

Accessories

Our counter program is completed by a wide range of accessory modules.

These modules give you the chance to resolve issues which actually go beyond just counting.

Typical applications:

Pulse scaler:

- Frequency divider
- Pulse shaper
- A scaler for slow PLC inputs
- Prescaler

Pulse amplifier:

- Level adapting, e.g. TTL to 24 VDC
- Amplifier for electro-mechanical counters
- Modules, bezels and protective housings
- As an extension of the 400 module system

Measuring wheels:

- Conversion of lengths to rotations
- Positioning
- Cutting and length registration

Stroke Levers:

- for mechanical stroke lever counter applications

Accessories



Type	651 Pulse Scaler DIN-rail	654 Pulse Amplifier	Contin.-Duty Module for Electrical Reset	Reset Module for Preset Counters
Features	<ul style="list-style-type: none"> ■ Programmable pulse scaling factor up to 2047:1 ■ NAMUR generator input ■ DIN-rail attachment ■ PNP transistor output ■ Can be used as pulse shaper 	<ul style="list-style-type: none"> ■ PNP or NPN input ■ PNP or NPN output ■ For electromechanical or electronic counters ■ For use as amplifier or level adapter ■ DIN-rail mounting 	<ul style="list-style-type: none"> ■ 100 % Continuous-duty module for electrical reset for preset counters 446, 447, 486, 487 and preset time counters 489; with electrical reset ■ Plugs into modular system 400 ■ Integrated connection box 	<ul style="list-style-type: none"> ■ Automatic reset for preset counters 446,447,486,487, and preset time counter 489, with electrical reset ■ Plugs into modular system 400 ■ Integrated connection box
Technical Data				
Dimensions (mm) (Width x Height x Depth)	22.6 x 68.5 x 48	22.6 x 68.5 x 48	51 x 51 x 121 (with plugged-in counter) 50 x 50	51 x 51 x 121 with plugged-in counter 50 x 50
Front panel cutout (mm)				
Programming	Via DIP switches			
Protection	IP 20	IP 50	IP 00	IP 00
Supply voltage	10-30 VDC	10-30 VDC	24 VDC; 24 VAC; 115 VAC or 230 VAC	24 VDC; 24 VAC; 115 VAC or 230 VAC
Inputs				
Input control	PNP or NAMUR	PNP/NPN	Depending on version	Depending on version
Frequency/signal length	5 kHz / 30 Hz	1 MHz	15 ms (minimum)	
Scaling factor	Up to 2047:1			
Reset input	PNP			
Output				
Output	PNP transistor 0.2 ms - 2 s; djustable depending on version 100 mA	PNP/NPN transistor 300 mA	Changeover contact; 250 ms Max. 220 V	Changeover contact, max. 220 V, DC max. 1 per s AC max. 1 per 2 s
Accessories				
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Accessories



Type	Panel Frame	Adapter Panel Frame	Protective Cases	Sealing Covers
Features	<ul style="list-style-type: none"> ■ Integrated panel frame for modular system 400 ■ Sizes 1-5 ■ Combines with components of the modular system 	<ul style="list-style-type: none"> ■ Adapter panel frames for tico and signo DIN counters ■ To adapt to different DIN sizes and cutout dimensions 	<ul style="list-style-type: none"> ■ Protective case with screw-type terminals ■ Screw or clamp mounting ■ Version with translucent cover is available 	<ul style="list-style-type: none"> ■ Sealing covers for modular system 400 ■ Easy to install ■ Protection class IP 65/66
Technical Data Dimensions (mm) (Width x Height x Depth)	60 x 50 x 47 size 1 60 x 75 x 47 size 2 60 x 100 x 71 size 3 60 x 125 x 71 size 4 72 x 144 x 71 size 5	60 x 50 to 48 x 24 72 x 72 to 48 x 48 60 x 75 to 48 x 48 125 x 60 to 96 x 48 60 x 75 to 2 pieces 48 x 24 60 x 100 to 48 x 24 and 48 x 48	63 x 38 x 99 for size 1 63 x 63 x 99 for size 2 60 x 50 x 85 for size 1 60 x 75 x 75 for size 2	For 60 x 50 size 1 and 60 x 75 size 2 Front panels
Front panel cutout (mm)	54 x 29.5 size 1 54 x 54 size 2 55 x 82 size 3 55 x 106 size 4 54 x 132 size 5	55 x 29.2 size 1 68 x 68 DIN 54 x 54 size 2 106 x 55 size 4 54 x 54 size 2 55 x 82 size 3	55 x 29.5 size 1 55 x 55 size 2	
Protection class			IP 52 with translucent cover	IP 65/66
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Accessories



Further Accessories

Type	Case 680	Measuring Wheels	Stroke Levers	Further Accessories
Features	<ul style="list-style-type: none"> ■ For DIN-rail mounting or attachment by means of screws ■ Case made of insulating material ■ Installation of counters of the modular system 400 in protective case size 2 	<ul style="list-style-type: none"> ■ Different, practice-oriented circumference versions ■ Different shaft diameters ■ Surfaces adapted to the material measured 31.5-38 x 26.5 x 75 	<ul style="list-style-type: none"> ■ Different stroke lever shapes ■ Adapted to individual fields of application ■ Compatible with mechanical stroke counters 	<ul style="list-style-type: none"> ■ Blind caps ■ Spark quenching ■ Mounting frames for Type 225 and 250 ■ Flat connector ■ Flat steel bar for modular system 400
Technical Data Dimensions (mm) (Width x Height x Depth)	65 x 110 x 136	Depending on version	Depending on version	
Page	282	283	286	

Pulse Scaler

for DIN Rail Attachment



PROGRAMMING

- Programmable pulse scaling factor up to 2047:1
- NAMUR generator input
- PNP transistor output
- Max. pulse frequency 5 kHz
- 35 mm DIN rail attachment

The divisor is set in binary code by means of DIL switches. To obtain a divisor value of 100, e.g. switches S7, S6, and S3 must be set (100 = 64 + 32 + 4).

Programming the signal duration

Ordering code 0 651 109: 0.2 ... 1 ms (jumper 2 open) or 20 ... 100 ms (jumper 2 closed) Ordering code 0 651 114: 1 ... 20 ms (jumper 2 open) or 100 ms ... 2s (jumper 2 closed).



TECHNICAL DATA

Supply voltage V_{op}	10 ... 30 VDC \pm 10 %
Current consumption	< 10 mA
Operating temperature	- 10 ... + 60 °C
Storage temperature	- 20 ... + 70 °C
Electrical connection	screw terminals
Mounting	35 mm DIN rail attachment
Protection class (IEC 144)	IP 50, connections IP 00
Vibro-stability	50 m/s ² acc. to IEC 068-2-6
General design	acc. to DIN VDE 0411

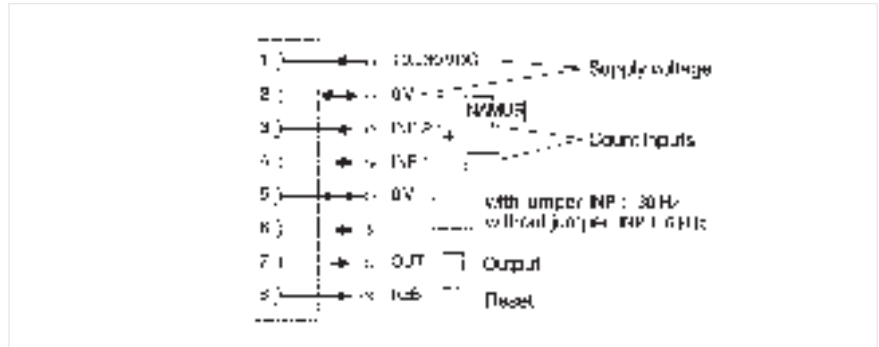
Inputs	
Amplitude thresholds	< 2 V and > 8 V or NAMUR
Active edge	positive or NAMUR
Pulse shape	random (squarewave 1:1 for max. frequency)
Input resistance	approx. 5 k Ω

Count input	
Min. pulse duration	> 100 μ s (5 kHz), 17 ms (30 Hz)
Max. counting frequency	5 kHz or 30 Hz
Control input	
Reset	- external pulse, pulse length > 17 ms - by switching the supply voltage off and on (start-up reset)

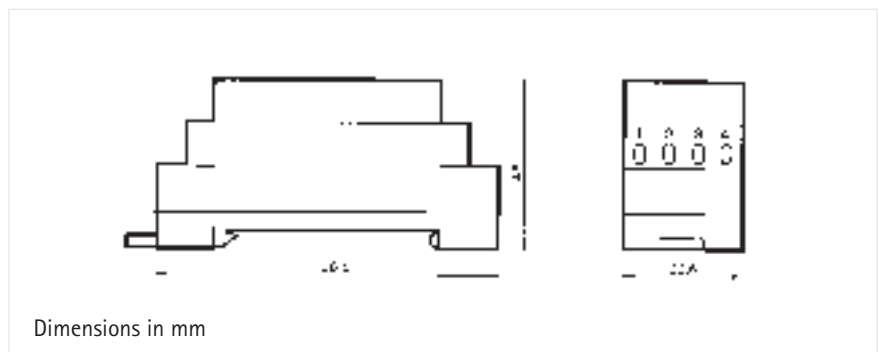
Output	
Signal type	PNP
Signal duration	Ordering code 0 651 109, 0.2 ... 1 ms or 20 ... 100 ms Ordering code 0 651 114, 1 ... 20 ms or 100 ms ... 2 s
Switching voltage	approx. V_{op}
Switching current	100 mA

Technical data

CONNECTION DIAGRAM



DIMENSIONED DRAWING



ORDER INFORMATION

	Setting range of the output impuls	
Input	max. 100 ms	max. 2 s
PNP	0 651 109	--
PNP and NAMUR	0 651 108	0 651 114

Attention:

If Version 0 651 108 or 0 651 114 is operated with the PNP input INP 1, then the NAMUR input INP 2 must be connected to 0 V. The simultaneous use of both inputs is not possible!

Type 654



TYPICAL APPLICATIONS

TECHNICAL DATA

DIMENSIONED DRAWING

Pulse Amplifier for DIN Rail Attachment

- Input NPN or PNP
- Output NPN or PNP
- For electromechanical or electronic counters
- 35 mm DIN rail attachment

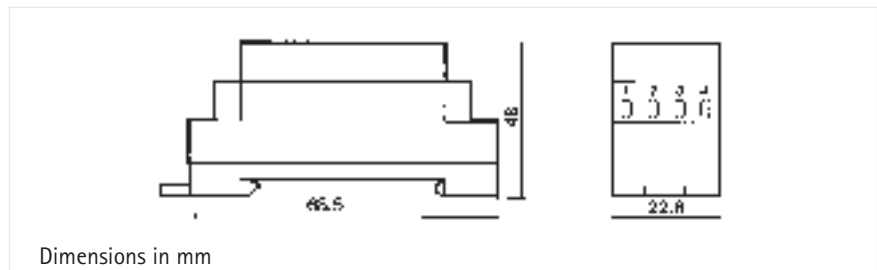
- Pulse amplifier for weak signals
- Inverter when PNP signals are to be converted into NPN signals (or vice versa)

Supply voltage V_{op}	10 ... 30 VDC
Current consumption	= switching current < 300 mA
Residual ripple	< 5 %
Operating temperature	- 10 ... + 50 °C
Storage temperature	- 20 ... + 70 °C
Electrical connection	screw terminals
Mounting	35 mm DIN rail attachment
Mounting position	any
Protection class (IEC 144)	IP 50, connections IP 00

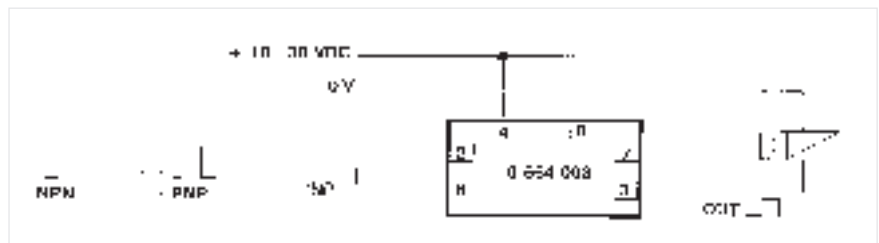
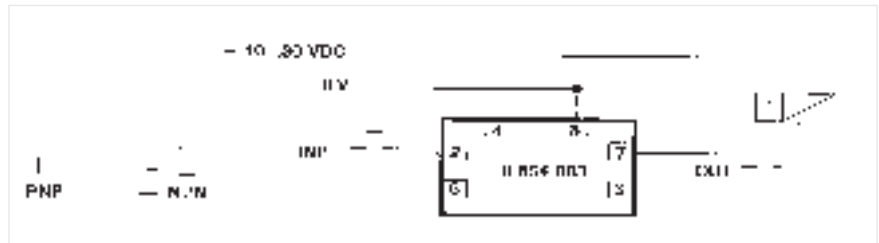
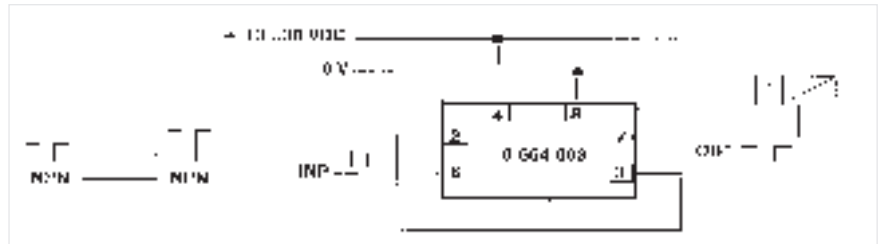
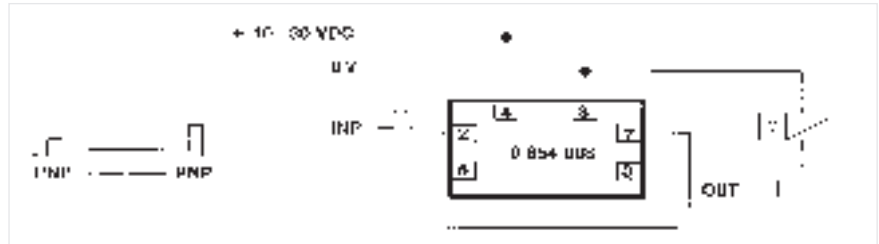
Input	
Amplitude thresholds	> 5.5 VDC or < with ext. resistor
Active edge	PNP or NPN
Pulse shape	random
Input resistance	2.2 kΩ
Min. pulse duration	1 μs
Max. counting frequency	1 MHz

Output	
Signal type	PNP or NPN
Signal duration	= input pulse
Switching voltage	PNP V_{op} (- 1V), NPN 0 V (+ 1 V)
Switching current	max. 300 mA

Note: For actuation of electronic counters an additional load resistor of 1 kΩ must be connected in parallel to the count input



CONFIGURATION EXAMPLES



ORDER INFORMATION

Pulse amplifier Ordering code 0 654 003

Continuous Duty Module for Electrical Reset



- Continuous duty module for preset counters 446, 447, 486, 487 and preset time counter 489
- Plugs into modular system 400
- Integrated connection box

TECHNICAL DATA

Supply voltage V_{op}	acc. to order information
Power consumption	DC version 12 W, AC version 16 VA
Operating temperature	- 10 ... + 50 °C
Electrical connection	AMP connector 0.8 x 2.8 mm
Mounting	modular system 400
Protection class (IEC 144)	IP 00
Maintenance-free operation	1.5×10^6 resets
General design	acc. to DIN VDE 0435

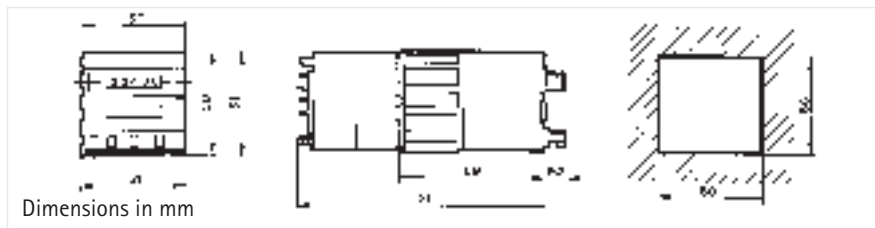
Input

Signal duration	min. 15 ms, max. 100 % duty cycle
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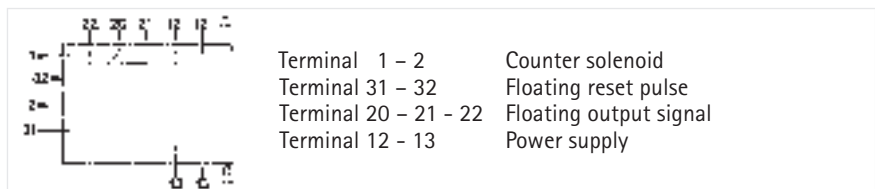
Output

Signal duration	250 ms
Contact type	floating changeover contact
Switching voltage	max. 220 V
Switching current	max. 20 VA/1 A
Reset frequency	DC version max. 1 per 2 s, AC version max. 1 per 3 s

DIMENSIONED DRAWING Continuous duty module with preset counter



CONNECTION DIAGRAM TERMINAL ASSIGNMENT



ORDER INFORMATION

Supply voltage	Ordering code	Supply voltage	Ordering code
24 VDC	1 486 420	115 VAC	1 486 421
24 VAC	1 486 423	220 VAC	1 486 422

Inquire for other voltages

Note: When this module is used, the counter no longer requires a connection box.

Automatic Reset Module for Preset Counters



- Automatic reset for preset counters 446, 447, 486, 487 and preset time counter 489 with electrical reset
- Plugs into modular system 400
- Integrated connection box

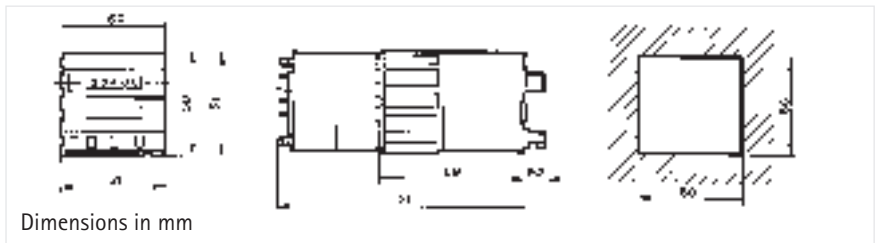
TECHNICAL DATA

Supply voltage V_{op}	acc. to order information
Power consumption	DC version 12 W, AC version 16 VA
Operating temperature	- 10 ... + 50 °C
Electrical connection	AMP connector 0.8 x 2.8 mm
Mounting	modular system 400
Protection class (IEC 144)	IP 00
Maintenance-free operation	1.5 x 10 ⁶ resets
General design	acc. to DIN VDE 0435

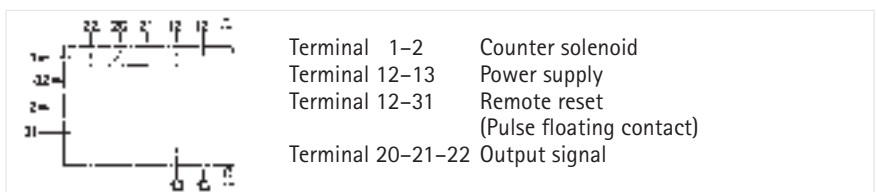
Output

Signal duration	DC version approx. 200 ms, AC version approx. 250 ms
Contact type	floating changeover contact
Switching voltage	max. 220 V
Switching current	max. 20 VA/2.5 A
Reset frequency	DC version max. 1 per s, AC version max. 1 per 2 s

DIMENSIONED DRAWING Automatic reset module with preset counter



CONNECTION DIAGRAM TERMINAL ASSIGNMENT



ORDER INFORMATION

Supply voltage	Ordering code	Supply voltage	Ordering code
24 VDC	1 486 402	115 VAC	1 486 412
24 VAC	1 486 409	220 VAC	1 486 413

Inquire for other voltages

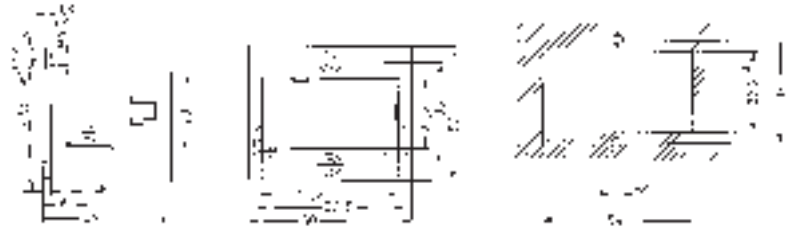
Note: When this module is used, the counter no longer requires a connection box.

Panel Frames for Hengstler Modular System 400



Size 1

Attachment by two countersunk screws M4



Plastic, black
Plastic, grey

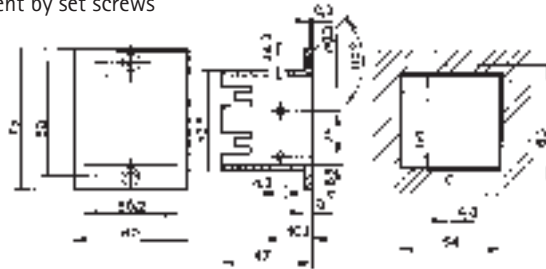
Ordering code 1 405 491
Ordering code 1 405 452

Dimensions in mm



Size 2

Attachment by set screws



Plastic, black
Plastic, grey

Ordering code 1 405 492
Ordering code 1 405 453

Dimensions in mm



Size 3

Attachment by set screws



Die-cast
Textured paint, matt black
silver

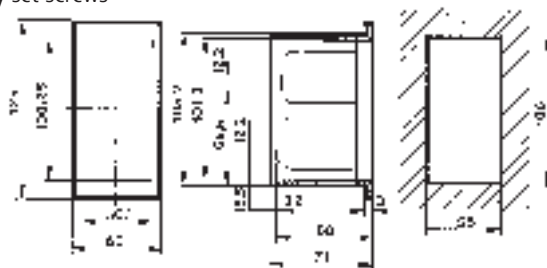
Ordering code 1 405 010
Ordering code 1 405 009

Dimensions in mm



Size 4

Attachment by set screws



Sheet steel
Textured paint, matt black

Ordering code 1 405 093

Dimensions in mm

Panel Frames

"signo" + "tico"



for counters
24 x 48
in, size 1
in front panel

Ordering code 1 405 692



Dimensions in mm



for counters
48 x 48
in DIN cutout
68 x 68

Ordering code 1 405 676

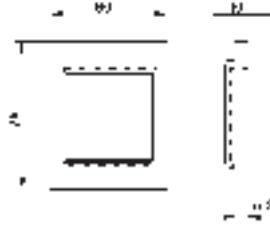


Dimensions in mm



for counters
48 x 48
in, size 2
front panel

Ordering code 1 405 675

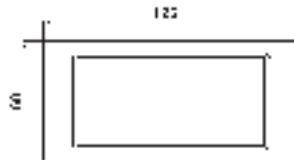


Dimensions in mm



for counters
48 x 96
in, size 4
front panel

Ordering code 1 405 679

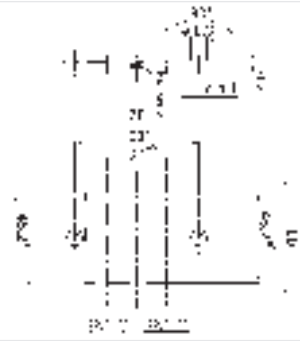


Dimensions in mm

Panel Frames for Hengstler Modular System 400



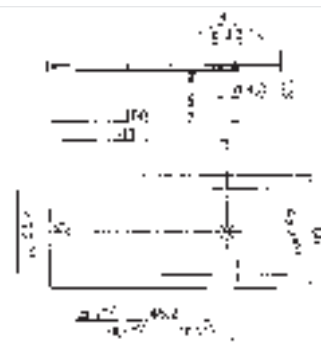
2 counters
24 x 48 mm
in
front panel size 2



Order-Nr. 1 405 696



1 counter 24 x 48 mm
1 counter 48 x 48 mm
in
front panel size 3



Order-Nr. 1 405 693

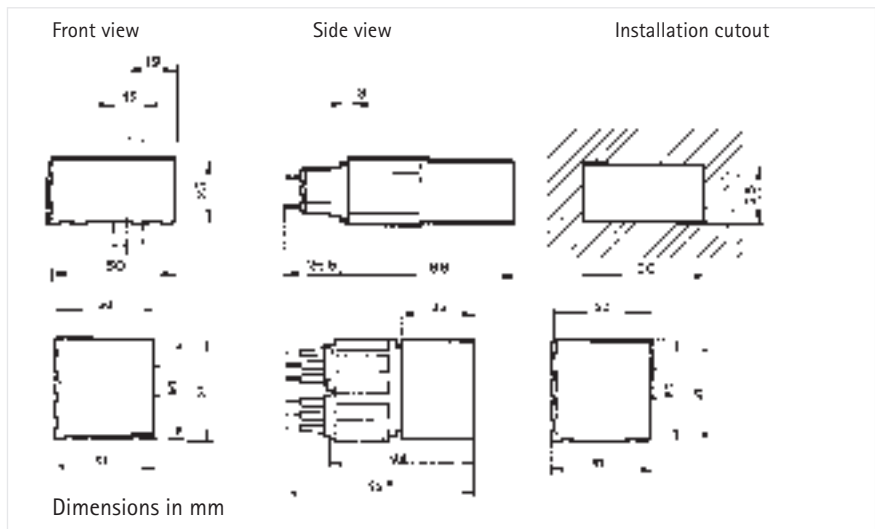


DIMENSIONED DRAWING SIZE 1
Dummy cap with attachment socket



■ For filling a prepared counter cutout

DIMENSIONED DRAWING SIZE 2
Dummy cap with attachment socket



ORDER INFORMATION

Dummy cap size 1	Ordering code 2 651 009
Dummy cap size 2	Ordering code 1 651 018

Protective Cases with Screw Terminal Connection

Size 1



Dimensioned drawing for snap-on attachment

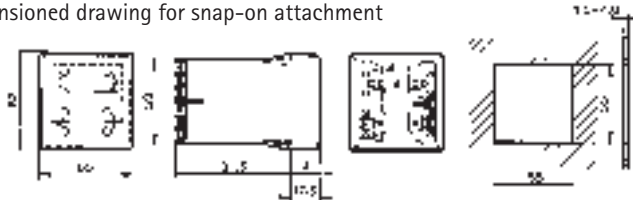


Colour: light grey Ordering code 1 405 588 Spare cover Ordering code 2 405 191*
Colour: black Ordering code 1 405 641 Dimensions in mm

Size 2



Dimensioned drawing for snap-on attachment



Colour: light grey Ordering code 1 405 666 Spare cover Ordering code 2 405 192*
Colour: black Ordering code 1 405 668 Dimensions in mm

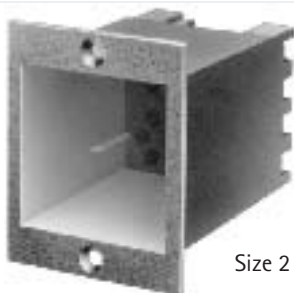
Size 1



Dimensioned drawing for screw attachment

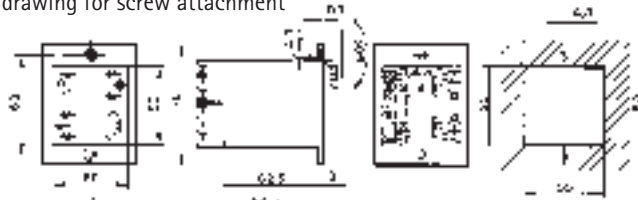


Colour: light grey Ordering code 1 405 562
Colour: black Ordering code 1 405 640 Dimensions in mm



Size 2

Dimens. drawing for screw attachment



Colour: light grey Ordering code 1 405 667
Colour: black Ordering code 1 405 669 Dimensions in mm

* On request

TECHNICAL DATA

Case	fibreglass-reinforced plastic
Transparent cover	see "Accessories - transparent covers"
Mounting	screw or snap-on attachment, dep. on version
Connection	screw terminals on the rear of the case
Protection class (IEC 144)	- screw-mounted case IP 00, with mounted transparent cover: front IP 65, connections IP 00 - case with snap-on attachment: front IP 52, connections IP 00

Sealing Covers • Transparent Covers with Protection to IP 65



Flexible Vestolit sealing cover with metal frame for panel frames or protective cases size 1-2.

The sealing set enables you to operate a counter through the cover.

Parts supplied:

Sealing set including metal frame, cover and retaining screws.

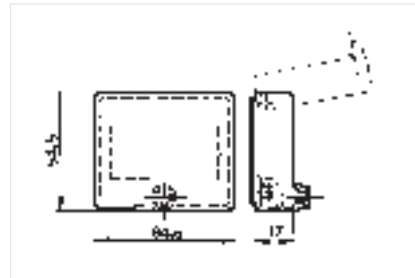


Size 1

for screwed front panel 60 x 50 mm
Ordering code 1 405 615, silver colour

Size 2

for screwed front panel 60 x 75 mm
Ordering code 1 405 404, silver colour
Ordering code 1 405 587, black



Size 1

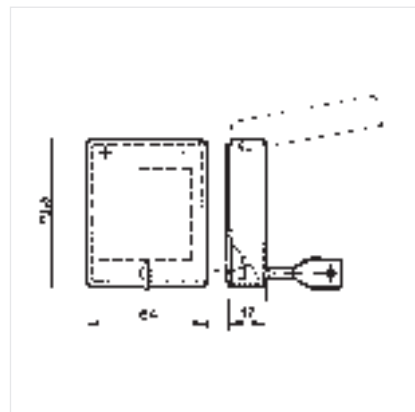
for screwed front panel 60 x 50 mm

with knob

Ordering code 1 405 611

with key lock

Ordering code 1 405 612



Size 2

for screwed front panel 60 x 75 mm

with knob

Ordering code 1 405 613

with key lock

Ordering code 1 405 614

Transparent covers together with the fitting panel frame or protective case offer protection against dust and water from the front for switch-panel incorporation.

Protection class IP 65 acc. to DIN 40 050. Transparent covers are made of makrolon, seals are made of synthetic rubber.

Parts supplied:

Transparent covers including seals.

1 key per unit for versions with lock.

Type 680



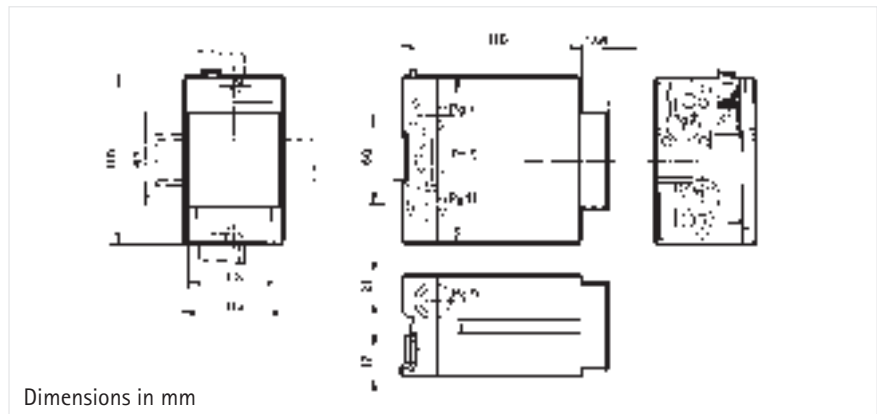
TECHNICAL DATA

Case for Surface Mounting and DIN Rail Attachment

- Attachment by means of 35 mm DIN rail or with screws
- Case made of insulating material
- Installation of counters of the modular system 400 in protective case size 2

Case	ABS plastic
Colour	grey
Resistance to heat	up to 85 °C
Burning properties	VDE 0304 part 3/5.70, degree IIIa
Mounting	- snap-on attachment to 35 mm DIN rail (DIN 46277/DIN EN 5022), lengthwise or crosswise - screw-mounting 2 x M4 or M5
Connection	by cable, cable inlet with PG-cable gland or feed-through

DIMENSIONED DRAWING



ORDER INFORMATION

Case (without counters) Ordering code 1 680 089

Delivery includes case compl. with protective case size 2 (12-way connectors) without counters.

Panel-mount counter 732 in protective enclosure:

Case (without counters) Ordering code 2 680 521 and Ordering code 1 405 675

Measuring Wheels

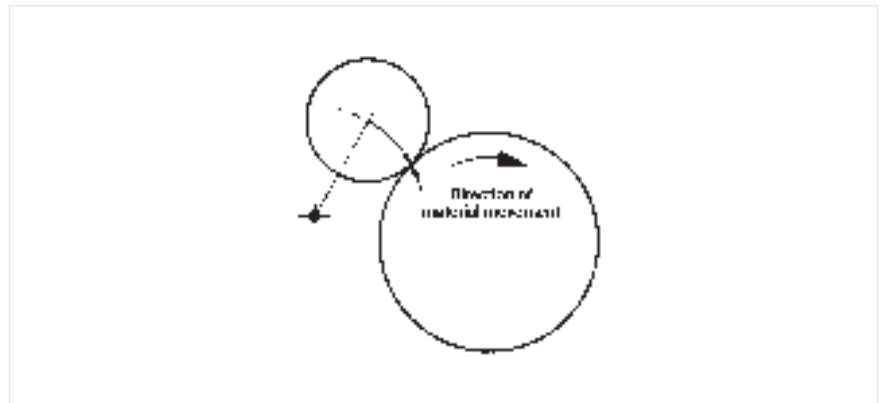
APPLICATION

In order to avoid errors when using measuring wheel actuation, it is important that the slip is kept as low as possible. When choosing a profile (surface structure), special attention must be given to the properties the material being measured, such as elasticity, thickness and interaction resistance. Slippage is also influenced by the width of the contacting measuring wheel, the pressure of

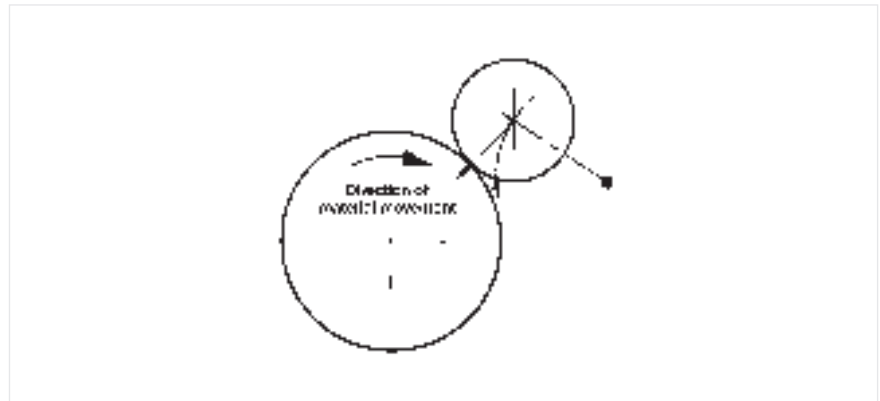
contact, the tensile stress in the material that is being measured and the angle of wrap. The angle of wrap should be as large as possible. Wheel bodies are made of cast metal or plastics (see designation).

The position of the measuring wheel should be chosen such that the material moves away from the bearing of the sensor.

CORRECT MEASURING WHEEL OR PULSE GENERATOR



WRONG MEASURING WHEEL OR PULSE GENERATOR



MEASURING WHEEL CIRCUMFERENCE/ TRANSMISSION RATIO

Use the following measuring wheels for different transmission ratios of counters:

Counter transmission ratio	measuring wheel circumference
500:1	0.2 m (1/5 yd.)
50:1	0.2 m (1/5 yd.)
5:1	0.2 m (1/5 yd.)
2:1	0.5 m (1/2 yd.)
1:2	0.2 m (1/5 yd.)
1:5	0.5 m (1/2 yd.)
1:20	0.2 m (1/5 yd.)

Measuring Wheels

OVERVIEW

Profile 1



1 with rims, aluminium with fine cross knurling
Used e.g. for threads and yarns

Profile 2



2 Rubber profile, glued on
Used e.g. for paper and cardboard, cable measurement, non-greasy metal, fleece, wood (rough or finished), soft and hard plastic materials;
A = soft, highly adhesive rubber coating
B = good-grip, low-wear rubber

Profile 3/4



3 Rubber coating with parallel knurling, vulcanized
Used e.g. for rubber, leather, textiles, floorings, glass

4 Aluminium with parallel knurling
Used e.g. for rubber, soft plastic materials, wood with rough surface, certain textiles

Profile 5



5 With rims, aluminium with parallel knurling
Used e.g. for threads, yarns, ribbons

MEASURING WHEEL circumference/transmission ratio

Profile 6



6 Plastic coated
Used e.g. for wire, greased metals, steel profiles

Measuring Wheels

ORDER INFORMATION Aluminium

PLASTIC

Technical data

Circumf.	Profile	Width of contact surf. mm	Bore \varnothing				
			4.0 mm	6.0 mm	7.0 mm	10.0 mm	
0.2 m	1	4	0 601 014	0 601 015	0 601 017	--	
	2 A	12	0 601 018	--	--	--	
	2 B	12	0 601 118	0 601 048	--	0 601 049	
	2 A	24	0 601 020	--	0 601 092	--	
	2 B	24	--	--	0 601 192	--	
	4	20,5	0 601 023	--	--	--	
	4	20	--	--	0 601 093	--	
	5	16,5	0 601 026	--	0 601 094	--	
	0.5 m	2 A	25	--	--	0 601 050	--
		2 B				0 601 150	0 601 151
3		25	--	--	0 601 059	0 601 156	
4		25	--	--	0 601 121*	0 601 157	
6		25	--	--	0 601 063*	0 601 163	
1/5 yd.		1	4	0 601 034	--	0 601 037	--
	5	16,5	--	--	0 601 096	--	
1 Fuß	2 A	25	--	--	0 601 071	--	
	2 B	25	--	--	0 601 171	--	
0.2 m	1	4	0 601 100	--	--	--	
0.5 m	4	25	--	--	0 601 301	--	
	6	25	--	--	0 601 300	--	

* meets PTB requirements

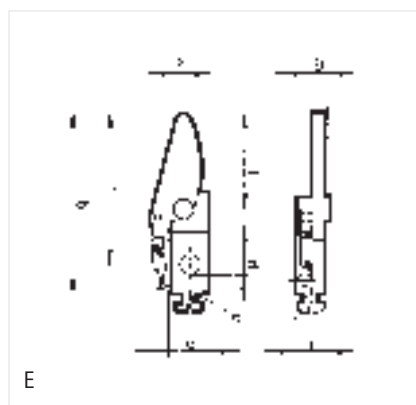
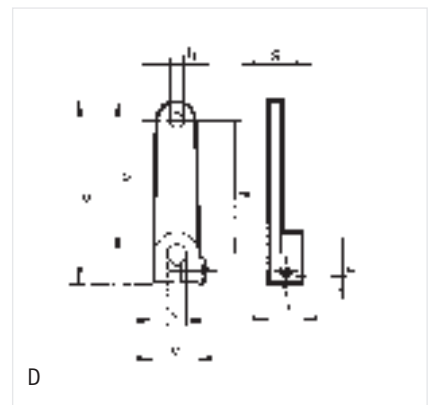
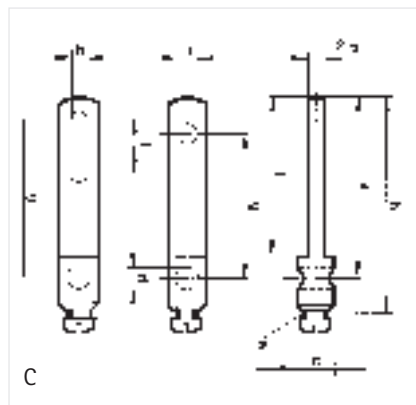
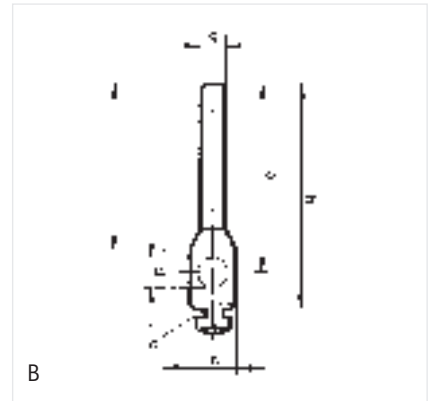
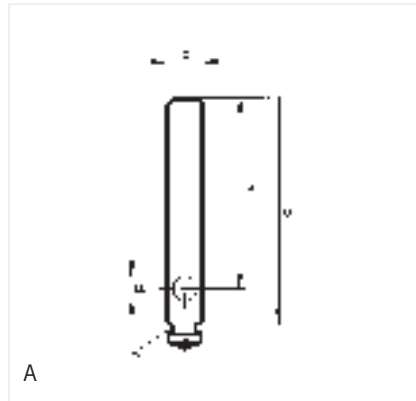
Inquire for other measuring wheels

Stroke Levers

OVERVIEW

This overview shows different kinds of levers available. The stroke levers are not supplied with the counters and must be ordered separately.

A "standard lever" is stated with the order information for mechanical stroke counters.



Stroke Levers

DIMENSION TABLE

Technical data

Ordering code	a	b	c	d	e	f	g	h	i
0 600 003	34	40.5	∅ 8	∅ 5	M 3	29.5	∅ 4	--	--
0 600 005	45	55	∅ 10	∅ 7	M 4	41	∅ 5	--	--
0 600 007	26	31.5	∅ 7	∅ 3	M 2.6	21.2	--	--	--
0 600 009	22	28	∅ 7	∅ 4	M 4	18	18	3	11
0 600 010	28.7	33.7	8	∅ 3	M 2.6	25.4	1.8	2.5	5.5
0 600 012	28.2	33.5	7	∅ 3	M 2.6	17.8	2	10.7	5
0 600 013	28.2	33.5	7	∅ 4	M 4	17.8	2	10.7	5
0 600 026	35.5	41.5	∅ 7	∅ 4	M 4	31.5	∅ 3.5	--	--
0 600 047	27.5	35	7	∅ 4	M 3	24	2.5	2	6
0 600 061	22	28	∅ 7	∅ 4	M 4	18	15	3	--
0 600 090	33	39.5	∅ 8	∅ 5.5	M 4	28.5	∅ 4	--	--
0 600 126	35	41.5	∅ 6	∅ 4	M 4	--	--	--	--

ORDER INFORMATION

Bore ∅ mm	A	B	Shape C	D	E
3	--	--	0 600 007	0 600 010	0 600 012
4	0 600 126	0 600 026	0 600 009*	0 600 047*	0 600 013
4	--	--	0 600 061*	--	--
5	--	0 600 003	--	--	--
5.5	--	0 600 090	--	--	--
7	--	0 600 005	--	--	--

* on request
Inquire for other stroke levers

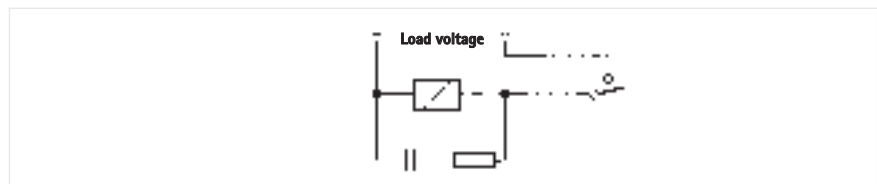
Spark Quenching

Loads operated directly by the counter, such as contactors, solenoids etc., produce a very high inductive voltage when they are switched off. This leads to sparking at the switch contacts and causes contact burning, thus reducing the lifetime or the inte-

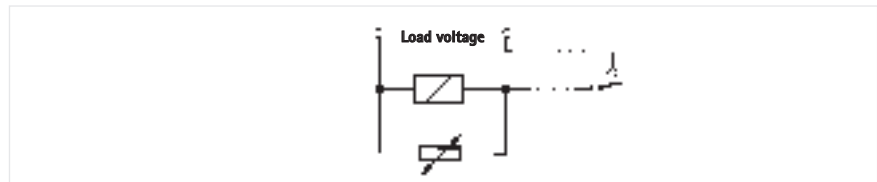
grated relay. Voltage peaks may also cause interfering pulses.

Therefore we recommend to adopt one of the following spark quenching measures for inductive loads.

RC UNIT
For contactors, solenoids etc.



VARISTOR
For small relays



ORDER INFORMATION

RC unit	Ordering code 3 536 801
Varistor	Ordering code 3 540 777

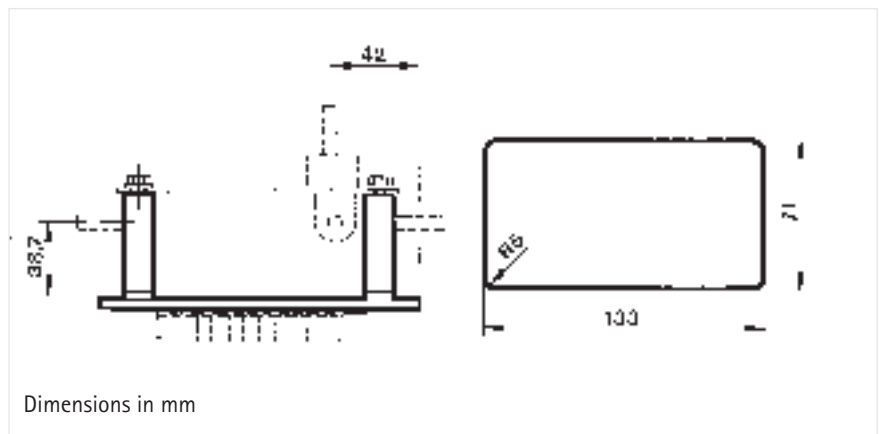
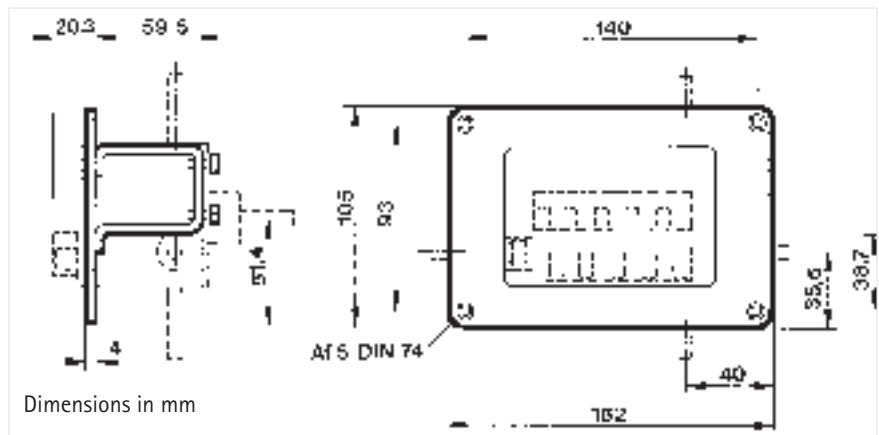
Mounting Frame



DIMENSIONED DRAWING

This mounting frame is designed for the installation of mechanical counters type 225 and 250. The mounting frame is attached by means of four countersunk screws (supplied with the frame). The counter can

easily be installed once the frame is in place. Slide the counter into the mounting frame and fasten to the baseplate from below.



ORDER INFORMATION

Flat connectors

Flat steel bar

Mounting frame for counters type 225 or 250, complete Ordering code 1 250 056

Flat connector 2.8 x 0.8 mm for electrical connection of all counters (except for counters with screw terminals)

Order information Ord. code 3 530 077

Flat steel bar for the installation of connection boxes of the modular system 400

Order information Ord. code 2 405 058

12 x 3 x 105 mm
For description see installation instructions