
	7/8 digits	AC (60 Hz)		3.553.401.081		3.553.401.082	3.553.401.084	3.553.401.085
	7/8 digits	DC	3.553.401.351		3.553.401.353		3.553.401.381	

Dual function counter with separate connections Type SHC77.60



1 adding counter

2 hour meter

Type	Display	Voltage	Art. no. 10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC77.60	7/8 digits	AC (50 Hz)		3.553.401.071.060		3.553.401.072.060	3.553.401.074.060	3.553.401.075.060
	7/8 digits	AC (60 Hz)		3.553.401.081.060		3.553.401.082.060	3.553.401.084.060	3.553.401.085.060
	7/8 digits	DC	3.553.401.351.060		on request		3.553.401.381.060	

Pulse counters, electromechanical

Standard counters

4 or 6 digits with/without reset, electrical reset (AC+DC)

Mk14 / Mk16



The standard totalizers Mk14 (with manual reset) and Mk16 (with manual or manual and electrical reset) boast a robust construction.

They are ideal for use in harsh industrial environments.



Characteristics

- 6-digit totalizer without reset.
- 4- or 6-digit totalizer with manual, manual and electrical reset.
- Mk16 has integrated electrical reset.

Benefits

- Very long service life (200 million pulses).

Applications

Piece counting, event counting, time and charge metering.

Type series

Description	reset	4 digits	6 digits	Order information
Panel mount with front bezel and 2 mounting holes	manual	Mk14.11	Mk16.11	· Art. no. · For special voltages, please give type, voltage and series e.g.: Mk16.21, 48 V AC, type a
Panel mount for clip mounting	without	–	Mk16.20	
	manual	Mk14.21	Mk16.21	
	manual and electrical	–	Mk16.23	

Accessories					
		Type / size	Description		Order no.
Gasket counter		39 x 40 mm [1.54 x 1.58]	suitable for Mk14.11		N511011

Pulse counters, electromechanical

Standard counters	4 or 6 digits with/without reset, electrical reset (AC+DC)	Mk14 / Mk16
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Technical data	
Electrical connection	flat pin 0.8 x 2.8 mm [0.032 x 0.11"] with flat push on connector
Rated voltage	type 0 / 1 / a 12 / 24 / 48 / 60 / 115 / 230 V DC $\pm 10\%$ 24 / 48 / 60 / 115 / 230 V AC $\pm 10\%$
Housing	Makrolon, similar to RAL 7001
Height of figures	4 mm [0.16"]
Color of figures	white on black
Counting mechanism shaft	stainless steel
Relative humidity at +30 °C [+86 °F]	$\leq 80\%$ (non-condensing)
Altitude	up to 2000 m [6562']
Mounting position	any
Operating life	approx. 200 x 10 ⁶ pulses
Protection	with reset IP40 (front side) without reset IP41 (front side)
Weight	reset manual Mk14 – 85 g [3.00 oz] Mk16 – 100 g [3.53 oz] reset electrical Mk14 – 145 g [5.12 oz] Mk16 – 140 g [4.94 oz]
Test voltage	2000 V ~ effective
Vibration resistance	3 g up to 10 Hz 6 g up to 15 Hz independent of position 10 g 20 - 300 Hz
Device safety	designed to EN 61010 part 1 protection class 2 application area pollution level 2

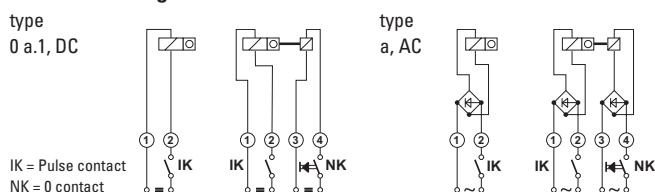
Options	
Extended temperature range	

Reset magnet	
Power consumption	DC approx. 9 W AC approx. 12 VA
Rated voltage	12 / 24 / 48 / 60 / 115 / 230 V DC $\pm 10\%$ 24 / 48 / 60 / 115 / 230 V AC $\pm 10\%$
Permissible residual ripple	max. 48 %
Minimum pulse time	0.25 sec, during 0.3 sec no count pulse is allowed
Cycle duration factor	Mk16 15 %, max. 1.0 min Mk14 10 %, max. 40 sec

Approvals	
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	64 ms	40 ms	3 : 2	100 %	1 W	48 %	-10 °C ... +45 °C [+14 °F ... +113 °F]
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10 °C ... +45 °C [+14 °F ... +113 °F]
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	–	-10 °C ... +45 °C [+14 °F ... +113 °F]

Connection diagram



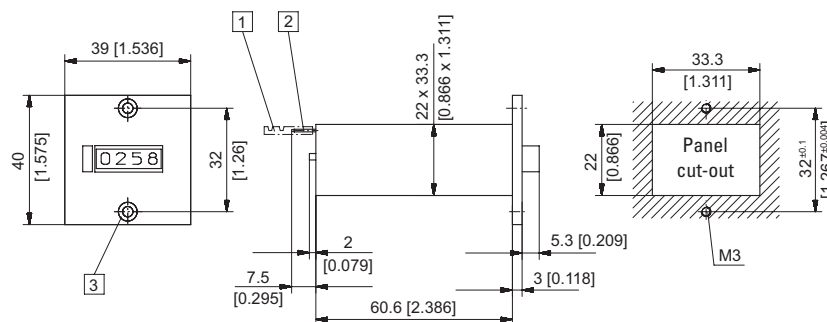
Pulse counters, electromechanical

Standard counters	4 or 6 digits with/without reset, electrical reset (AC+DC)	Mk14 / Mk16
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Panel mount, front bezel with 2 mounting holes

4 digits, manual reset

Type Mk14.11



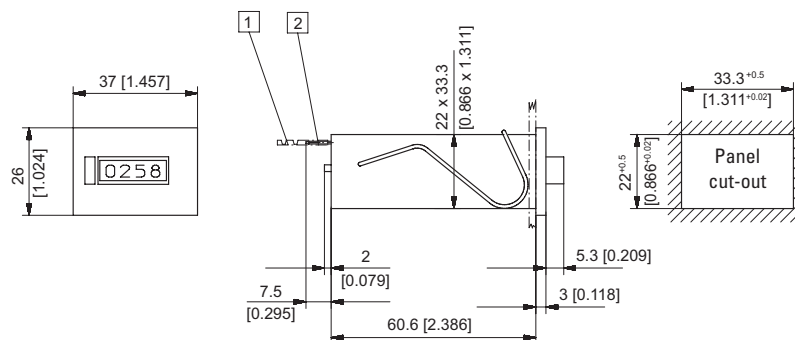
- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
3 Countersinking Af3 DIN 74 Color of housing black, Art. no. 1.310.111.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
Mk14.11	DC (10 Hz) / 0	4 digits, manual reset	1.310.110.012	1.310.110.013			
	DC (25 Hz) / 1		1.310.110.032	1.310.110.033			
	AC (18 Hz) / a			1.310.110.061	1.310.110.064	1.310.110.066	

Panel mount, for clip mounting

4 digits, manual reset

Type Mk14.21



- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
Color of housing black, Art. no. 1.310.211.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
Mk14.21	DC (10 Hz) / 0	4 digits, manual reset	1.310.210.012	1.310.210.013			
	DC (25 Hz) / 1		1.310.210.032	1.310.210.033			
	AC (18 Hz) / a			1.310.210.061	1.310.210.064	1.310.210.066	

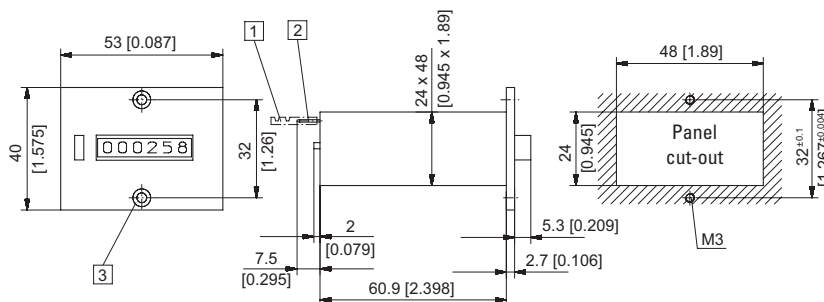
Pulse counters, electromechanical

Standard counters	4 or 6 digits with/without reset, electrical reset (AC+DC)	Mk14 / Mk16
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Panel mount, front bezel with
2 mounting holes

6 digits, manual reset

Type Mk16.11



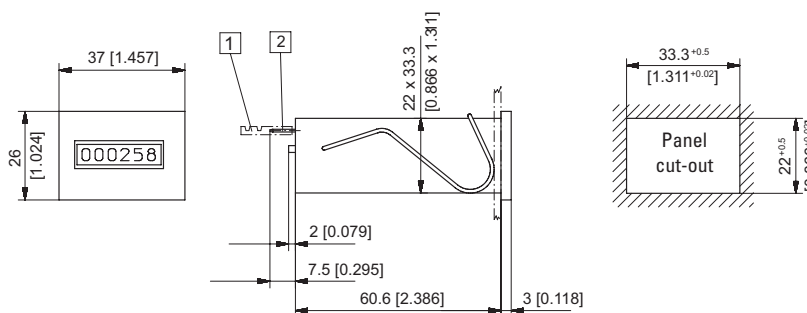
- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
3 Countersinking Af3 DIN 74 Color of housing black, Art. no. 1.340.111.XXX

Type	Voltage	Display	Art. no.	12 V	24 V	115 V	230 V
Mk16.11	DC (10 Hz) / 0	6 digits,	1.340.110.012	1.340.110.013			
	DC (25 Hz) / 1	manual reset	1.340.110.032	1.340.110.033			
	AC (18 Hz) / a			1.340.110.061	1.340.110.064	1.340.110.066	

Panel mount for clip mounting

6 digits, without reset

Type Mk16.20



- 1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
Color of housing black, Art. no. 1.330.201.XXX

Type	Voltage	Display	Art. no.	12 V	24 V	115 V	230 V
Mk16.20	DC (10 Hz) / 0	6 digits,	1.330.200.012	1.330.200.013			
	DC (25 Hz) / 1	without reset	1.330.200.032	1.330.200.033			
	AC (18 Hz) / a			1.330.200.061	1.330.200.064	1.330.200.066	

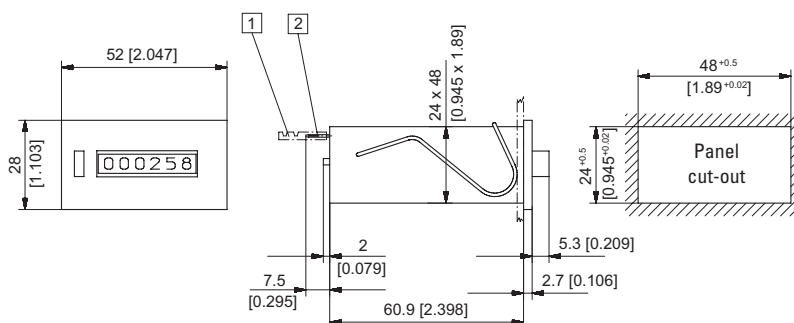
Pulse counters, electromechanical

Standard counters	4 or 6 digits with/without reset, electrical reset (AC+DC)	Mk14 / Mk16
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Panel mount for clip mounting

6 digits, manual reset

Type Mk16.21



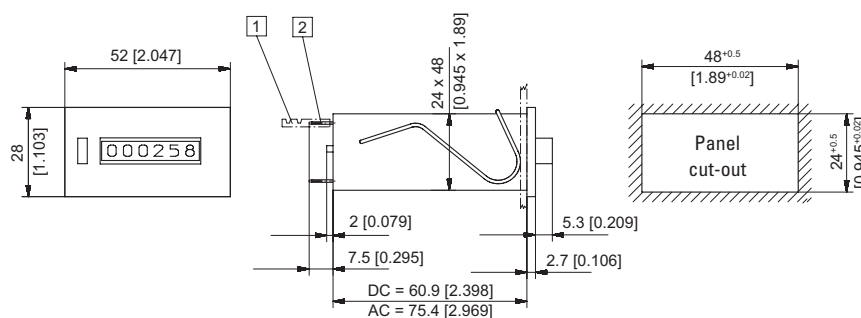
1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
Color of housing black, Art. no. 1.340.211.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
Mk16.21	DC (10 Hz) / 0	6 digits, manual reset	1.340.210.012	1.340.210.013			
	DC (25 Hz) / 1		1.340.210.032	1.340.210.033			
	AC (18 Hz) / a			1.340.210.061	1.340.210.064	1.340.210.066	

Panel mount, for clip mounting

6 digits, manual and electrical reset

Type Mk16.23



1 Flat push on connector 0.8 x 2.8 [0.032 x 0.11], tinned 2 Flat pin 0.8 x 2.8 [0.032 x 0.11], tinned
Color of housing black, Art. no. 1.340.231.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
Mk16.23	DC (10 Hz) / 0	6 digits, manual and electr. reset	1.340.230.012	1.340.230.013			
	DC (25 Hz) / 1		1.340.230.032	1.340.230.033			
	AC (18 Hz) / a			1.340.230.061	1.340.230.064	1.340.230.066	

Pulse counters, electromechanical

Micro counters

Magnetic field resistant and high shock resistance (DC)

K66 / K67



The micro adding counters K66 (6-digit) and K67 (7-digit) boast a very high level of shock resistance and, as a result of the patented ACR counting system, are not affected by magnetic fields.

They can be used as either panel mount or as PCB mount devices in a wide variety of application areas, where a high level of resistance against tampering is required.

Characteristics

- Not affected by magnetic fields, as moving parts are made of plastic or non-ferrous metal (patented system)
- Maximum shock resistance, as a counter-rotating movement is required for counting, ACR system (Air Coil Reverse, patented)
- Low power consumption; suitable for battery operation
- Very compact size, large figures
- Different viewing possibilities

Benefits

- Machine solderable and washable
- IP65 protection
- Long service life
- Stores values if power fails

Applications

General quantity counting, photocopiers, electricity meters, vending and slot machines, coin-operated machines, car washes, alarm systems, medical equipment, heat quantity measurement

Type series

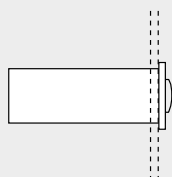
Fig.	Mounting options	Display	el. connection	IP protection	6 digits	7 digits
1)	Panel mount with latch	front side	flying leads	front side	—	K67.20
2)	PCB mount, upright	front side	solder pins	front side/on rear	—	K67.80
3)	PCB mount, lying	on the top	solder pins	front side/on rear	—	K67.90
4)	PCB mount, hanging	front side	solder pins	front side/on rear	K66.91	K67.91
5)	PCB mount, lying	front side	solder pins	front side/on rear	K66.95	K67.95

Order information

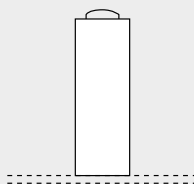
- Art. no. 1.680.9X0.0XX
- For options please give exact counter type, voltage and options e.g.:
K67.20 – 9 V DC/0 – temperature range -20 °C ... +70 °C [-4 °F ... +158 °F]

Mounting options and position of the display

- 1) Panel mount
display front side



- 2) PCB mount, upright
display front side



- 3) PCB mount, lying
display on the top



- 4) PCB mount, hanging
display front side



- 5) PCB mount, lying
display front side



- Optional: PCB mount, lying
display at the bottom



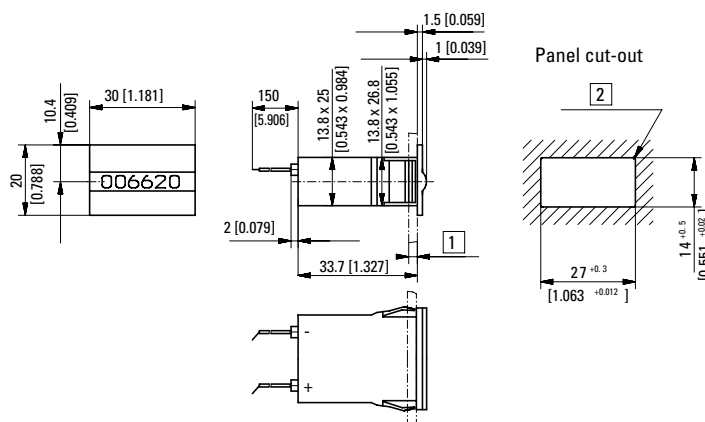
Pulse counters, electromechanical

Micro counters		Magnetic field resistant and high shock resistance (DC)		K66 / K67	
Technical data				Options	
Electrical connection	panel mout	flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned solder pins ø 0.64 mm [0.025"]		K66.20, K66.80, K67.20, K67.80	
	PCB mount			flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and push on connectors X.XX7.XXX.XXX	
Power consumption: at 20 °C [68 °F]	up to 6 V DC up to 12 V DC at 24 V DC	approx. 70 mW approx. 120 mW approx. 500 mW		K66.20, K67.20	
				solder pins ø 0.64 mm [0.025"] X.XX1.XXX.XXX	
				K66.80, K67.80	
				flying leads, AWG 22 approx. 150 mm [5.91"]	
Rated voltage		1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10 % / +20 %		Further options	
Counting frequency		max. 10 Hz (type 0)		- different voltages	
Pulse duration / pulse interval		min. 50 ms / min. 50 ms		- counting frequency > 10 Hz	
Cycle duration factor		100 %		- different color of figures	
Counting system		adding		- extended temperature range -30 °C ... +85 °C [-22 °F ... +185 °F] or -20 °C ... +70 °C [-4 °F ... +158 °F]	
Height of figures (optical)	K66	4 x 1.7 mm [0.16 x 0.067"]		- solderable and washable version	
	K67	4 x 1.25 mm [0.16 x 0.049"]			
Color of figures		white on black			
Reset		no reset			
Operating temperature		-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)			
Mounting position		horizontal, other on request			
Operating life		> 50 x 10 ⁶ pulses			
Soldering temperature		max. 265 °C [+509 °F], 3 s			
Protection		IP65 (K66.20, K67.20: only front side)			
Housing		PC (Polycarbonate), transparent types with protection IP65 are sealed			
Weight		9 ... 11 g [0.32 ... 0.39 oz]			
				Approvals	
				CE compliant in accordance with	
				EMC Directive	2014/30/EU
				RoHS Directive	2011/65/EU
				Low Voltage Directive	2014/35/EU

Pulse counters, electromechanical

Micro counters	Magnetic field resistant and high shock resistance (DC)	K66 / K67
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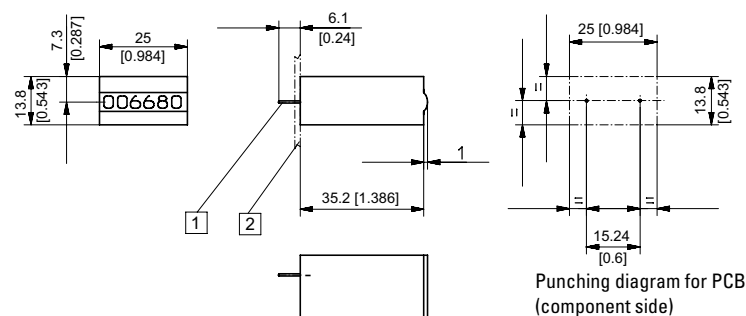
**Panel mount with latch
display front side
Type K67.20**



1) 1.2 ... 3 mm [0.047 x 0.12] 2) R_{max} 0.5 [0.020]

Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V	
K67.20	DC (10 Hz) / 0	7 digits	1.660.200.006	1.660.200.008	1.660.200.009	1.660.200.010	1.660.200.012	1.660.200.013	1)	

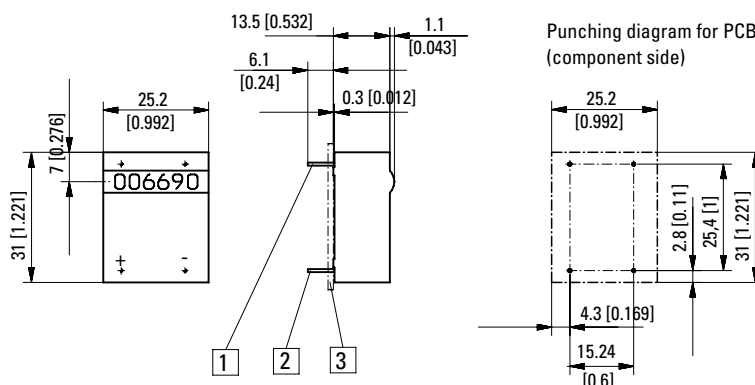
**PCB mount upright
display front side
Type K67.80**



1) Coil connections ø 0.64 [0.025] 2) PCB

Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V	
K67.80	DC (10 Hz) / 0	7 digits	1.660.800.006	1.660.800.008	1.660.800.009	1.660.800.010	1.660.800.012	1.660.800.013		

**PCB mount, lying
display on the top
Type K67.90**



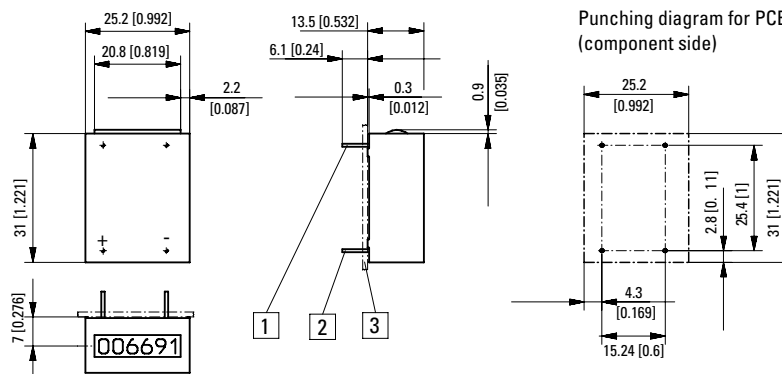
1) Mounting pin without el. function ø 0.64 [0.025] 2) Coil connections ø 0.64 [0.025] 3) PCB

Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V	
K67.90	DC (10 Hz) / 0	7 digits	1.660.900.006	1.660.900.008	1.660.900.009	1.660.900.010	1.660.900.012	1.660.900.013		

Pulse counters, electromechanical

Micro counters	Magnetic field resistant and high shock resistance (DC)	K66 / K67
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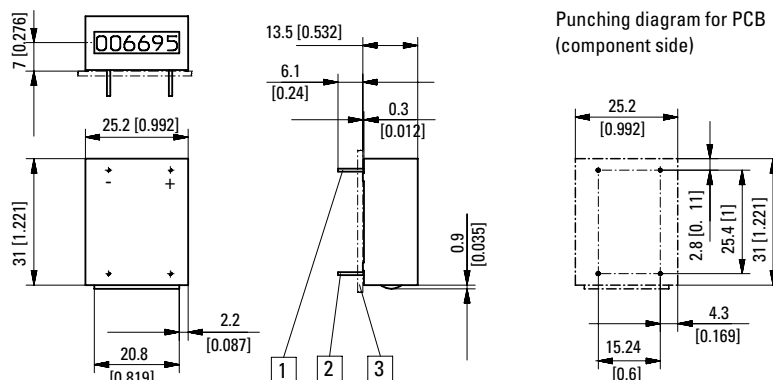
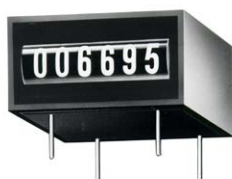
PCB mount, hanging
display front side
Type K66.91 / K67.91



1 Mounting pin without el. function $\varnothing$ 0.64 [0.025] 2 Coil connections $\varnothing$ 0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	5 V	6 V	12 V	24 V		
K66.91	DC (10 Hz) / 0	6 digits	on request	on request	1.650.910.009	on request	1.650.910.012	1.650.910.013		
K67.91	DC (10 Hz) / 0	7 digits	1.660.910.006	1.660.910.008	1.660.910.009	1.660.910.010	1.660.910.012	1.660.910.013		

PCB mount lying
display front side
Type K66.95 / K67.95



1 Mounting pin without el. function $\varnothing$ 0.64 [0.025] 2 Coil connections $\varnothing$ 0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.							
			3 V	4.5 V	5 V	6 V	12 V	24 V		
K66.95	DC (10 Hz) / 0	6 digits	on request	on request	1.650.950.009	on request	1.650.950.012	1.650.950.013		
K67.95	DC (10 Hz) / 0	7 digits	1.660.950.006	1.660.950.008	1.660.950.009	1.660.950.010	1.660.950.012	1.660.950.013		

Pulse counters, electromechanical

Micro counters	High shock resistance (DC)	K46 / K47
----------------	----------------------------	-----------



The micro adding counters K46 and K47 boast a very high level of shock resistance. As panel mount and PCB mount counters they can be used in a wide variety of applications.

The counters are non-resettable and are highly tamper-proof thanks to their sealed (potted) housings.

Characteristics

- 6-digit (K46) or 7-digit (K47) micro adding counters.
- Economical.
- Low power consumption; suitable for battery operation.
- Small dimensions, large optical figures.
- Different viewing possibilities.
- Panel mount with spring clips or PCB mount versions.

Benefits

- Machine solderable and washable.
- High shock resistance.
- Long service life.
- IP65 protection.
- Stores values if power fails.

Applications

General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes

Type series

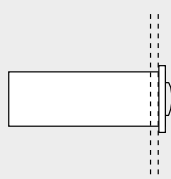
Fig.	Mounting options	Display	el. connection	IP protection	6 digits	7 digits
1)	Panel mount with latch	front side	flying leads	front side	K46.20	K47.20
2)	PCB mount, upright	front side	solder pins	front side/on rear	K46.80	K47.80
3)	PCB mount, lying	on the top	solder pins	front side/on rear	—	K47.90
4)	PCB mount, hanging	front side	solder pins	front side/on rear	—	K47.91
5)	PCB mount, lying	front side	solder pins	front side/on rear	K46.95	—

Order information

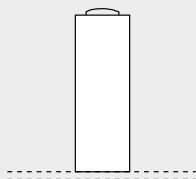
- Art. no. 1.7X0.XX0.0XX
- For options please give exact counter type, voltage and options e.g.:
K46.20 – 12 V DC/0 – temperature range -20 °C ... +70 °C [-4 °F ... +158 °F]

Mounting options and position of the display

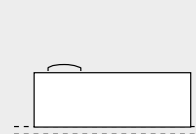
1) Panel mount
display front side



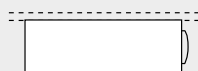
2) PCB mount, upright
display front side



3) PCB mount, lying
display on the top



4) PCB mount, hanging
display front side



5) PCB mount, lying
display front side



Optional: PCB mount, lying
display at the bottom



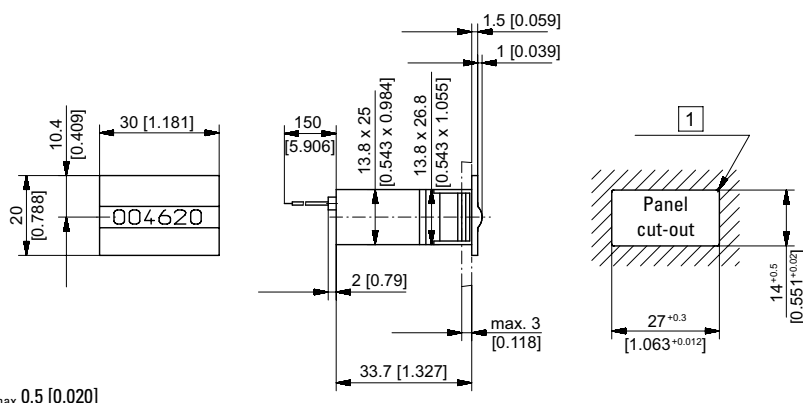
Pulse counters, electromechanical

Micro counters		High shock resistance (DC)	K46 / K47
Technical data		Options	
Electrical connection	panel mount	flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned solder pins ø 0.64 mm [0.025"]	flat pin 0.8 x 2.8 mm [0.032 x 0.11"] and push on connectors
	PCB mount		solder pins ø 0.64 mm [0.025"]
Power consumption	up to 12 V DC at 24 V DC	approx. 70 mW approx. 150 mW	
Rated voltage		1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10 % / +20 %	
Counting frequency		max. 10 Hz (type 0)	
Pulse duration / pulse interval		min. 50 ms / min. 50 ms	
Cycle duration factor		100 %	
Number of digits		6 (K46), 7 (K47)	
Counting system		adding	
Height of figures (optical)	K46	4 x 1.7 mm [0.16 x 0.067"]	
	K47	4 x 1.25 mm [0.16 x 0.049"]	
Color of figures		white on black	
Reset		no reset	
Operating temperature		-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)	
Mounting position		horizontal, other on request	
Operating life		> 50 x 10 ⁶ pulses	
Soldering temperature		max. 265 °C [+509 °F], 3 s	
Protection		IP65 (K46.20, K47.20: only front side)	
Housing		PC (Polycarbonate)	
Weight		12 ... 14 g [0.42 ... 0.49 oz]	
		Approvals	
		UL compliant in accordance with	File no. E128604
		CE compliant in accordance with	
		EMC Directive	2014/30/EU
		RoHS Directive	2011/65/EU
		Low Voltage Directive	2014/35/EU

Pulse counters, electromechanical

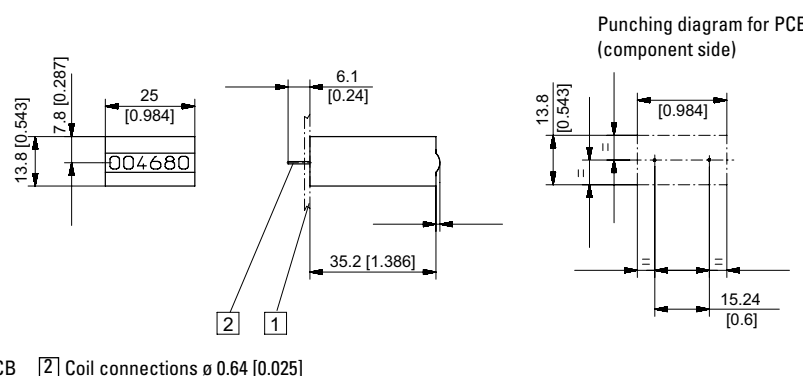
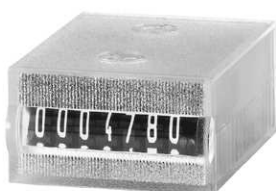
Micro counters	High shock resistance (DC)	K46 / K47
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Panel mount
display front side
Type K46.20 / K47.20



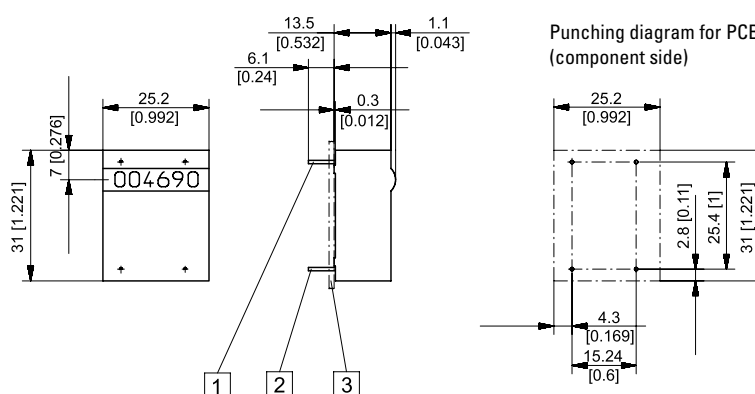
Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V
K46.20	DC (10 Hz) / 0	6 digits	on request	on request	on request	on request	on request	1.700.200.012 ¹⁾	1.700.200.013 ¹⁾
K47.20	DC (10 Hz) / 0	7 digits	1.710.200.006	1.710.200.008	1.710.200.009	1.710.200.010	1.710.200.012 ¹⁾	1.710.200.013 ¹⁾	

PCB mount, upright
display front side
Type K46.80 / K47.80



Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V
K46.80	DC (10 Hz) / 0	6 digits	on request	on request	on request	on request	on request	1.700.800.012	1.700.800.013
K47.80	DC (10 Hz) / 0	7 digits	1.710.800.006	1.710.800.008	1.710.800.009	1.710.800.010	1.710.800.012	1.710.800.013	

PCB mount, lying
display on the top
Type K47.90

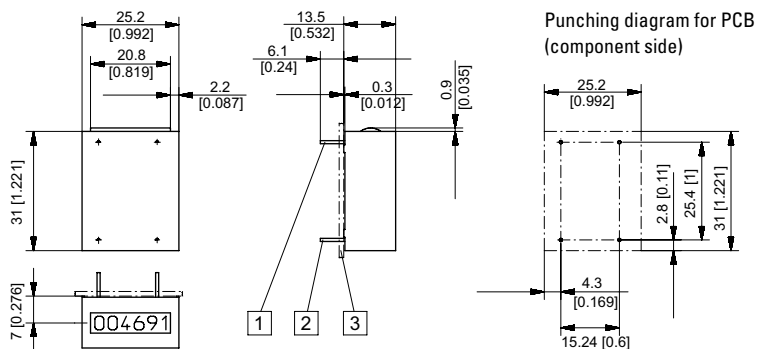


Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V
K47.90	DC (10 Hz) / 0	7 digits	1.710.900.006	1.710.900.008	1.710.900.009	1.710.900.010	1.710.900.012	1.710.900.013	

Pulse counters, electromechanical

Micro counters	High shock resistance (DC)	K46 / K47
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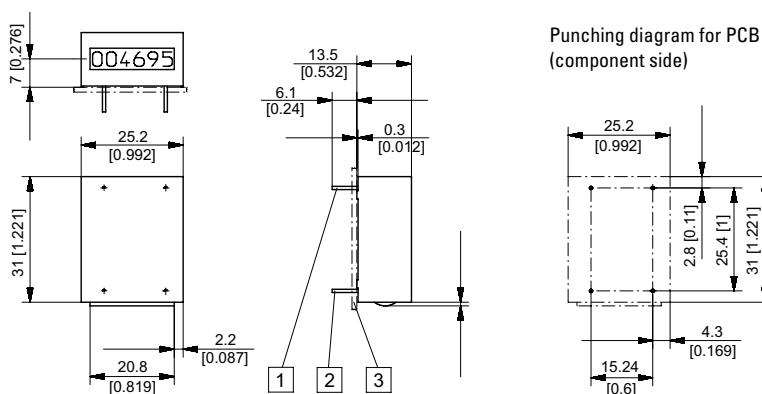
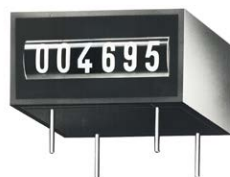
PCB mount, hanging
display front side
Type K47.91



1 Mounting pin without el. function $\varnothing$ 0.64 [0.025] 2 Coil connections $\varnothing$ 0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V
K47.91	DC (10 Hz) / 0	7 digits	1.710.910.006	1.710.910.008	1.710.910.009	1.710.910.010	1.710.910.012	1.710.910.013	

PCB mount, lying
display front side
Type K46.95



1 Mounting pin without el. function $\varnothing$ 0.64 [0.025] 2 Coil connections $\varnothing$ 0.64 [0.025] 3 PCB

Type	Voltage	Display	Art. no.	3 V	4.5 V	5 V	6 V	12 V	24 V
K46.95	DC (10 Hz) / 0	6 digits	on request	on request	1.700.950.009	on request	1.700.950.012	1.700.950.013	

Pulse counters, electromechanical

Micro counters	High shock resistance (AC+DC)	K04 ... K07 / AK07
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The micro adding counter families K04 to K07 and AK07 are available in a very wide variety of models and can be used in both DC as well as in AC applications.

As panel mount, base mount and PCB mount counters with a very high level of shock resistance they can be used for numerous diverse application areas.

Characteristics

- Low power consumption; suitable for battery operation.
- Very compact size, large optical figures.
- Different viewing possibilities.
- Panel mount counter with moulded spring clips, base mount counter with screw fixing or PCB mount versions.
- Version with additional magnetic shielding thanks to sheet-steel enclosure (K0X.40 and K0X.50).

Benefits

- Machine solderable and washable.
- Stores values if power fails.
- High shock resistance, long service life, IP65 protection.

Applications

General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes.

Type series

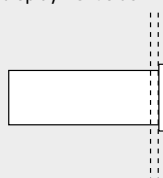
Fig.	Mounting options	Display	Housing	IP protection	4 digits	5 digits	6 digits	7 digits
1)	Panel mount with latch	front side	plastic	front side	K04.20	K05.20	K06.20	K07.20
2)	PCB mount, lying	on the top	sheet steel	—	K04.40	—	—	K07.40
3)	PCB mount, hanging	front side	sheet steel	—	—	—	—	K07.50
4)	PCB mount, upright	front side	plastic	front side	—	—	K06.80	K07.80
5)	PCB mount, lying	on the top	plastic	front side/on rear	—	—	—	K07.90
6)	Base mount, upright	front side	plastic	front side	—	—	—	AK07.00

Order information

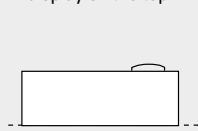
- Art. no.
- For options please give exact counter type, voltage and options e.g.:
K06.20 – 9 V DC/0 – temperature range -20 °C ... +70 °C [-4 °F ... +158 °F]

Mounting options and position of the display

1) Panel mount
display front side



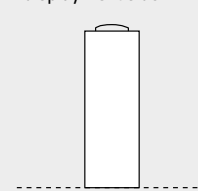
2) PCB mount, lying
display on the top



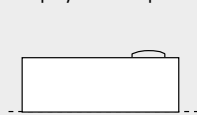
3) PCB mount, hanging
display front side



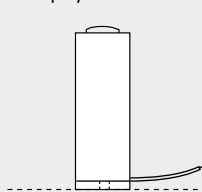
4) PCB mount, upright
display front side



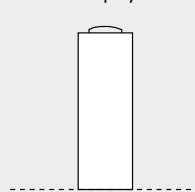
5) PCB mount, lying
display on the top



6) Base mount upright
display front side



Optional: PCB mount, upright
display front side, IP65



Pulse counters, electromechanical

Micro counters	High shock resistance (AC+DC)	K04 ... K07 / AK07
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Accessories					
		Type / size	Description		Order no.
Gasket counter		32 x 15 mm [1.26 x 0.59]	for cut-out 27 x 13 mm, suitable for K06.20 and K07.20		N511058

Technical data		
Electrical connection		
panel mount, base mount	flying leads, AWG 22 approx. 150 mm [5.91"], 6 mm [0.24"] stripped wire ends, tinned	
PCB mount	solder pins ø 0.4 x 1.2 mm [0.016 x 0.047"]	
Power consumption (at 20 °C [68 °F] and normal voltage)		
at 10 Hz (type 0)	approx. 50 mW	
at 25 Hz (type 1)	approx. 250 mW	
at 10 Hz (type a0)	approx. 800 mVA	
Rated voltage		
type 0	1.5/3/4.5/5/6/12/24 V DC, -10 %, +20 %	
type 1	3/4.5/5/6/12/24 V DC, ±10 %	
type a0	12/24/115/230 V AC, ±10 %	
Counting frequency		
	max. 10 and 25 Hz	
Pulse duration		
at 10 Hz (type 0 and a0)	min. 50 ms	
at 25 Hz (type 1)	min. 20 ms	
Pulse interval		
at 10 Hz (type 0 a0)	min. 50 ms	
at 25 Hz (type 1)	min. 20 ms	
Cycle duration factor		
	100 %	
Number of digits		
	4, 5, 6 and 7	
Counting system		
	adding	
Height of figures		
K04, K06, AK06	4 x 1.7 mm [0.16 x 0.067"] optical	
K05, K07, AK07	4 x 1.2 mm [0.16 x 0.047"] optical	
Color of figures		
	white on black	
Reset		
	no reset	
Operating temperature		
	-10 °C ... +60 °C [+14 °F ... +140 °F] (non-condensing)	
Relative humidity at +30 °C [+86 °F]		
	≤ 80 % (non-condensing)	
Altitude		
	up to 2000 m [6562']	
Mounting position		
	horizontal, other on request	
Soldering temperature		
	265 °C [+509 °F], 3 s	
Operating life		
	> 50 x 10 ⁶ pulses	
Solderable and wash proof types		
	K0X.92, K06.90, K07.90	
Protection		
K0X.92, K0X.90	IP65	
AK0X.00, K0X.80, K0X.20	IP65 (only front side)	
other types	depending on kind of mounting	
Housing		
	PC (Polycarbonate), transparent or sheet steel types (see table) with IP65 protection, fully sealed (potted)	
Weight		
	15 ... 18 g [0.53 ... 0.63 oz]	
Device safety		
designed to	EN 61010 part 1	
protection class	2	
application area	pollution level 2	

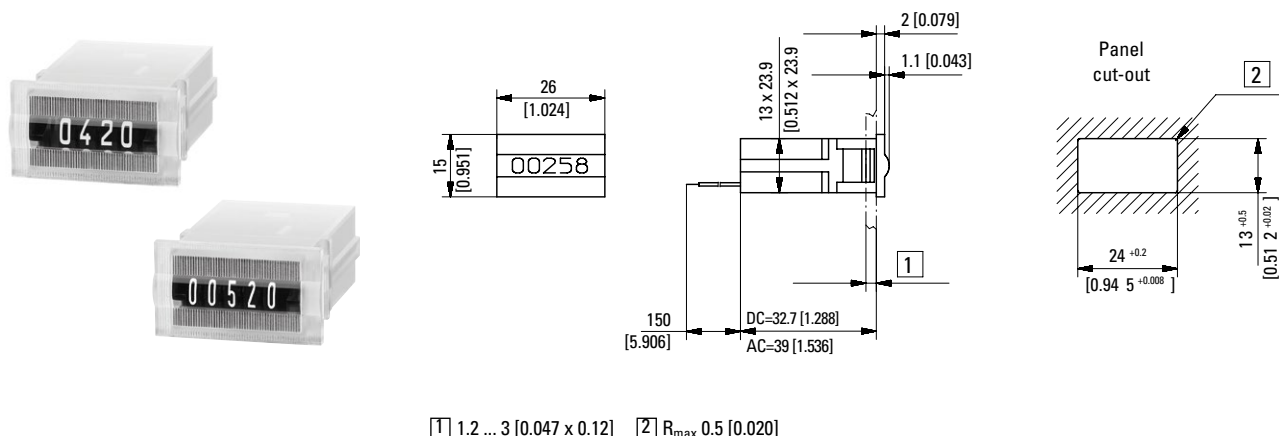
Options	
K0x.20	flat pin 0.5 x 2.8 mm [0.020 x 0.11"] Art. no.: 1.1X7.XX0.XXX flat pin 0.4 x 1.2 mm [0.016 x 0.047"] Art. no.: 1.1X9.XX0.XXX • different voltages • version not potted • different figure colors • different lengths of flying leads • different connections • different temperature range, depends on version -30 °C ... +85 °C [-22 °F ... +185 °F] or -20 °C ... +70 °C [-4 °F ... +158 °F]

Approvals		
UL compliant in accordance with		File no. E128604
CE compliant in accordance with		
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU
	Low Voltage Directive	2014/35/EU

Pulse counters, electromechanical

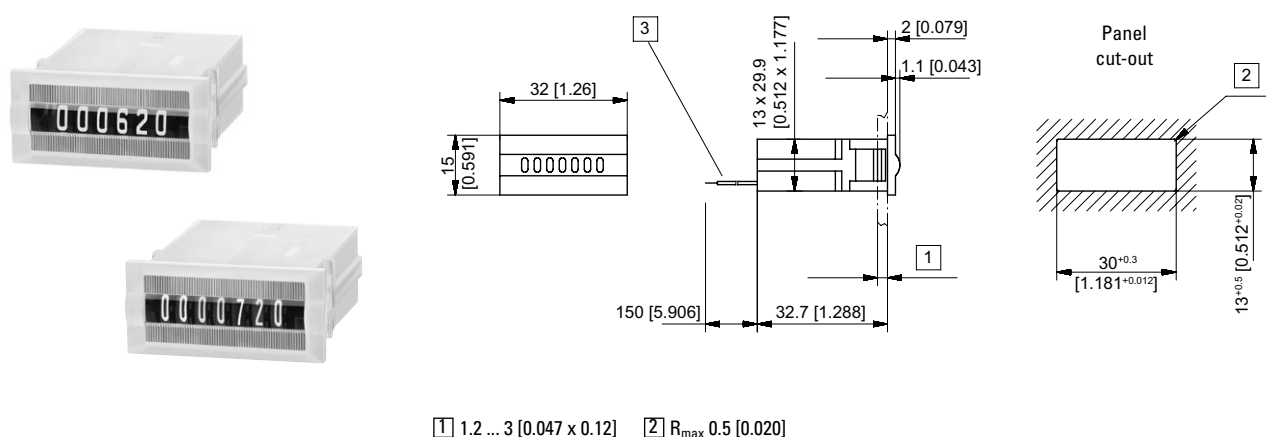
Micro counters	High shock resistance (AC+DC)	K04 ... K07 / AK07
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Panel mount counter
4- and 5-digit display front side
Type K04.20 / K05.20



Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V	115 V	230 V
K04.20	DC (10 Hz) / 0	4 digits	1.100.200.006	1.100.200.008	on request 1.100.200.032	on request 1.100.200.033 1.100.200.051	1.100.200.054	1.100.200.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							
K05.20	DC (10 Hz) / 0	5 digits	1.110.200.006	1.110.200.008	on request 1.110.200.032	1.110.200.013 1.110.200.033 1.110.200.051	1.110.200.054	1.110.200.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							

Panel mount counter
6- and 7-digit display front side
Type K06.20 / K07.20



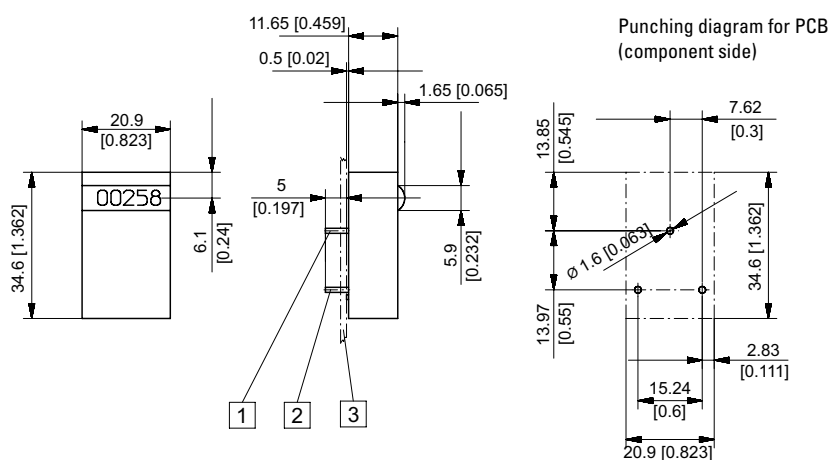
Type	Voltage	Display	Art. no.					
			3 V	4.5 V	12 V	24 V	115 V	230 V
K06.20	DC (10 Hz) / 0	6 digits	1.120.200.006	1.120.200.008	on request 1.120.200.032	1.120.200.013 1.120.200.033 1.120.200.051	1.120.200.054	1.120.200.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							
K07.20	DC (10 Hz) / 0	7 digits	1.130.200.006	1.130.200.008	1.130.200.012 ¹⁾ 1.130.200.032 ¹⁾	1.130.200.013 1.130.200.033 ¹⁾ 1.130.200.051	1.130.200.054	1.130.200.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							
Further stock types:			1.130.200.418 ¹⁾					

Pulse counters, electromechanical

Micro counters	High shock resistance (AC+DC)	K04 ... K07 / AK07
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PCB mount, lying 4-digit display on the top Type K04.40

Color of housing blue (zinc-plated)



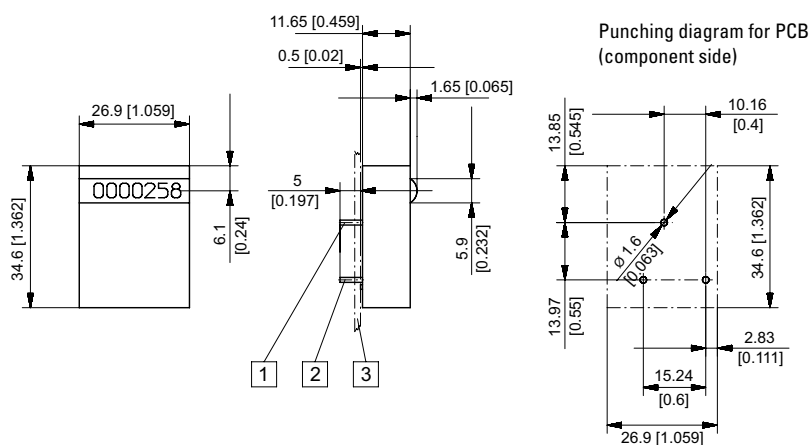
1 Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]

2 Coil connections 0.4 x 1.2 [0.016 x 0.047] 3 PCB

Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V
K04.40	DC (10 Hz) / 0 DC (25 Hz) / 1	4 digits	1.100.401.006	1.100.401.008	on request 1.100.401.032	on request 1.100.401.033

PCB mount, lying 7-digit display on the top Type K07.40

Color of housing blue (zinc-plated)



1 Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]

2 Coil connections 0.4 x 1.2 [0.016 x 0.047] 3 PCB

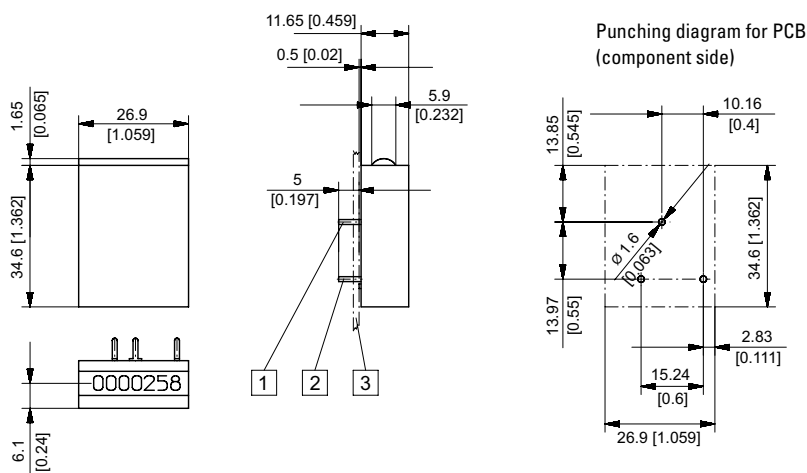
Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V
K07.40	DC (10 Hz) / 0 DC (25 Hz) / 1	7 digits	1.130.401.006	1.130.401.008	on request 1.130.401.032	on request 1.130.401.033

Pulse counters, electromechanical

Micro counters	High shock resistance (AC+DC)	K04 ... K07 / AK07
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PCB mount, hanging 7-digit display front side Type K07.50

Color of housing blue (zinc-plated)

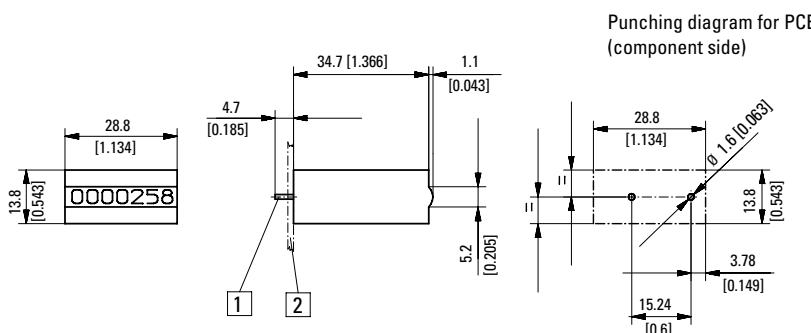


1 Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]

2 Coil connections 0.4 x 1.2 [0.016 x 0.047] 3 PCB

Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V	
K07.50	DC (10 Hz) / 0 DC (25 Hz) / 1	7 digits	1.130.501.006	1.130.501.008	on request 1.130.501.032	on request 1.130.501.033	

PCB mount, upright 6- and 7-digit display front side Type K06.80 / K07.80



1 Coil connections 0.4 x 1.2 [0.016 x 0.047] 2 PCB

Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V	115 V	230 V
K06.80	DC (10 Hz) / 0 DC (25 Hz) / 1 AC (10 Hz) / a0	6 digits	1.120.800.006	1.120.800.008	on request 1.120.800.032	on request 1.120.800.033 1.120.800.051	1.120.800.054	1.120.800.056
K07.80	DC (10 Hz) / 0 DC (25 Hz) / 1 AC (10 Hz) / a0	7 digits	1.130.800.006	1.130.800.008	on request 1.130.800.032	on request 1.130.800.033 1.130.800.051	1.130.800.054	1.130.800.056

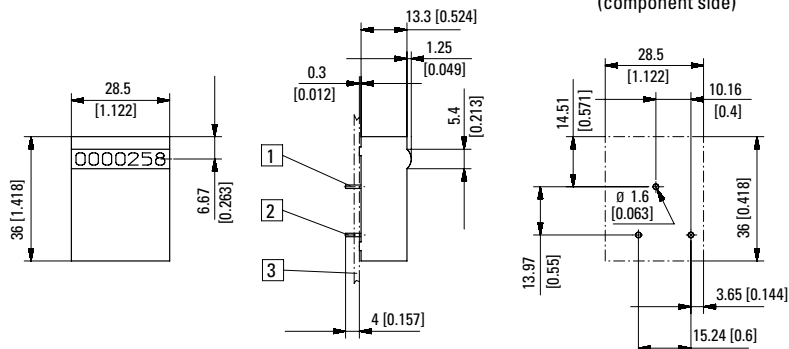
Pulse counters, electromechanical

Micro counters

High shock resistance (AC+DC)

K04 ... K07 / AK07

PCB mount, lying
7-digit display on the top
Type K07.90



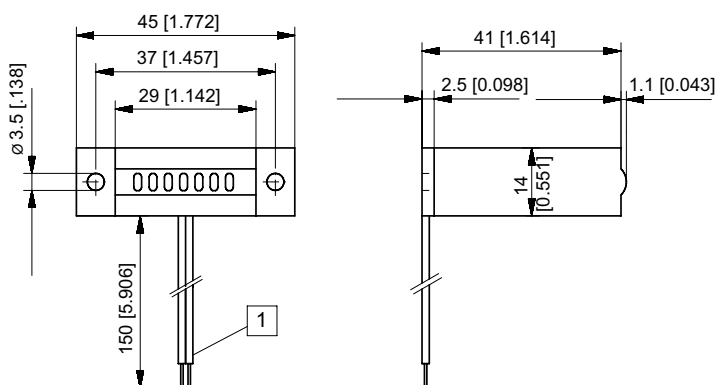
Punching diagram for PCB
(component side)

1 Mounting pin without el. function 0.4 x 1.2 [0.016 x 0.047]

2 Coil connections 0.4 x 1.2 [0.016 x 0.047] 3 PCB

Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V	115 V	230 V
K07.90	DC (10 Hz) / 0	7 digits	1.130.900.006	1.130.900.008	1.130.900.012 1.130.900.032	on request 1.130.900.033 1.130.900.051	1.130.900.054	1.130.900.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							

Base mount, upright
7-digit display front side
Type AK07.00



1 Flying leads (red+ / black-)

Type	Voltage	Display	Art. no. 3 V	4.5 V	12 V	24 V	115 V	230 V
AK07.00	DC (10 Hz) / 0	7 digits	1.130.000.006	1.130.000.008	1.130.000.012 ¹⁾ 1.130.000.032	1.130.000.013 1.130.000.033 ¹⁾ 1.130.000.051	1.130.000.054	1.130.000.056
	DC (25 Hz) / 1							
	AC (10 Hz) / a0							

Hour meters / timers, electromechanical

Dual function counters	Pulse + time / 2 x time (AC+DC)	HC77
------------------------	---------------------------------	------



The counter combinations HC77 and HC77.55 comprise an hour meter and a totalizer. They can be controlled both simultaneously and separately.

These panel mount counters have a reduced mounting depth. They can be used in many different fields of application.

Optionally with 2 hour meters on request.

Characteristics

- Hour meter and totalizer in one single device.
- Without reset.
- High shock resistance.
- Magnified large figures.
- Protection IP52 front side (optional IP65).
- Data retention in case of power failure.
- UL-approved.

Benefits

- Long service life.
- Optional: counters controlled separately.

Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles, lifts, heating burners.

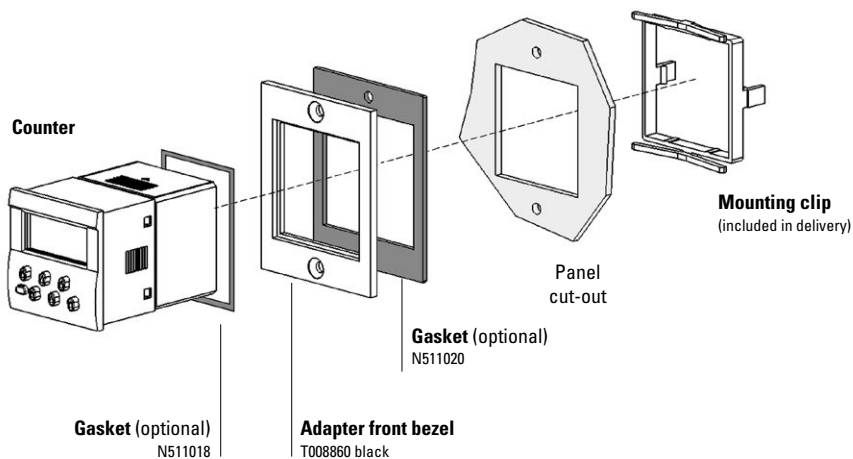
Type series

Description	Type	Options
Dual function counter 48 x 48 mm [1.89 x 1.89"]	HC77	• Housing color: grey Art. no. 3.55X.400.XXX • Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art.-No.: 3.55X.40X.XXX.011
With adapter front bezel 55 x 55 mm [2.17 x 2.17"]	HC77.55	• Separate connections for running time meter and adding counter. This model is available for AC or DC (not mixed) • Adding counter max. 10 Hz • Electrical connection: 2 x cable 2 x 0.5 mm² [AWG20], NYFAZ, 0.5 m [1.64'] (hour meter cable red/black, adding counter grey cable) Art. no. 3.55X.40X.XXX.060 • Sealed window (IP65 front side) with: - Screw terminal Art. no. 3.55X.40X.XXX.419 - Flat pin 0.8 x 6.3 mm [0.031 x 0.25"] Art. no. 3.55X.40X.XXX.062 - Separated connections (cable) Art. no. 3.55X.40X.XXX.061 • Counter combination with 2 hour meters 10 ... 30 V DC - 2 x cable 2 x 0.5 mm² [AWG20] Art. no. 3.554.401.351.060 - Spring-type terminal on request
Order information:		
Art. no. (for special voltages etc. indicate exact model, voltage and frequency e.g. HC77, 120 V AC, 60 Hz)		

Hour meters / timers, electromechanical

Dual function counters	Pulse + time / 2 x time (AC+DC)	HC77
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Accessories / Mounting examples



		Type / size	Description		Order no.	suitable gasket
Adapter front bezel		55 x 55 mm [2.17 x 2.17]	for cut-out 50 x 50 mm [1.97 x 1.97"] or ø 50,5 mm [1.99"] to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black	T008170 T008171	N511017
		55 x 55 mm [2.17 x 2.17]	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008853	N511004
		60 x 75 mm [2.36 x 2.95]	for cut-out 50 x 50 mm [1.97 x 1.97"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	T008860	N511020
		72 x 72 mm [2.83 x 2.83]	for cut-out 68 x 68 mm [2.68 x 2.68"] to cut-out 45 x 45 mm [1.77 x 1.77"]	grey black Mating clip	T008176 T008177 T009420	N511016
		ø 72 mm [2.83]	for cut-out ø 60 mm [2.36"] to cut-out 45 x 45 mm [1.77 x 1.77"]	black	N510226	—
Gasket counter			48 x 48 mm (for installation in adapter front bezel)		N511018	

Hour meters / timers, electromechanical

Dual function counters	Pulse + time / 2 x time (AC+DC)	HC77
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Technical data

Electrical characteristics

Electrical connection	screw terminal (tightening torque max. 0.8 Nm)	
Power consumption	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz	approx. 1.43 VA
	187 ... 264 V AC, 50 Hz	approx. 3.0 VA
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V
	DC	10 ... 30/36 ... 80/100 ... 130 V
On time	100 %	
Count mode	adding	
Accuracy	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
Reset	no reset	
Device safety	designed to protection class	EN 61010 part 1 2
	application area	pollution level 2

General technical data

Operating indicator of the running time meter	AC	fast rotating wheel with red dashes: 99999.99 h
	DC	1/100 h display turns continuously by 1 digit in 36 s: 99999.99 h
Height of figures	4 x 1.7 mm [0.16 x 0.067"] optical	
Color of figures	hour meter	hour: white on black decimal: red on black
	pulse counter	white on black
Operating temperature	-15 °C ... +50 °C [+5 °F ... +122 °F] (non-condensing)	
Relative humidity at +30 °C [+86 °F]	≤ 80 % (non-condensing)	
Altitude	up to 2000 m [6562']	
Mounting position	any	

Mechanical characteristics

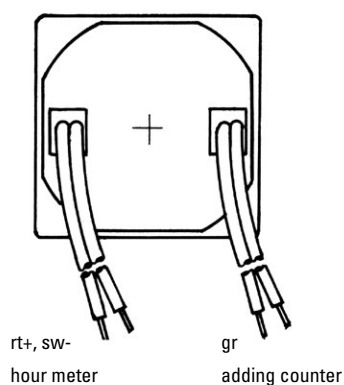
Protection	IP52 (front side) when built in	
Housing color	black (standard)	
Weight	HC77	65 g [2.29 oz]
	plug in frame 55	8 g [0.28 oz]
	plug in frame 72	13 g [0.46 oz]

Approvals

UL compliant in accordance with	File no. E128604	
CE compliant in accordance with	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU
	Low Voltage Directive	2014/35/EU

Terminal assignment

Counter with separate connections (rear view)

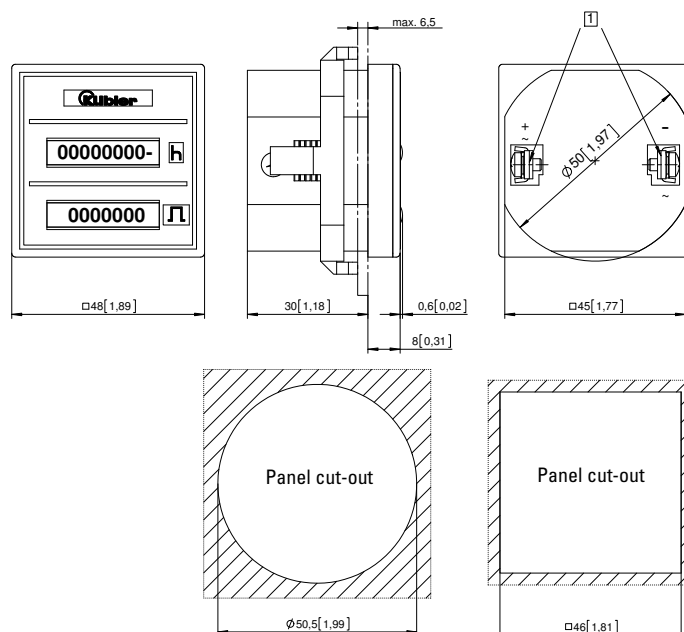


Hour meters / timers, electromechanical

Dual function counters	Pulse + time / 2 x time (AC+DC)	HC77
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Dual function counter 48 x 48 [1.89 x 1.89"]

Type HC77

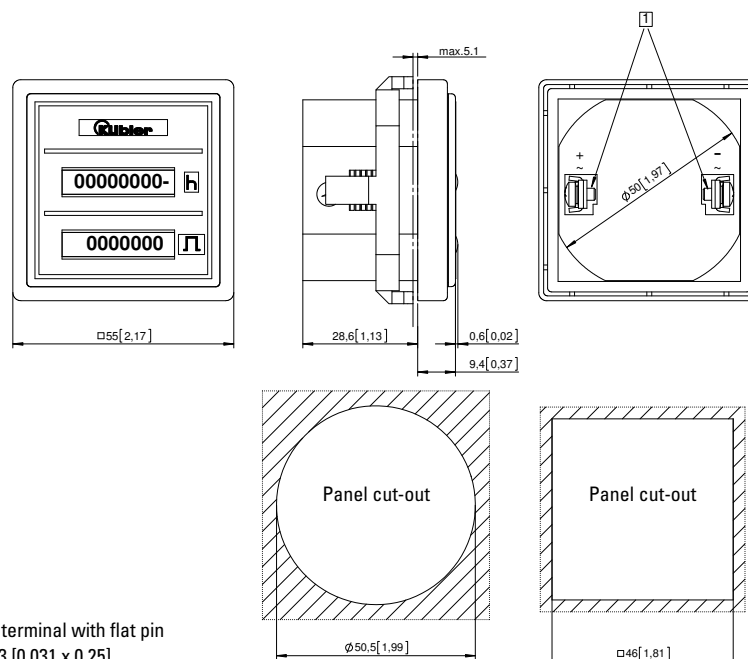


1 Screw terminal with flat pin
0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.	10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC77	7/8 digits	AC (50 Hz)			3.550.401.071		3.550.401.072	3.550.401.074	3.550.401.075 1)
	7/8 digits	AC (60 Hz)			3.550.401.081		3.550.401.082	3.550.401.084	3.550.401.085
	7/8 digits	DC		3.550.401.351 1)		3.550.401.353		3.550.401.381	
Color of housing grey:			Art. no.	3.550.400.XXX					

Dual function counter 48 x 48 [1.89 x 1.89"]
with adapter front bezel 55 x 55 [2.17 x 2.17"]

Type HC77.55



1 Screw terminal with flat pin
0.8 x 6.3 [0.031 x 0.25]

Type	Display	Voltage	Art. no.	10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC77.55	7-8 digits	AC (50 Hz)			3.551.401.071		3.551.401.072	3.551.401.074	3.551.401.075
	7/8 digits	AC (60 Hz)			3.551.401.081		3.551.401.082	3.551.401.084	3.551.401.085
	7/8 digits	DC		3.551.401.351		on request		3.551.401.381	
Color of housing grey:			Art. no.	3.551.400.XXX					

Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Standard counters	4 digits with reset (AC+DC)	Bk14
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The standard totalizers Bk14 (with manual reset) boast a robust construction despite their small size.

They are ideal for use in harsh industrial environments.

Characteristics

- 4-digit totalizer with manual reset.

Benefits

- Very long service life (200 million pulses).

Applications

General quantity counting, time, charge and performance metering.

Type series

Description	Type	Order information
Panel mount with 2 mounting holes	Bk14.11	· Art. no.
Panel mount for clip mounting	Bk14.21	· At different voltages, please give type, voltage, kind of voltage and series e.g.: Bk14.21, 12 V AC, type a

Technical data

Electrical connection	tinned round pins ø 1.6 mm [0.063"] with push on connectors
Rated voltage	type 0/I/a 12 / 24 / 48 / 115 / 230 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %
Color of counter	grey
Height of figures	approx. 2 x 4 mm [0.079 x 0.16"]
Color of figures	white on black
Counting mechanism shaft	stainless steel
Relative humidity at +30 °C [+86 °F]	≤ 80 % (non-condensing)
Altitude	up to 2000 m [6562']
Mounting position	any
Operating life	approx. 200 x 10 ⁶ pulses
Protection	IP40 (front side)
Weight	70 g [2.47 oz]
Test voltage	2000 V ~ effective, acc. to VDE 0435
Vibration resistance	3 g up to 10 Hz 6 g up to 15 Hz independent of position 10 g 20 - 300 Hz
Device safety	designed to EN 61010 part 1 protection class 2 application area pollution level 2

Options

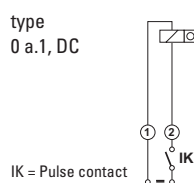
- key locking reset special key (order code "vs", e.g. Bk14.11 vs)
- housing color black
- higher counting speed
- also with flying leads

Approvals

CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

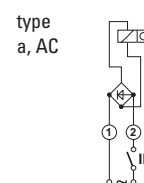
Connection diagram

type
0 a.1, DC



IK = Pulse contact

type
a, AC



Pulse counters, electromechanical

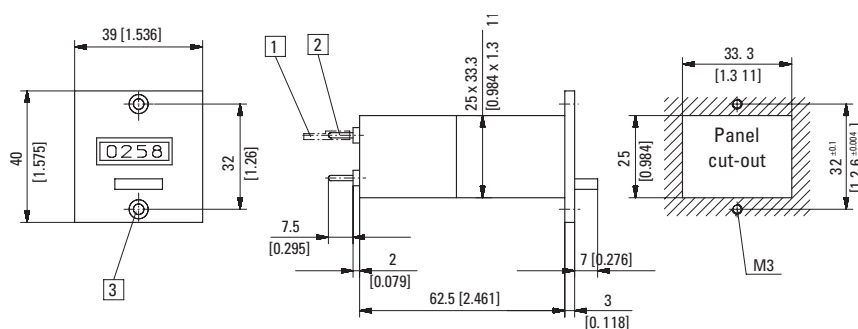
Standard counters	4 digits with reset (AC+DC)	Bk14
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Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10 °C ... +60 °C [+14 °F ... +140 °F]
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10 °C ... +60 °C [+14 °F ... +140 °F]
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	—	-10 °C ... +55 °C [+14 °F ... +131 °F]

Panel mount with 2 mounting holes

4 digits, with reset

Type Bk14.11



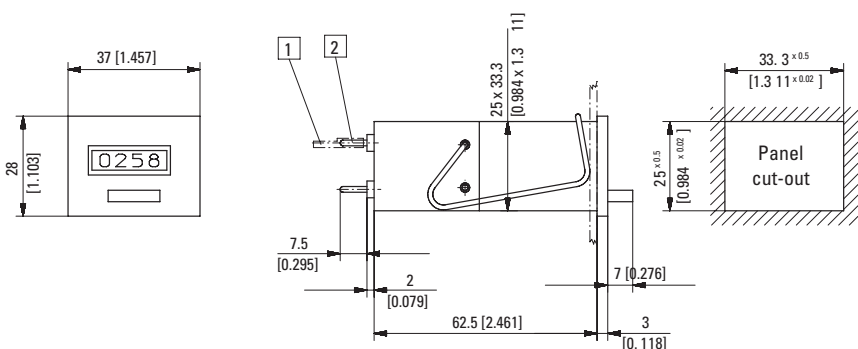
1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 Countersinking Af3 DIN 74

Type	Voltage	Display	Art. no.				
			12 V	24 V	115 V	230 V	
Bk14.11	DC (10 Hz) / 0	4 digits	1.180.110.012	1.180.110.013			
	DC (25 Hz) / 1		1.180.110.032	1.180.110.033			
	AC (18 Hz) / a			1.180.110.061	1.180.110.064	1.180.110.066	

Panel mount for clip mounting

4 digits, with reset

Type Bk14.21



1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned

Type	Voltage	Display	Art. no.				
			12 V	24 V	115 V	230 V	
Bk14.21	DC (10 Hz) / 0	4 digits	1.180.210.012	1.180.210.013			
	DC (25 Hz) / 1		1.180.210.032	1.180.210.033			
	AC (18 Hz) / a			1.180.210.061	1.180.210.064	1.180.210.066	

Pulse counters, electromechanical

Standard counters

6 or 8 digits with/without reset (AC+DC)

B16 / B18



The standard totalizers B16 (with manual reset) and B16, B18 (without reset) offer a robust construction.

They are ideal for use in harsh industrial environments as individual counters or as plug-in types in combination with additional B, BVa, HB or HVa counters.

Characteristics

- B16.x1: 6-digit totalizer with manual reset.
- B16.x0 and B18.x0: 6- and 8-digit totalizers without reset.
- Counters without front bezel fit into bezels F1B and F2B and can be combined in RM 50 x 25 mm with socket 945.2.
- Very long service life (200 million pulses).

Benefits

- Can be combined with preset counters BVa and HVa, as well as with timer HB.
- Can be upgraded using various front covers to protect against dust, dirt and humidity – reset can be locked out.

Applications

General quantity counting, piece counting, event counting, timing.

Type series

Description

Counter without front bezel, rear mounting, plugs into socket box 945.2 and frontbezel F1

Panel mount, front bezel size no. 1 with 2 mounting holes

Panel mount, for clip mounting

Panel mount, front bezel size no. 3 with 2 mounting holes

6 digits
without reset

8 digits
without reset

6 digits
with reset

Order information

- Art. no.
- For special voltages, please give type, voltage, kind of voltage and series e.g.: B16.31, 4.5 V DC, 0 or B18.00, 48 V AC, a

–	B18.00	B16.01
B16.10	B18.10	B16.11
B16.20	B18.20	B16.21
B16.30	B18.30	B16.31

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B16 / B18
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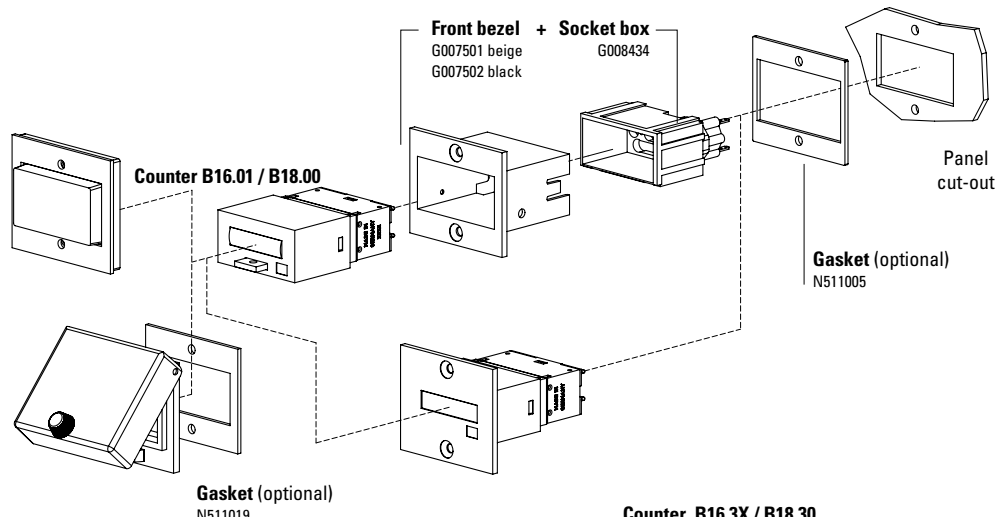
Accessories / Mounting examples

Sealing cover

G008300 grey
G008301 black

alternatively

only in conjunction with
front bezel
54 x 29 mm F1B or
B16.3X / B18.30



Transparent cover

F1B N003002 lockable

Gasket (optional)
N511019

Counter B16.3X / B18.30

		Type / size	Description		Order no.	suitable gasket
Front bezel		F1B	for 1x counter B16.01 or B18.00 for cut-out 54 x 29 mm [2.13 x 1.14"] (only in conjunction with socket box G008434)	beige black	G007501 G007502	N511005
		F2B	for 2x counter B16.01 or B18.00 for cut-out 54 x 54 mm [2.13 x 2.13"] (only in conjunction with 2 x socket box G008434)	beige black	G007503 G007504	N511003
Socket box		945.2	for plug-in connection in front bezel F1B	black	G008434	—
Sealing cover IP65		K1	for counter B1x.3x or B1x.0x in conjunction with front bezel F1B	transp. /grey transp. /black	G008300 G008301	—
		K2	only in conjunction with front bezel F2B (for 2x counter B16.01 / B18.00)	transp. /grey transp. /black	G008302 G008303	
Transparent cover IP65		1 Dv	cover lockable for counter B1x.3x or for counter B1x.0x in conjunction with front bezel F1B	transp. /black	N003002	N511019
		2 Dv	cover lockable only in conjunction with front bezel F2B	transp. /black	G008143	
		2 Dvs	cover key lockable only in conjunction with front bezel F2B	transp. /black	G008153	
Gasket counter			56 x 40 mm [2.20 x 1.57"] 53 x 28 mm [2.09 x 1.10"] 60 x 50 mm [2.36 x 1.97"]	B16.1 / B18.1 B16.2 / B18.2 B16.3 / B18.3	N511045 N511015 N511019	
Mounting frame		cut-out 50 x 25 mm [1.97 x 0.98"]	via adapter T008180 for snap-on mounting on 35 mm [1.38"] top-hat DIN rail	chromated	G300004	—
Enclosure blind		48 x 24 mm [1.89 x 0.94"]	for cut-out 50 x 25 mm [1.97 x 0.98"], for counter 53 x 28 mm [2.09 x 1.10"]	black	T005753	—
DIN rail mount		SR 1	for snap-on mounting on 35 mm [1.38"] top-hat DIN rail		G300000	
		SR 2	for 2x B16 / B18		G300001	

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B16 / B18
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Technical data		
Electrical connection	count mechanism	pin $\varnothing$ 1.6 mm [0.063] with push on connector for flying leads 0.5 ... 1.0 mm ²
	socket box	flat pin 0.8 x 2.8 mm [0.032 x 0.11"]
Rated voltage	type 0 / 1 / a	12 / 24 / 48 / 115 / 230 V DC $\pm$ 10 % 24 / 48 / 115 / 230 V AC $\pm$ 10 %
Color of counter		grey
Height of figures	B16	2 x 4.5 mm [0.079 x 0.18]
	B18	2 x 4 mm [0.079 x 0.16]
Color of figures		white on black
Count mechanism shaft		stainless steel
Relative humidity at +30 °C [+86 °F]		$\leq$ 80 % (non-condensing)
Altitude		up to 2000 m [6562']
Mounting position		any
Operating life		approx. 200 x 10 ⁶ pulses
Protection	with reset	IP40 (front side)
	without reset	IP41 (front side)
Weight	without reset	81 g [2.86 oz]
	with reset	83 g [2.93oz]
	socket box	14 g [0.49 oz]
Test voltage		2000 V ~ effective, acc. to VDE 0435
Device safety	designed to protection class	EN 61010 part 1 2
	application area	pollution level 2

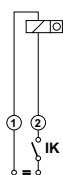
Options	
Color of housing black	Art. no. ref. to type 1.XXX.XX1.XXX
Electr. connection at counter	flat pins 0.8 x 2.8 mm [0.032 x 0.11"] with push on connectors Art. no. 1.XX7.XXX.XXX
Counter with flat pin 6.3 x 0.8 mm [0.25 x 0.032"]	on request 1.XXX.XXX.XXX.011
Screw terminal	Art. no. 1.XXX.XXX.XXX.023
Connection with flying leads	on request 1.XX3.XXX.XXX
Extended temperature range	on request
Key locking reset	grey 1.XXX.XX6.XXX
	black 1.XXX.XX7.XXX
	
	key for reset G050265 (replacement part)

Approvals	
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
Low Voltage Directive	2014/35/EU

Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10 °C ... +60 °C [+14 °F ... +140 °F]
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10 °C ... +60 °C [+14 °F ... +140 °F]
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	—	-10 °C ... +55 °C [+14 °F ... +131 °F]

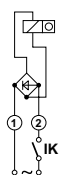
Connection diagram

type
0 a.1, DC



IK = Pulse contact

type
a, AC



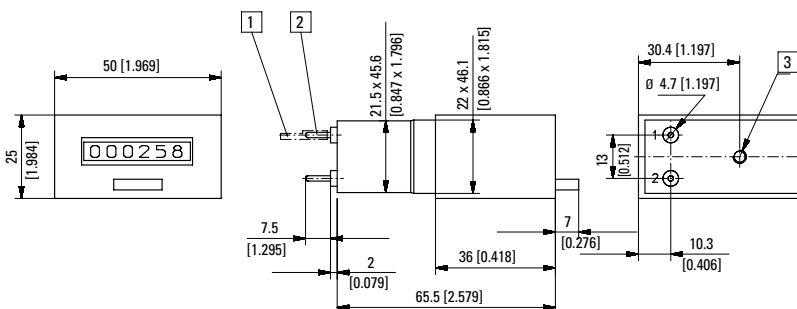
Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B16 / B18
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Without front bezel, rear mounting

6 digits, with reset

Type B16.01



- 1 Push on connector $\varnothing 1.5$ [0.059], tinned 2 Round pin $\varnothing 1.6$ [0.063], tinned 3 M4, 5 [0.20] deep
Color of housing: beige (standard) – black, Art. no. 1.230.XX1.XXX

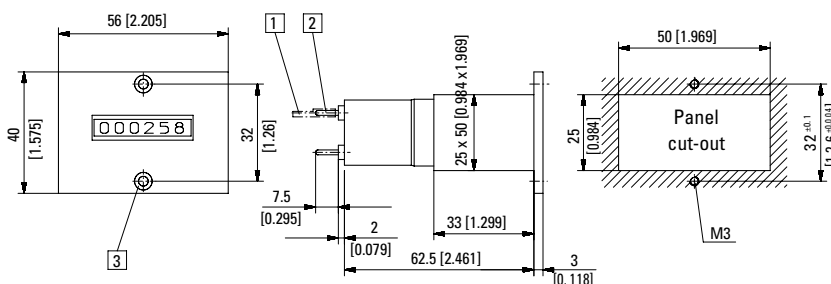
Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B16.01	DC (10 Hz) / 0	6 digits, with reset	1.230.012.012	1.230.012.013		
	DC (25 Hz) / 1		1.230.012.032	1.230.012.033		
	AC (18 Hz) / a			1.230.012.061	1.230.012.064	1.230.012.066

Panel mount with front bezel size no. 1

and 2 mounting holes

6 digits, without reset

Type B16.10



- 1 Push on connector $\varnothing 1.5$ [0.059], tinned 2 Round pin $\varnothing 1.6$ [0.063], tinned 3 Countersinking Af3 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.230.101.XXX

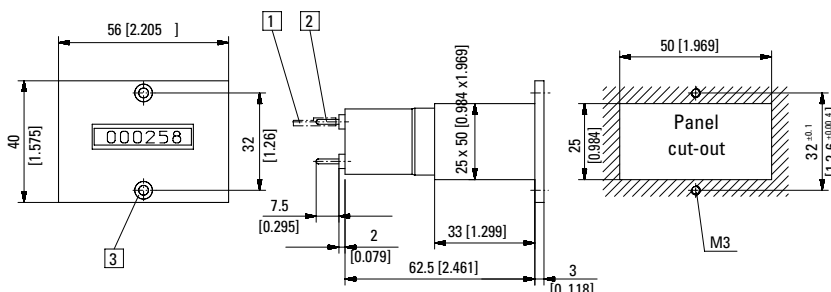
Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B16.10	DC (10 Hz) / 0	6 digits, without reset	1.230.100.012	1.230.100.013		
	DC (25 Hz) / 1		1.230.100.032	1.230.100.033		
	AC (18 Hz) / a			1.230.100.061	1.230.100.064	1.230.100.066

Panel mount with front bezel size no. 1

with 2 mounting holes

6 digits, with reset

Type B16.11



- 1 Push on connector $\varnothing 1.5$ [0.059], tinned 2 Round pin $\varnothing 1.6$ [0.063], tinned 3 Countersinking Af3 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.230.111.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B16.11	DC (10 Hz) / 0	6 digits, with reset	1.230.110.012	1.230.110.013		
	DC (25 Hz) / 1		1.230.110.032	1.230.110.033 ¹⁾		
	AC (18 Hz) / a			1.230.110.061	1.230.110.064	1.230.110.066

Dimensions in mm [inch]

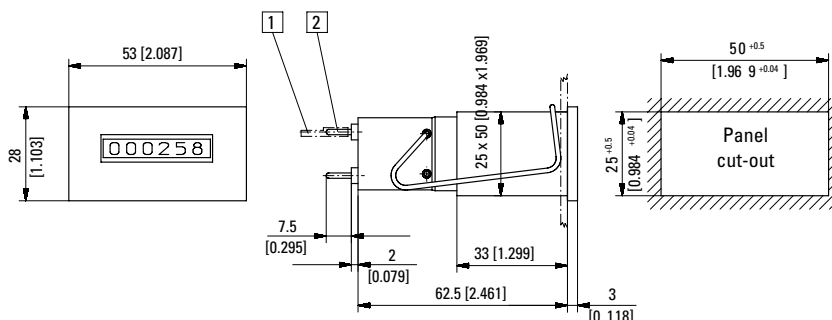
1) Stock types

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B16 / B18
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Panel mount for clip mounting
6 digits, without reset

Type B16.20

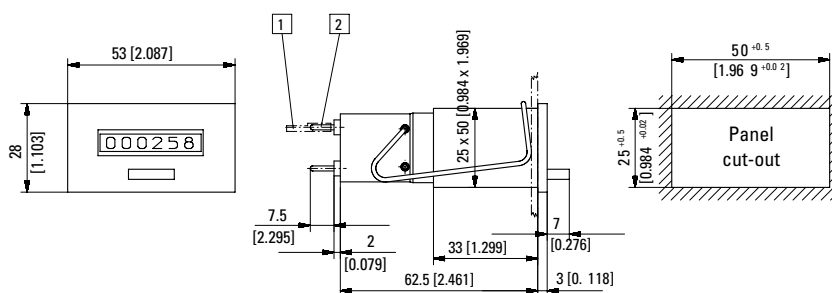


1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned
Color of housing: grey (standard) – black, Art. no. 1.230.201.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	Further stock types:
B16.20	DC (10 Hz) / 0	6 digits, without reset	1.230.200.012	1.230.200.013			1.230.201.016 ¹⁾ 1.237.201.066 ¹⁾
	DC (25 Hz) / 1		1.230.200.032	1.230.200.033			
	AC (18 Hz) / a			1.230.200.061	1.230.200.064	1.230.200.066	

Panel mount for clip mounting
6 digits, with reset

Type B16.21

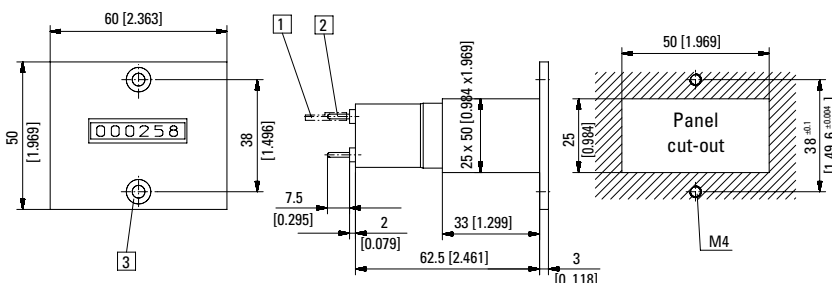


1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned
Color of housing: grey (standard) – black, Art. no. 1.230.211.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
B16.21	DC (10 Hz) / 0	6 digits, with reset	1.230.210.012	1.230.210.013 ¹⁾			
	DC (25 Hz) / 1		1.230.210.032	1.230.210.033 ¹⁾			
	AC (18 Hz) / a			1.230.210.061	1.230.210.064	1.230.210.066 ¹⁾	

Panel mount with front bezel size no. 3
and 2 mounting holes
6 digits, without reset

Type B16.30



1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 Countersinking Am 4 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.230.301.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V	
B16.30	DC (10 Hz) / 0	6 digits, without reset	1.230.300.012	1.230.300.013			
	DC (25 Hz) / 1		1.230.300.032	1.230.300.033			
	AC (18 Hz) / a			1.230.300.061	1.230.300.064	1.230.300.066	

Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Standard counters

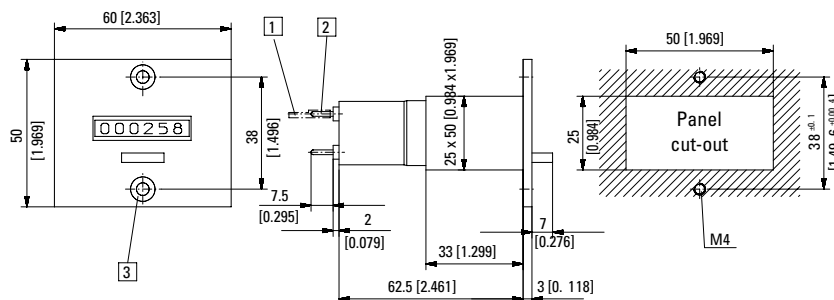
6 or 8 digits with/without reset (AC+DC)

B16 / B18

Panel mount with front bezel size no. 3 and 2 mounting holes

6 digits, with reset

Type B16.31



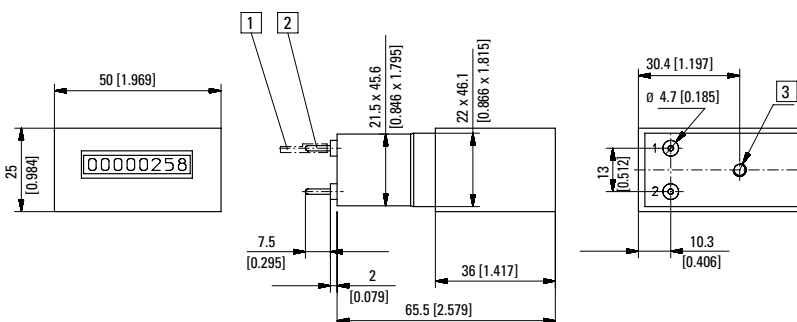
1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 Countersinking Bf 4 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.230.111.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B16.31	DC (10 Hz) / 0	6 digits,	1.230.310.012	1.230.310.013		
	DC (25 Hz) / 1	with reset	1.230.310.032	1.230.310.033		
	AC (18 Hz) / a			1.230.310.061	1.230.310.064	1.230.310.066

Without front bezel, rear mounting

8 digits, without reset

Type B18.00



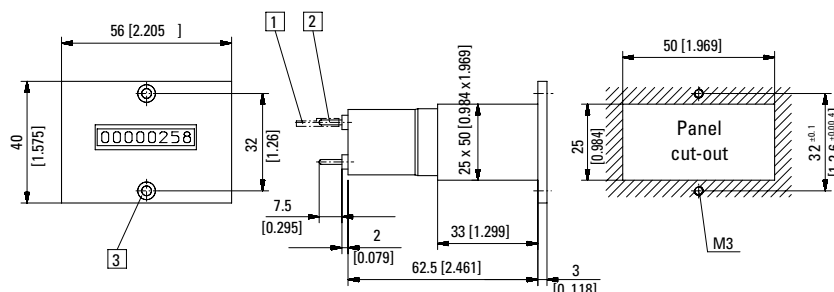
1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 M4, 5 [0.20] deep
Color of housing: beige (standard) – black, Art. no. 1.260.XX1.XXX

Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B18.00	DC (10 Hz) / 0	8 digits,	1.260.002.012	1.260.002.013		
	DC (25 Hz) / 1	without reset	1.260.002.032	1.260.002.033		
	AC (18 Hz) / a			1.260.002.061	1.260.002.064	1.260.002.066

Panel mount with front bezel size no. 1 and 2 mounting holes

8 digits, without reset

Type B18.10



1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 Countersinking Af3 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.260.101.XXX

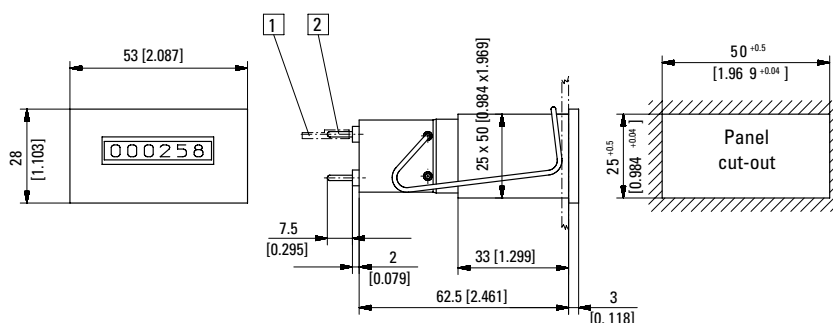
Type	Voltage	Display	Art. no. 12 V	24 V	115 V	230 V
B18.10	DC (10 Hz) / 0	8 digits,	1.260.100.012	1.260.100.013		
	DC (25 Hz) / 1	without reset	1.260.100.032	1.260.100.033		
	AC (18 Hz) / a			1.260.100.061	1.260.100.064	1.260.100.066

Dimensions in mm [inch]

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B16 / B18
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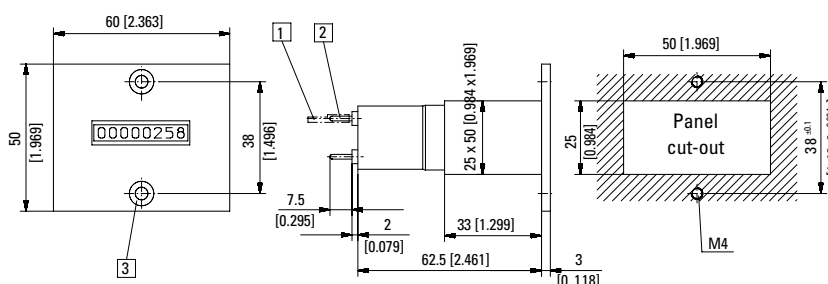
Panel mount for clip mounting
8 digits, without reset
Type B18.20



1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned
Color of housing: grey (standard) – black, Art. no. 1.260.201.XXX

Type	Voltage	Display	Art. no.				
			12 V	24 V	115 V	230 V	
B18.20	DC (10 Hz) / 0	8 digits, without reset	1.260.200.012	1.260.200.013			
	DC (25 Hz) / 1		1.260.200.032	1.260.200.033			
	AC (18 Hz) / a			1.260.200.061	1.260.200.064	1.260.200.066	

Panel mount with front bezel size no. 3 and 2 mounting holes
8 digits, without reset
Type B18.30



1 Push on connector $\varnothing$ 1.5 [0.059], tinned 2 Round pin $\varnothing$ 1.6 [0.063], tinned 3 Countersinking Am 4 DIN 74
Color of housing: grey (standard) – black, Art. no. 1.260.301.XXX

Type	Voltage	Display	Art. no.				
			12 V	24 V	115 V	230 V	
B18.30	DC (10 Hz) / 0	8 digits, without reset	1.260.300.012	1.260.300.013			
	DC (25 Hz) / 1		1.260.300.032	1.260.300.033			
	AC (18 Hz) / a			1.260.300.061	1.260.300.064	1.260.300.066	



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