

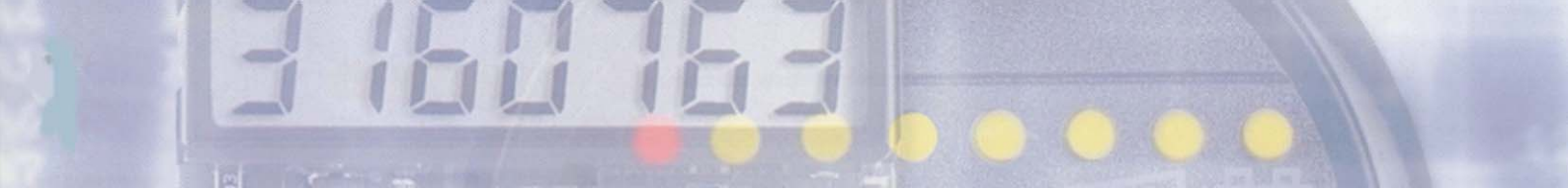
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7939 19h

Meet the **future** now.

99999,99 h

b BAUSER®



Digital time and pulse counters

Electronic preselection counters (time and pulses)

Modules

Battery and time controllers

Battery- and time controllers

Panels

Electromechanical hour counters

Electromechanical pulse counters

Mechanical time switches/buzzers

Buzzers

Digital time and pulse counters

not only count, they even monitor and control.

Electronic time- and pulse counters (single counter)

NEW

Advanced BAUSER technology enables:

Even without battery, your information remains registered in the EEPROM records.

Further, the new electronic time- and pulse counters offer a smart design, high quality and reliability. Therefore, ideally suitable for the heavy applications in the industry and vehicles.

With the new BAUSER counters, you can count on:

- LC-display with 7 digits, character height - 7 mm
- available in different voltages from 12 V DC to 230 V AC
- housing dimensions: 24 x 48, 48 x 48 mm and Ø 56/52 mm
- protection class IP 65 (without reset button)
- plug- and terminal connection

Order specifications:

counter type single counter	housing dimensions		
	24 x 48 mm	48 x 48 mm	Ø 56 mm with glass ring
time counter	3800	3801	3802
pulse counter	3810	3811	3812

You will find further technical data, drawings and wiring diagrams as well as digital counters with a second counter in the background on pages 1-2 to 1-5.

On pages 1-7 to 1-11 you will find variants with signal- or relay output or with two permanent indications. Voltage-free counters, which operate with a lithium battery, will be shown on page 1-6 and module solutions are specified in register 3.



type 3800, 3810



type 3801, 3811



type 3802, 3812

Digital time and pulse counters

not only count, they even monitor and control.

Electronic time- and pulse counters (single counter)

Further order specifications in addition to page 1-1:

38



0 blank
1 plug connection 6,3 mm x 0,8 mm/
bent 90°
2 terminal connection

connections

0 blank
1 1/100 h indication
2 1/10 h indication

indication
time counter

0 blank
1 **30 Hz at DC operation**
2 200 Hz at DC operation
3 30 Hz with prescaler at DC operation
4 30 Hz with multiplier at DC operation
5 200 Hz with prescaler at DC operation
6 200 Hz with multiplier at DC operation
7 **10 Hz at AC or AC/DC operation**
8 10 Hz with prescaler at AC or AC/DC operation
9 10 Hz with multiplier at AC or AC/DC operation

max. counting
frequency
pulse counter

0 blank
1 **reset input pos./counting input pos.**
2 reset input neg./counting input neg. (only at DC)
3 reset input pos./counting input neg. (only at DC)
4 reset input neg./counting input pos. (only at DC)
5 counting input pos.
6 counting input neg. (only at DC)

input signal

0 blank
1 without reset
2 with electrical reset
3 with el. and man. reset

reset type

written fat = preferred variants

Please also indicate your required voltage:
12 - 24 V DC, 24 - 48 V DC, 24 V AC and DC, 110 - 240 V AC, 50-60 Hz

Further technical data on page 1-5.

Digital time and pulse counters

not only count, they even monitor and control.

The new BAUSER-Twin technology as time, service or pulse counters (double counter) LC-Display with 7mm digit height - optional with manual or electrical reset

The BAUSER-Twin registers cost effectively two different counting values as digital indication in just one counter. So, we offer you two counters in one unit. You decide which value should be indicated permanently and which one in the background. We programme the BAUSER-Twin individually for you, according to your priorities and requirements of service intervals, prewarning times, reset etc.

Choose between the following software configurations

(The background counter appears for approx. 10 seconds every time you switch-on):

- time and service counter (fix values)
- pulse and service counter (fix values)
- periodical and totalising counter
- time and pulse counter



type 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890



type 3821, 3831, 3841, 3851, 3861, 3871, 3881, 3891



type 3822, 3832, 3842, 3852, 3862, 3872, 3882, 3892

Order specifications:

counting type twin-counter	housing dimensions			reset for the following counter	notes
	24 x 48 mm	48 x 48 mm	Ø 56 mm with glass ring		
HC with HC (bg)*	3820	3821	3822	HC	HC(bg) not resettable
PC with PC (bg)*	3830	3831	3832	PC	PC(bg) not resettable
HC with PC (bg)*	3840	3841	3842	HC+PC	both counters are resettable, even PC while appearing on the display
PC with HC (bg)*	3850	3851	3852	PC+HC	both counters are resettable, even HC while appearing on the display
HC with STC (bg)*	3860	3861	3862	STC	HC not resettable
PC with SPC (bg)*	3870	3871	3872	SPC	PC not resettable
STC with HC (bg)*	3880	3881	3882	STC	HC not resettable
SPC with PC (bg)*	3890	3891	3892	SPC	PC not resettable

* HC= hour counter, PC=pulse counter, STC= service time counter,
SPC=service pulse counter, bg=background

Further specifications for your order selection are shown on page 1-4.

Digital time and pulse counters

not only count, they even monitor and control.

The new BAUSER-Twin technologie as time, service or pulse counters (double counter)

Order specifications in addition to page 1-3:

38



0 blank
1 plug connection 6,3 mm x 0,8 mm/ bent 90°
 2 terminal connection

connections

0 blank
1 1/100 h indication
 2 1/10 h indication

indication time counter

0 blank
1 30 Hz at DC operation
 2 200 Hz at DC operation
 3 30 Hz with prescaler at DC operation
 4 30 Hz with multiplier at DC operation
 5 200 Hz with prescaler at DC operation
 6 200 Hz with multiplier at DC operation
7 10 Hz at AC or AC/DC operation
 8 10 Hz with prescaler at AC or AC/DC operation
 9 10 Hz with multiplier at AC or AC/DC operation

max. counting frequency pulse counter

0 blank
1 reset input pos./counting input pos.
 2 reset input neg./counting input neg. (only at DC)
 3 reset input pos./counting input neg. (only at DC)
 4 reset input neg./counting input pos. (only at DC)
 5 counting input pos.
 6 counting input neg. (only at DC)

input signal

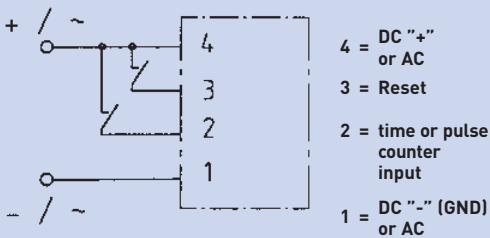
0 blank
1 without reset
 2 with electrical reset
 3 with el. and man. reset

reset type

written fat = preferred variants

Our digital hour counters with signal output series 4000... are described on page 1-9 to 1-11!

Wiring diagram (for positive signal inputs):



Pin 1 + 4 = voltage supply

Further order specifications:

- 12 - 24 V DC
- 24 - 48 V DC
- 24 V AC/DC
- 110 - 240 V AC 50/60 Hz

Please indicate your desired service and prewarning times. i.e. The service should happen after 1.000 pulses with a prewarning after 900 pulses, maximum 4, minimum 1 digit values.

With our pulse counters you get the opportunity to introduce a prescaler and multiplier value. i.e. prescaler 10, multiplier 5.

accessories:
 additional sealing
 rubber seal at additional costs.

Digital time and pulse counters

not only count, they even monitor and control.

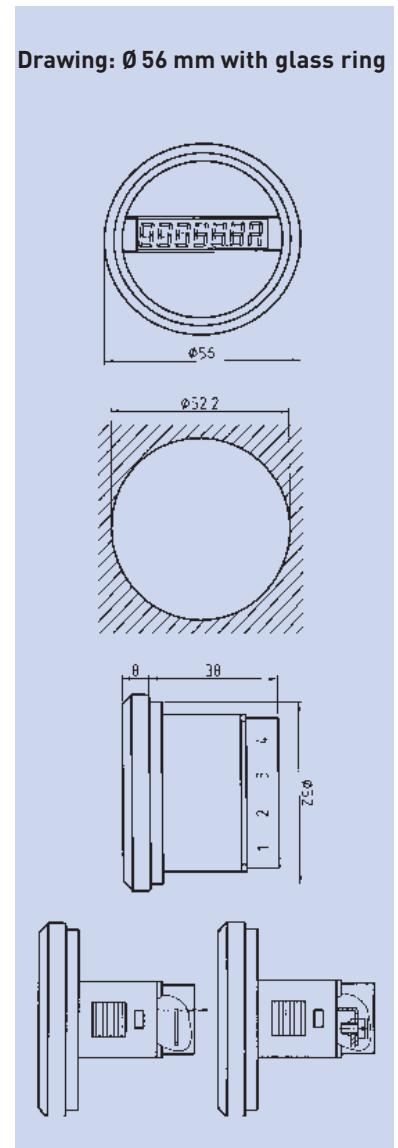
Technical specifications of the single and double counters (pages 1-1 to 1-4)

On this page you will find the complete technical specifications and drawings of the single and double digital counters.

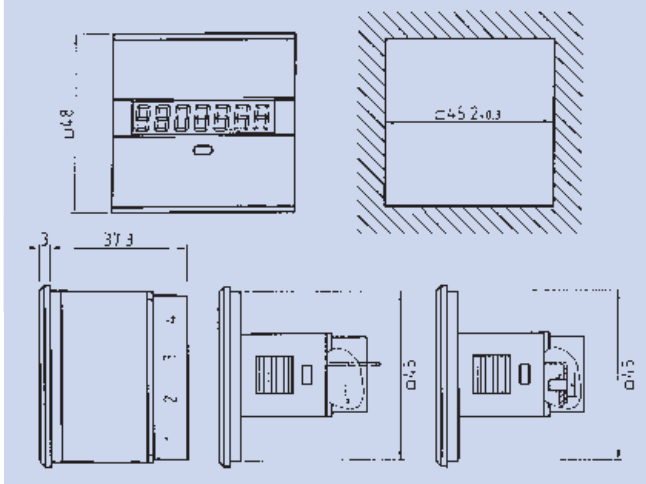
Technical specifications:

housing:	black plastic
indication:	LC-display with 7 digits (only active while connected)
character height:	7 mm
operating voltages:	12-24 V DC / ± 25 % 110-240 V AC 50/60 Hz / ± 10 %
special voltages (at additional cost):	24-48 V DC / ± 25 % 24 V AC/DC / ± 10 %
current consumption:	12 - 24 V DC and 24 - 48 V DC / 2 - 4 mA 24 V AC / DC / 2 mA 110 - 240 V AC 50/60 Hz / 7 - 15 mA
ambient temperature:	-30° C to +70° C
stocking temperature:	-40° C to +80° C
electrical connection:	plug connection 6,3 x 0,8 mm /90° bent or terminal connection
reset:	without, manual or electrical
protection:	without reset button = IP 65, with reset button = IP 54
vibration resistance:	20 g according to SAEJ1378, 1 g (10...500 Hz) according to EN 60068-2-34
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) according to EN 60068-2-27 25 g (6 ms) according to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II
approval:	CE, UL, cUL
counting frequency / pulse counter:	30 or 200 Hz = DC-counter 10 Hz = AC-counter
data storage:	EEPROM
fixing:	retaining clip
weight:	39, 42 or 57 g.

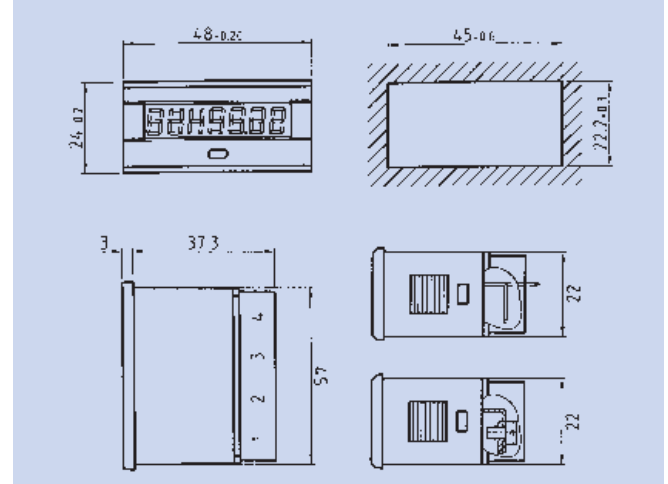
Drawing: Ø 56 mm with glass ring



Drawing: 48 x 48 mm



Drawing: 24 x 48 mm



Digital time and pulse counters

not only count, they even monitor and control.

NEW

The smallest ASIC-digital-counter from BAUSER with multi voltage 12 - 150 V DC and 24 - 240 V AC (in one unit) or even available in battery-operated version.



type 4500, 4510, 4550, 4560, 4580, 4590



type 4501, 4511, 4551, 4561, 4581, 4591



type 4502, 4512, 4552, 4562



type 4503, 4513, 4553, 4563

The new electronic time or pulse counter range 4500 is based on a specially developed by BAUSER ASIC-component. This ASIC features ultra low current consumption, as well as by its integrated temperature compensation for the high visibility LCD.

The digital counters are powered by an external power supply or by an internal lithium battery (life time minimum 10 years). At the external power supply the data are stored by an EEPROM. The battery-operated counters feature a permanently readable indication and can therefore be considered as a real alternative to the traditional electromechanical hour counters.

The wide voltage range and the variety of housing sizes (from minimum to maximum) are the basis for various applications. The design and the quality are further positive aspects for applying these counters in the utility vehicle or industrial sector.

The technical advantages of this product range:

- high visibility LCD with digits height of 5mm and temperature range of - 40°C to + 85°C
- sealed completely against dirt and humidity, IP66
- battery-operated version (life time of battery: 10 years) is a real alternative to the electromechanical hour or pulse counters, alternatively with voltage-free input
- voltage range 12-48 V DC / 12 - 150 V DC and 24 - 240 V AC (in one unit), low current consumption
- pulse counter with input frequency of up to 500 Hz (DC operation)
- 2- or 3-wire connection at hour counter
- high shock and vibration resistant
- operating indication: clock-symbol on the display
- data storage by battery (life time: min. 10 years) or EEPROM (min. 25 years)
- optionally with single reset

Order specifications of range 45XX

Counter type	24 x 36 mm	24 x 48 mm	Ø 56mm with glassring	rectangular with front fixing
Counter with external power supply				
Time counter	4500	4501	4502	4503
Pulse counter	4510	4511	4512	4513
Counter with internal lithium battery				
Time counter	4550	4551	4552	4553
Pulse counter	4560	4561	4562	4563
Counter with internal lithium battery and voltage-free input				
Time counter	4580	4581		
Pulse counter	4590	4591		

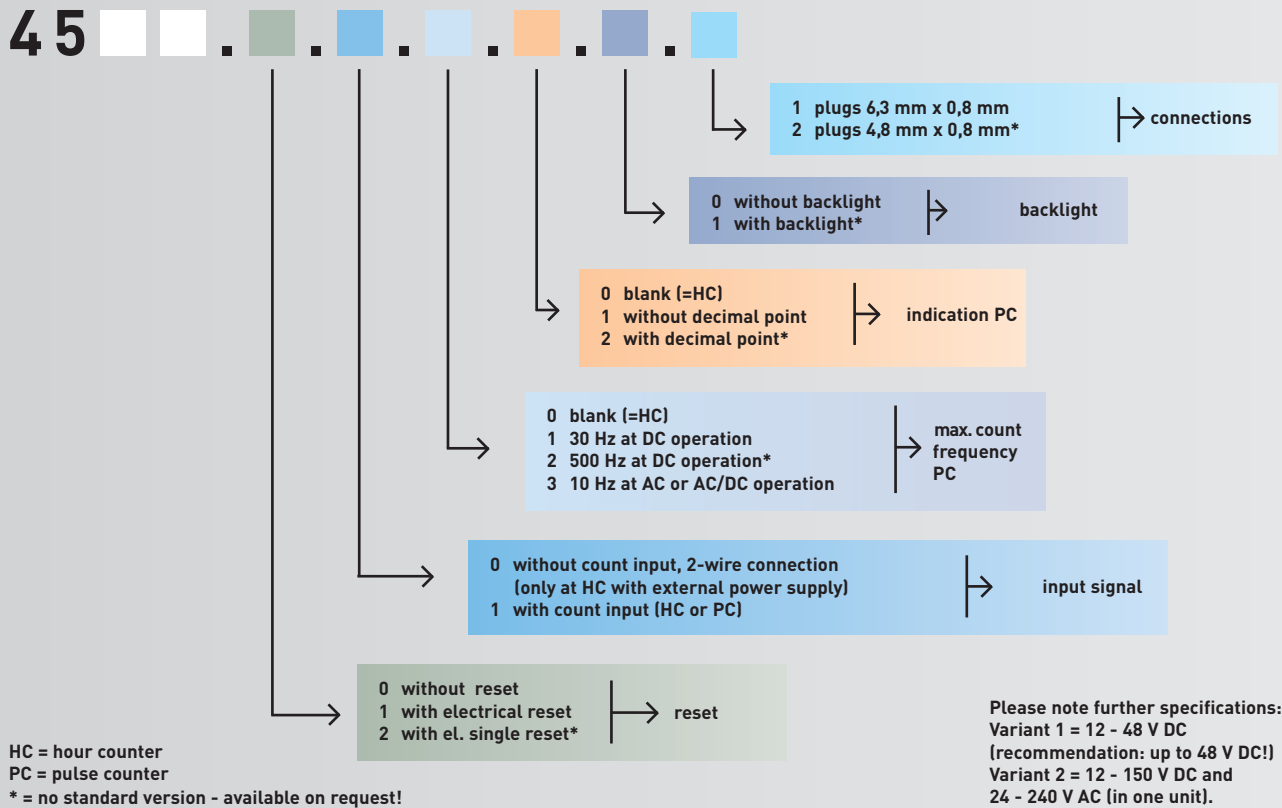
Please note: our digital counters with signal output, series 40XX are described on page 1 - 9 to 1- 11!

Digital time and pulse counters

not only count, they even monitor and control.

Order specifications in addition to page 1-6:

45



Technical specifications:

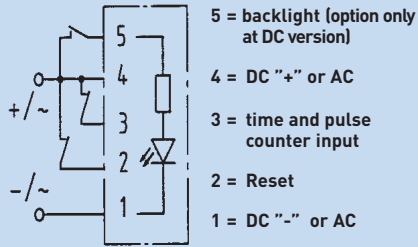
housing:	black plastic		
indication:	LC-Display, 7 digits, at battery-operated version permanent indication		
character height:	5 mm		
reset:	without or electrical		
data storage:	EEPROM (min. 25 years) or battery (min. 10 years)		
ambient temp.:	- 40°C to + 85°C		
storage temp:	- 40°C to + 90°C		
electr. connection:	plugs 6.3 x 0.8mm optionally 4.8 x 0.8mm		
vibration resistance:	20 g according to SAEJ1378, 1 g (10..500 Hz) according to EN60068-2-34		
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) according to EN60068-2-27 25 g (6 ms) according to EN60068-2-29		
counting frequency (PC):	maximum 30 Hz or 500 Hz at DC operation maximum 10 Hz for AC or AC/DC variant		
operating voltage :	12 V DC - 48 V DC ±25%	12 V DC - 150 V DC und 24 V AC - 240 V AC ±10%	
current consumption:	1 mA - 5 mA	100 µA - 3 mA	
input resistance:	approx. 40kOhm (count, reset)	approx. 120kOhm (count, reset)	
life time of battery:	minimum 10 years Conditions: 10 million on/off-operations on count or reset minimum rise time on count and reset: 5 ms signal voltage on count and reset on: operating voltage ±25%, off: < 0,75V or open		
option	operating voltage:	12 V DC ±25%	24 V DC ±25%
backlight:	current consumption:	ca. 30 mA	ca. 15 mA
EMC:	EN 55011, EN 61000-6-2		
industrial norm:	EN 61010, protection class II		
approval:	CE, UL, cUL		
protection:	IP66, pins IP00		
fixing:	retaining clip or front fixing		

Attention: Wiring diagram and dimensions on page 1-8.

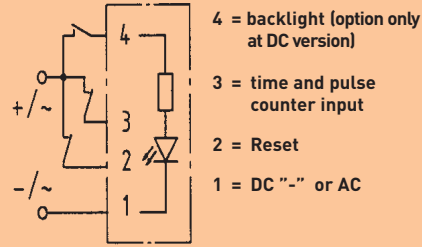
Digital time and pulse counters

not only count, they even monitor and control.

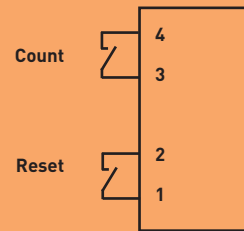
Wiring diagram (external power supply):



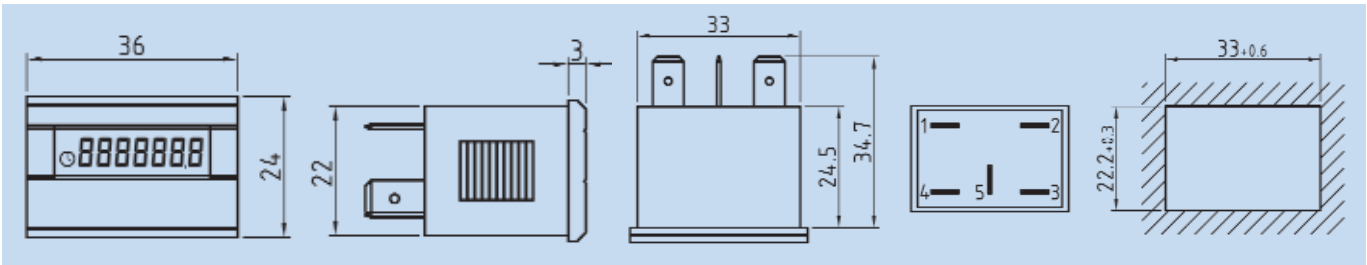
Wiring diagram (battery-operated version):



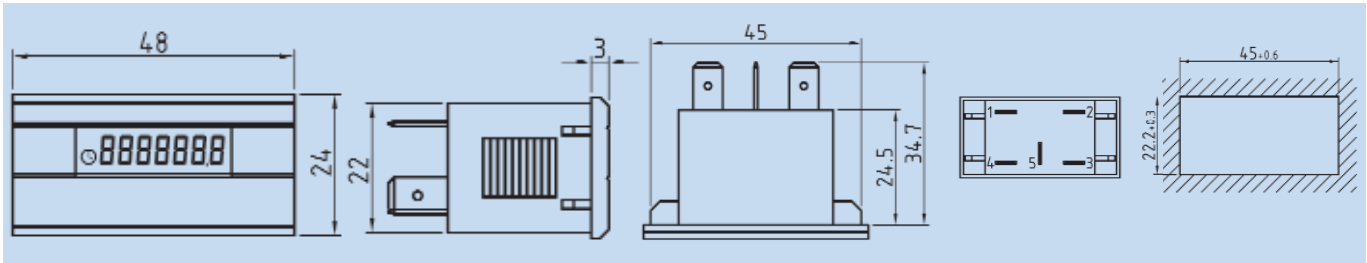
Wiring diagram (battery version voltage-free):



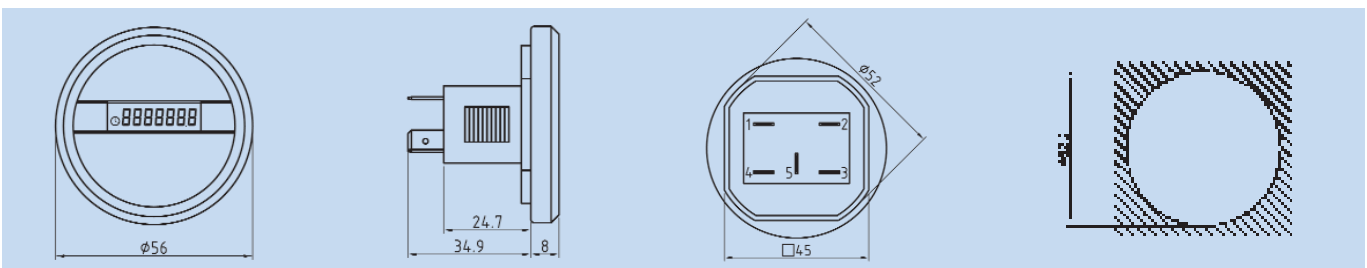
Drawing 36 x 24 mm



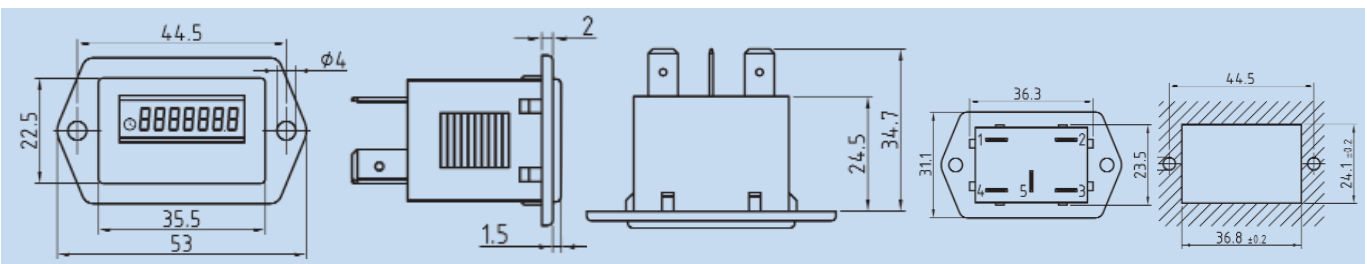
Drawing 48 x 24 mm



Drawing 56 mm



Drawing front fixing

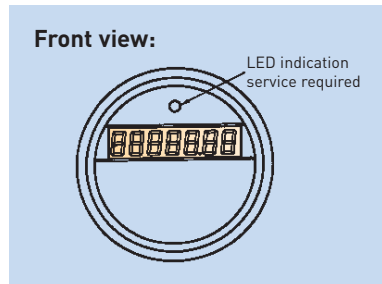


Digital time and pulse counters

not only count, they even monitor and control.

Digital counters with signal or relay output and LED display for recording time, service or pulses. 1 display = with/without background counter - 2 displays = 2 permanent indications

Here you will find another multiple solution from BAUSER. With the Twin-service-counter for time and pulses or cycles a counter can operate in the background. The requested service intervals are programmed factory set. The background counter appears for approx. 10 seconds every time you switch-on. Choose your combination, we programme the fix values according to your priorities.



type 4000.0 to 4091.0

Digital counter with 1 display – on request with background counter

counter type	type	reset for the following counters	notes
HC*	4000.0	HC	
PC*	4010.0	PC	
HC with HC (bg)*	4020.0	HC	HC (bg) not resettable
PC with PC (bg)*	4030.0	PC	PC (bg) not resettable
HC with PC (bg)*	4040.0	HC+PC	both counters are resettable, even PC (bg) while appearing on the display
PC with HC (bg)*	4050.0	PC+HC	both counters are resettable, even HC (bg) while appearing on the display
HC with STC(bg)* with relay output	4060.0	STC	HC not resettable
HC with STC(bg)* with eL. signal output	4061.0	STC	HC not resettable
PC with SPC(bg)* with relay output	4070.0	SPC	PC not resettable
PC with SPC(bg)* with eL. signal output	4071.0	SPC	PC not resettable
STC with HC(bg)* with relay output	4080.0	STC	HC(bg) not resettable
STC with HC(bg)* with eL. signal output	4081.0	STC	HC (bg) not resettable
SPC with PC(bg)* with relay output	4090.0	SPC	PC (bg) not resettable
SPC with PC(bg)* with eL. signal output	4091.0	SPC	PC (bg) not resettable

* HC=hour counter, PC=pulse counter, STC=service, time counter SPC= service, pulse counter, bg= background

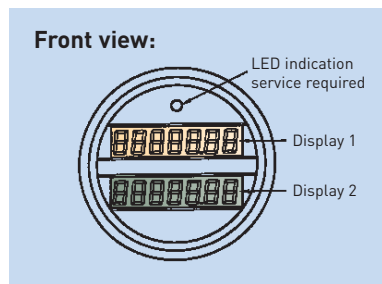
If you require 2 permanent indications, even for this BAUSER has a solution: the 2-display counter.

Of course, we are able to offer an additional LED indication for signal and relay output.

The counter type of the second display will be determined according to the following chart. You have to amend the type no. 40XX.0 of the chart above according to the chart beneath. i.e. for a HC in display 2, you have to change type 4060.0 into type 4060.1.

Digital counter with 2 displays – permanent indication

counter type	type	reset for the following counter
HC	40XX.1	HC
PC	40XX.2	PC



Further counter types for display 2 are available on request.

Detailed technical specifications are shown on pages 1-10 and 1-11.



type 4000.1 to 4091.1
4000.2 to 4091.2

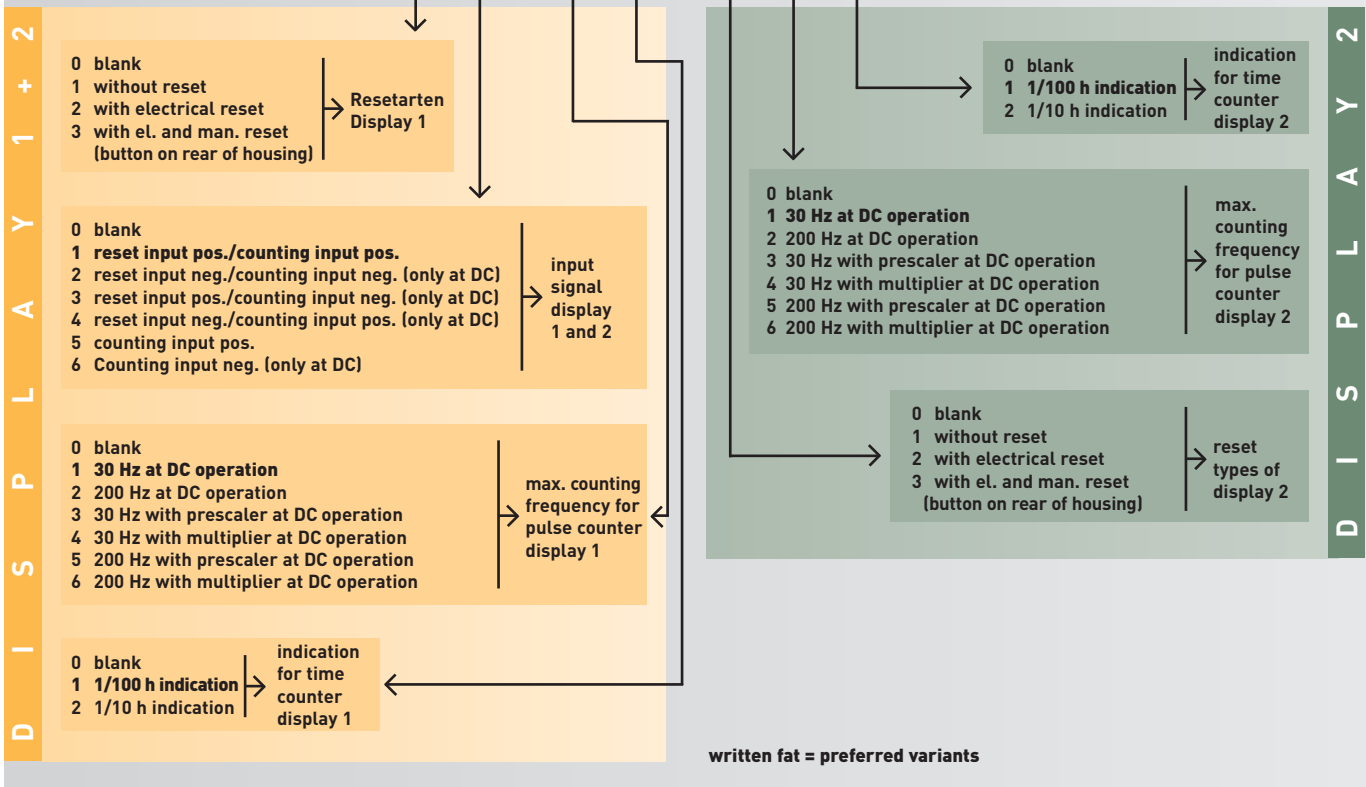
Digital time and pulse counters

not only count, they even monitor and control.

Digital counters with signal or relay output and LED display for recording time, service or pulses.
 1 display = with/without background counter - 2 displays = 2 permanent indications

Further specifications in addition to page 1-9:

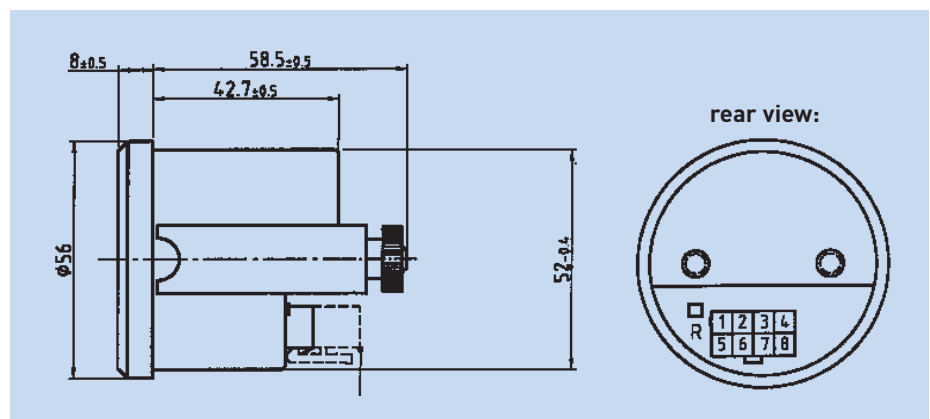
40



Additionally please specify the operating voltage and the required service and prewarning values. i.e.: The service should happen after 1.000 pulses with a prewarning after 900 pulses. On request there are available up to 8 service intervals (fix values).

Further you can introduce a prescaler and multiplier value for pulse counters. i.e.: prescaler 10, multiplier 5.

Drawing type 40XX:



Technical data and wiring diagram on page 1-11.

Digital time and pulse counters

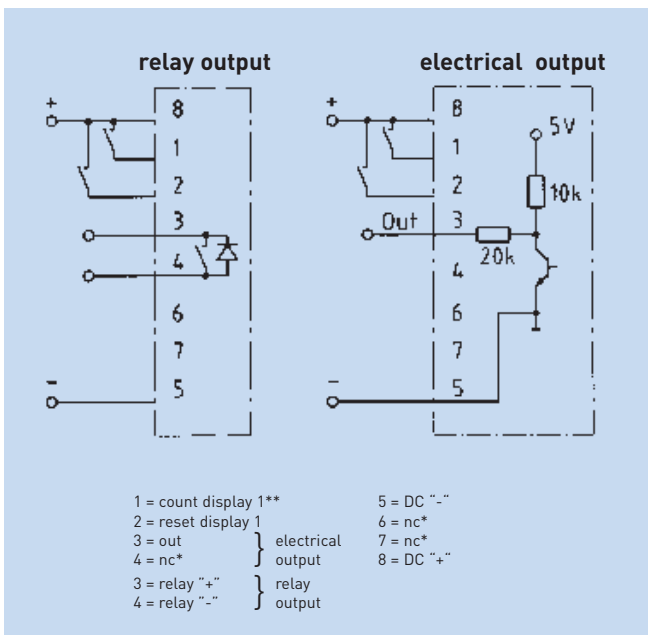
not only count, they even monitor and control.

Digital counters with signal or relay output and LED display for recording time, service or pulses.
1 display = with/without background counter - 2 displays = 2 permanent indications

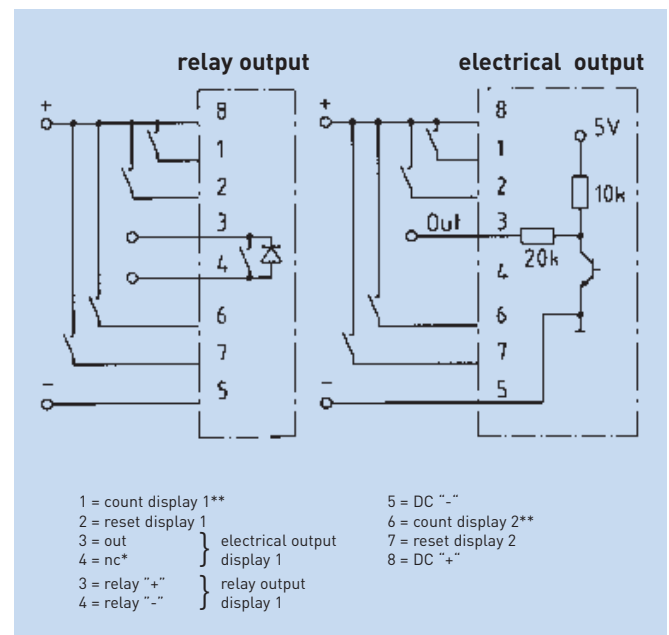
Technical specifications:

housing:	black plastic with glass and bevelled black chrome-plated bezel
indication:	LC-display with 7 digits = 1 or 2 indications (only active while connected)
character height:	7 mm
operating voltages:	12 - 24 V DC / $\pm 25\%$ 24 V DC - with relay output
special voltages (at additional cost):	24-48 V DC / $\pm 25\%$ 12, 36, 48 V DC - with relay output
current consumption:	12 - 24 V DC, 24- 48 V DC / < 10 mA 12 V / < 35 mA 24 V / < 25 mA 36 V / < 25 mA 48 V / < 20 mA } with relay output
relay contact:	1 voltage-free make contact / breaking capacity 12 V/2 A; 24 V/2 A; 36 V/1,5 A; 48 V/1 A
ambient temperature:	-30°C to +70°C
stocking temperature:	-40°C to +80°C
electrical connection:	8 pole compact plug (optionally with cable-glands)
protection:	IP 65 (front)
reset:	without, manual (button on the rear of the housing) or electrical
vibration resistance:	20 g according to SAEJ1378, 1 g (10...500 Hz) according to EN 60068-2-34
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) according to EN 60068-2-27, 25 g (6 ms) according to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II
counting frequ./pulse counter:	30 or 200 Hz
data storage:	EEPROM
approval:	CE, UL, cUL
fixing:	metal clamp with two nuts

Wiring diagram type 4060.0 to 4091.0:
1 Display (for positive signal inputs):



Wiring diagram type 4060.1 to 4091.1 and 4060.2 to 4091.2:
2 Displays (for positive signal inputs):



* not connected
 ** „time and pulse counter input“

Digital time and pulse counters

not only count, they even monitor and control.

NEW

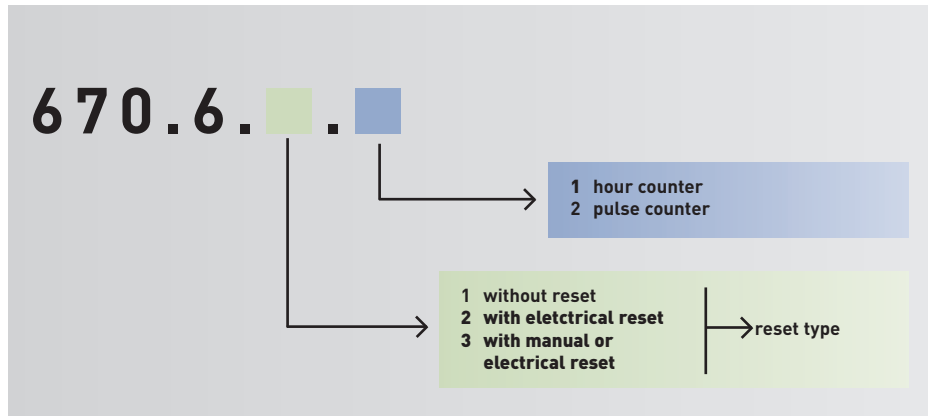
Electronic time or pulse counters for DIN-rail mounting, multi voltage from 12-150 V DC and 24-240 V AC, with or without reset



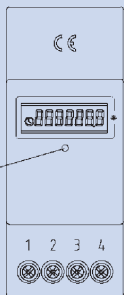
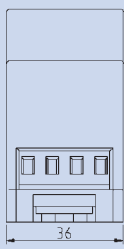
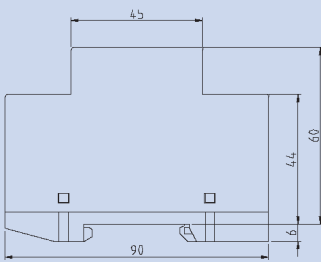
type 670.6.X.X

The basis of the new digital time and pulse counter is a special ASIC-component which has been developed by BAUSER. The voltage range of 12 to 240 V AC and DC in only one unit is very particular to these time and pulse counters. Further advantages are the high visibility 7-digit-LC-display and a reset selection of: without, electrical or manual and electrical.

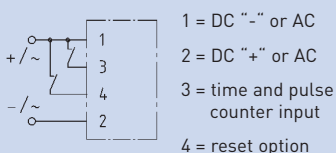
Order specifications type range 670.6.X.X



Drawing:



Wiring diagram:



Technical specifications:

housing:	plastic light grey RAL 7035
indication:	LC-display, 7 digits (0.1h resolution for hour counter)
character height:	5 mm
operating voltage (U _b):	12 V DC - 150 V DC und 24 V AC - 240 V AC ±10% (in one unit)
frequency:	50/60 Hz
current consumption:	100 µA - 3 mA
input resistance:	approx. 120kOhm (Count, Reset)
protection (front):	IP65 (without reset button) IP40 (with reset button), screw IP20
ambient temperature:	-10° C bis +70° C
stocking temperature:	-40° C bis +80° C
electrical connection:	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire
max. torque:	0,5 Nm
vibration resistance:	1 g (10...500 Hz) according to EN 60068-2-34
shock resistance:	30 g (18 ms) according to EN 60068-2-27 25 g (6 ms) according to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II
approval:	CE
reset:	without, electrical or manual and electrical (sunk button, for example utilisable with ball point pen)
weight:	approx. 75 g
counting frequency/ pulse counter:	maximum 10Hz for AC signal voltage optionally higher counting frequency at DC-version
data storage:	EEPROM (min. 25 years)
fixing:	snap-on fixing for DIN-rail according DIN EN

Digital time and pulse counters

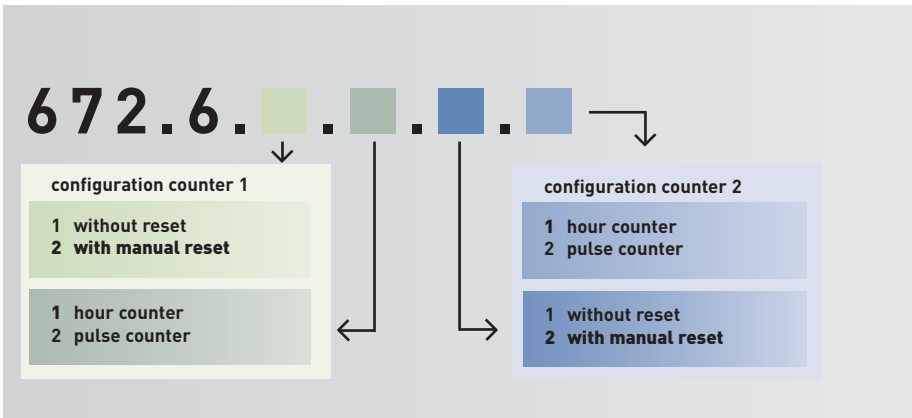
not only count, they even monitor and control.



Digital double counter as time or pulse counters for DIN-rail mounting, multi voltage from 12-150 V DC and 24-240 V AC, with or without reset

Electronic time or pulse counters with high visibility 7-digit-LC-display. You decide, which value should be indicated by this double counter. Two times time or pulses or even one time and one pulse indication. The heart of these counters is a new ASIC-component, which has been developed by BAUSER. This component enables a voltage range of 12 to 240 VAC or DC in just one unit. The single counters are available without or with a manual reset and with common or separate input.

Order specifications type range 672.6.X.X.X



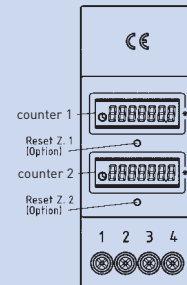
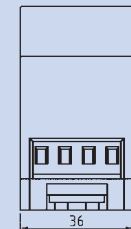
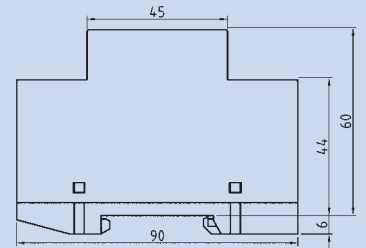
Technical specifications:

housing:	plastic light grey RAL 7035
indication:	LC-display, 7 digits (0.1h resolution for hour counter)
character height:	5 mm
operating voltage (U _b):	12 V DC - 150 V DC und 24 V AC - 240 V AC ±10% (in one unit)
frequency:	50/60 Hz
current consumption:	100 µA - 3 mA
input resistance:	approx. 120kOhm (Count, Reset)
protection (front):	IP65 (without reset button) IP40 (with reset button), screw IP20
ambient temperature:	-10° C bis +70° C
stocking temperature:	-40° C bis +80° C
electrical connection:	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire
max. torque:	0,5 Nm
vibration resistance:	1 g (10...500 Hz) according to EN 60068-2-34
shock resistance:	30 g (18 ms) according to EN 60068-2-27 25 g (6 ms) according to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II
approval:	CE
reset:	without, electrical or manual and electrical (sunk button, for example utilisable with ball point pen)
weight:	approx. 75 g
counting frequency/pulse counter:	maximum 10Hz for AC signal voltage optionally higher counting frequency at DC-version
data storage:	EEPROM (min. 25 years)
fixing:	snap-on fixing for DIN-rail according DIN EN

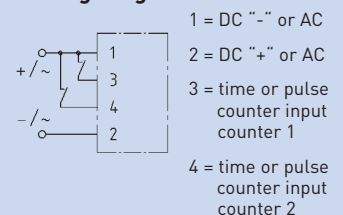


type 672.6.X.X.X

Drawing:



Wiring diagram:



Digital time and pulse counters

not only count, they even monitor and control.

Mini LED service, time or pulse counters with/without signal or relay output



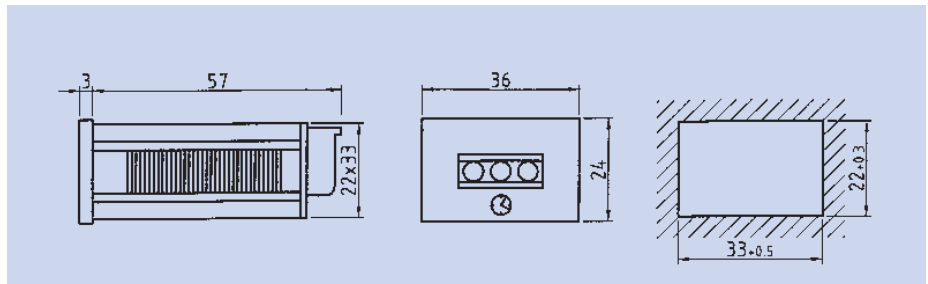
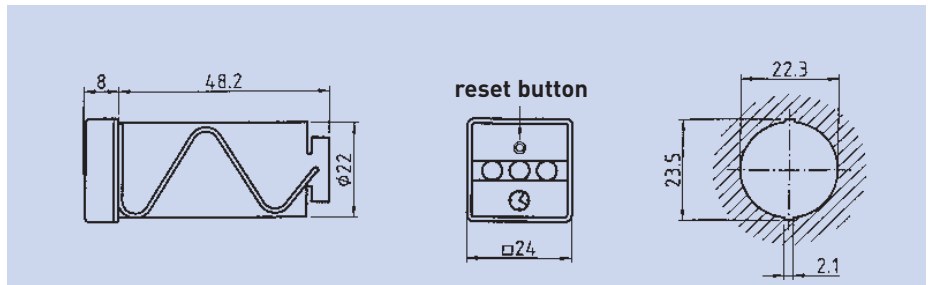
type: 24x24 mm



type: 24x36 mm

Further details on request

The "mini" LED service, time or pulse counter is easily visible and utilises available space. 3 LEDs - green, yellow and red - indicate servicing requirements. The values are factory set to your priorities.



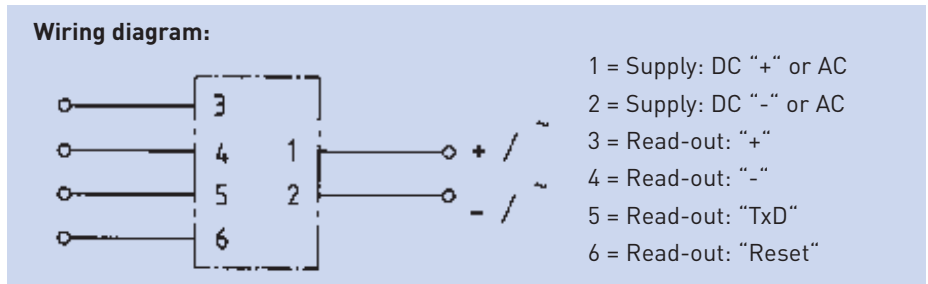
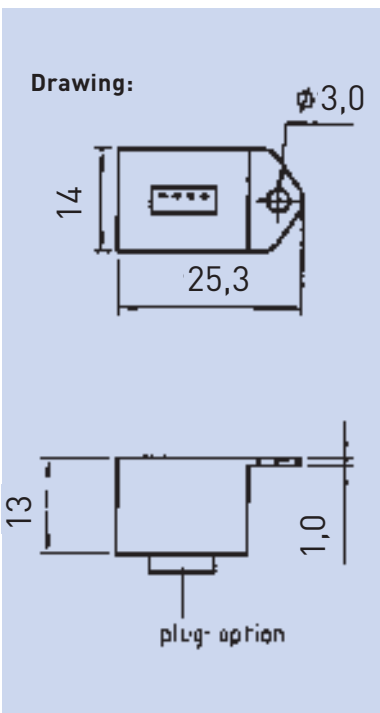
Read-out time counter with serial interface in micro-format



The new BAUSER-midget is just a few millimetres. Nevertheless it is part of the very big ones. The data can be transmitted by a RS 232-interface or optionally by a special read-out unit. A reset is possible. An operating voltage of 12-240 VAC or VDC is pre-viewed.

Technical specifications:

ambient temperature:	-40°C...85°C
elect. connection:	cable - protection IP 66 - or 4-pole connector as read-out interface
data storage:	EEPROM
vibration/ shock resistance:	SAEJ1378 (vibration 20 g, shock 55 g)
EMC:	EN 55011, EN 61000-6-2
fixing:	screw, rivet



Further details on request!

Electronic preselection counters (time and pulses)

control working- and production operations.

- smallest LCD preselection, time counter/ pulse counter
- combined counters for time and totals

With the digital counter generation of BAUSER you have different options, if you need to count or control electronically. The smartest counter with a counting function for pulses and time has only a housing dimension of 25 x 50 mm. The 7 segment display with character height of 6 mm offers a good readable indication.

See below for specification:

- priority indication according to type selection, priority counter is presetable.
- external supply voltage 20 - 230 V AC/DC, in one unit.
- relay output bistable or monostable.
- adding or subtracting counting.
- reset: manual, electronic or automatic.
- wide timer-program (on request).
- optionally you can get the types 34__ as time or pulse counter combination in double or triple frame. Details on request.



type range 3200

Description:

- Counting and controlling electronically with BAUSER digital counters – updated micro-electronic technology enables a variety of possibilities.
- The heart of the LCD counter is a micro-computer for adding, subtracting or preselecting time and totals – even in combination.
- The 7 segment display with character height of 6 mm offers a good readable indication.
- Counting immune to interfering, adding or subtracting. Electromechanical totalising counters can be replaced by the BAUSER LCD counters (depending upon the situation).
- Maximum 5 programming buttons, easy operation, simple handling, operation control through symbols on the display.

Special versions (at additional cost):

- Electrical reset of display value - extern, .../E.0 = 8-24 V AC/DC or .../E.1 = 230 V AC (shortend reset button).
- Electrical reset of relay and display, extern, .../E940.0 = 8 - 24 V AC/DC or .../E940.1 = 230 V AC (shortend reset button).
- The double counter (consisting of hour counter with totalising counter or preselection hour and totalising counter) can register the connecting frequency with a parallel connection.
- Buttons with holes for plumbing.
- The counters of type range 3300 are available with lockable clear vision hinged cover and with button or key sealing. Protection class IP 54.
- Type range 3200 available also with plug connection 2,8 x 0,8 mm (contact box).
- Type range 3400 available in a frame for up to 3 counters in different combinations. Dimensions of frame on request.
- Minutes and seconds counter, i.e. type 3255 and 3256 available also without preselection as simple adding or subtracting counter.
- Relay output monostable.
- Reset button (shortened, in order that a non-voluntary reset is prevented. Reset only possible with a pin).
- Reset, automatic, variant .../A.

Standard version:

- relay output bistable
- manual reset
- type range 3200 with round plugs Ø 1,5 mm silver-plated and additional soldered bush
- type range 3300, 3400 with plug connection 2,8 x 0,8 mm (contact box)

Electromagnetic compatibility (EMC):

There should not be strange electromagnetic noise fields in the near proximity, while installing the LCD counters and timers. Covered wires offer a safer operation.

While arranging the wiring for reset of relay and display, please exclude any current-carrying wires in the near proximity. Also in this case covered wires offer a higher interference protection.

In switching boards you will find high electromagnetic noise fields. For this application we suggest to firstly make some tests with a sample counter.

Reset possibilities:

no.	type	counter (display)	relay	relay output
1	manual = standard	●	● <small>(via CA button)</small>	bistable
2	electric, extern order code: .../E.0 = 8 - 24 V AC/DC order code: .../E.1 = 230 V AC	●	● <small>(via CA button)</small>	bistable
3	electric, extern order code: .../E.940.0 = 8 - 24 V AC/DC order code: .../E.940.1 = 230 V AC	●	●	bistable
4	automatic order code: .../A	●	● monostable	monostable or bistable

Electronic preselection counters (time and pulses)

control working- and production operations.

The suitable mini counter - for every application



type range 3200

counter dim. 29 x 54 mm (front), fixing with retaining clip.



type range 3300

counter dim. 50 x 60 mm (front), plug-in type with mounting frame and contact box.



type range 3400

counter dim. 25 x 50 mm (front), plug-in type with mounting frame for combinations in double or triple frames.

Further details, drawings on request.

Counter types:	Types:		
	3200 3201	3300 3301	3400 3401
1. Hour counter Without reset. With manual or electrical reset.			
2. Double counter – hour counter with pulse counter Priority indication: hour counter. Pulse counter indication readable via pressing of CA button. Only pulse counter is manual resettable.	3202	3302	3402
3. Pulse counter Without reset. With manual or electrical reset.	3220 3221	3320 3321	3420 3421
4. Special variant: pulse counter plus hour counter Priority indication: pulse counter, hour counter indication readable via pressing of CA button and manual resettable. Pulse counter available with manual or electrical reset.	3222	3322	3422
5. Service hour counter with cyclic signal output Indication: hour counter. Totalising hour counter with programmable, cyclic signal output. The intermediate counting status and the cycle time can be visualised by pressing of CA button. On reaching the preselected cycle time the intermediate counter will be reset and starts again to register the time between the cycle signals. The intermediate counter and preselection value of the hour counter can manually be cancelled. Standard version: monostable relay output and automatic reset. (order code. .../M/A).	3240	3340	3440
6. Preselection hour counter Indication: hour counter. On reaching the preselected operation hours the relay will be switched monostable or bistable (according to your requirements). At bistable relay output – variant.../E940.0 (8-24 VDC/AC) or .../E940.1 (230VAC) the switched position will be maintained until relay and display are reset via connection of a separate voltage on PIN 0 or 31. The remaining reset variants are visualised by pressing the CA button "clr rEL" and released with RE button. If the relay output is monostable, the output signal will maintain for 1 sec. Preselection value of hour counter is readable via CA button. Hour counter is available with manual, electrical or automatic reset.	3251	3351	3451
As stated above, but in subtracting counting version – the preselected time value counts down to zero.	3252	3352	3452
7. Special version: preselection hour counter plus pulse counter Priority indication: hour counter, counting input for pulse counter 8 - 24 V DC. Pulse counter and preselection value of the hour counter can be visualised by pressing the CA button. Relay output is available in monostable or bistable version (according to your requirements). Find description under "preselection hour counter", hour counter with manual, electrical or automatic reset, pulse counter only with manual reset.	3253	3353	3453
As stated above, but in subtracting counting version.	3254	3354	3454
8. Preselection minutes and seconds counter Indication: minutes and seconds. Smallest signal distance 1 sec., minutes are carried over after 59 sec. Counter with manual, electrical or automatic reset. Version with automatic reset and monostable 1 sec. relay output is suitable as time function element for control systems. Larger time values than 59 sec. have to be entered in minutes. Preselection value of the minutes and seconds counter is visualised via CA button.	3255	3355	3455
As stated above, but in subtracting counting version.	3256	3356	3456
9. Preselection pulse counter Indication: pulse counter. On reaching of the preselected total a signal output takes place. Relay output bistable or monostable (according to your requirements). At bistable relay output – variant.../E940.0 (8-24 V DC/AC) or .../E940.1 (230 V AC) the switched position will be maintained until relay and display are reset via connection of a separate voltage on PIN 0 or 31. The remaining reset variants are visualised by pressing the CA button "clr rEL" and released with RE button. If the relay output is monostable, the output signal will maintain for 109 sec. Preselection value is seen via CA button. Pulse counter with manual, electrical or automatic reset. Preselection: maximum 10 Mio.	3270	3370	3470
As stated above, but in subtracting counting version.	3271	3371	3471
10. Special version: preselection/ pulse counter plus hour counter Priority indication: pulse counter. Hour counter and preselection value of the pulse counter are readable via CA button. Only pulse counter is manual, electrical or automatic resettable. Relay output bistable or monostable (according to your requirements). Description under preselection pulse counter.	3272	3372	3472
As stated above, but in subtracting counting version.	3273	3373	3473

Electronic preselection counters (time and pulses)

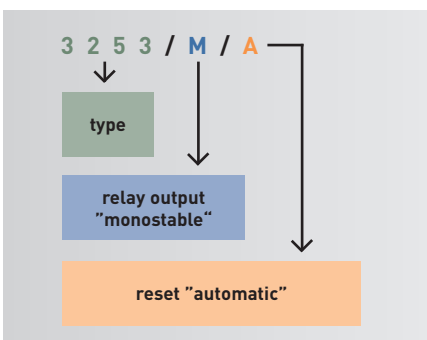
control working- and production operations.

Choose... – from our wide range of LCD-program

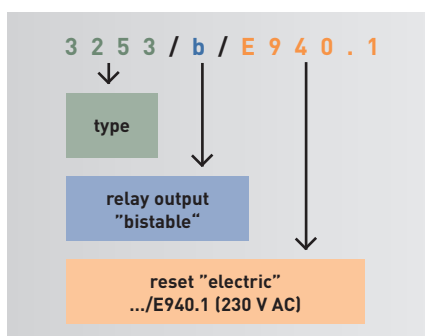
														resetable			reset type						
hour counter	preselection counter	preselection minutes counter	pulse counter	preselection pulse counter	adding	subtracting	bistable - order code:.../b (at additional cost)	monostable - order code:.../M (at additional cost)	hour counter	pulse counter	intermediate counter	preselection minutes counter	manual - standard version	8 - 24 V AC/DC order code:.../E.0	230 V AC order code:.../E.1	8 - 24 V AC/DC order code:.../E940.0	230 V AC order code: .../E940.1	automatic (display value) order code:.../A (at additional cost)	Types:				
●				●									●	●	●					3200	3300	3400	1
●				●				●					●	●	●					3201	3301	3401	
●			●	●					●				●	●	●					3202	3302	3402	2
			●	●									●	●	●					3220	3320	3420	
			●	●									●	●	●					3221	3321	3421	3
●			●	●				●	●			●	●	●						3222	3322	3422	4
	●			●						●										3240	3340	3440	5
	●			●				●	●							●	●	●		3251	3351	3451	
	●			●				●	●							●	●	●		3252	3352	3452	6
	●			●				●	●							●	●	●		3253	3353	3453	
	●		●	●				●	●				●	●						3254	3354	3454	7
			●	●								●	●							3255	3355	3455	
			●	●								●	●							3256	3356	3456	8
				●	●								●	●						3270	3370	3470	
				●	●								●	●						3271	3371	3471	9
●				●	●								●	●						3272	3372	3472	
●				●	●								●	●						3273	3373	3473	10

● background counter

Sample of order specification:



Sample of order specification:



Electronic preselection counters (time and pulses)

control working- and production operations.

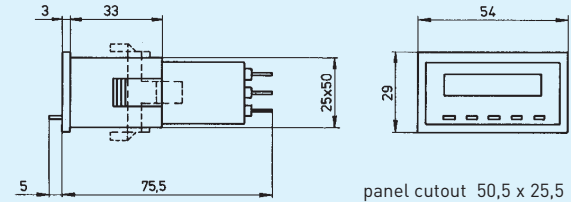
Technical data of LCD preselection hour counters/pulse counters

Technical specifications:

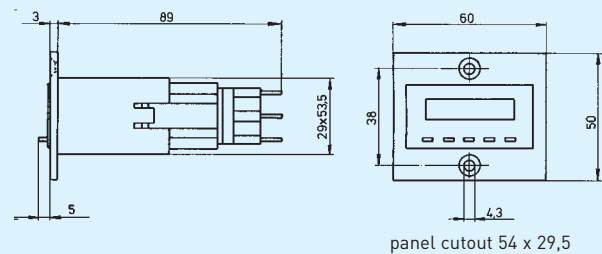
counter dimensions (front):	type range 3200 = 29 x 54 mm type range 3300 = 50 x 60 mm type range 3400 = 25 x 50 mm														
indication:	LC-7 segment display character height = 6 mm symbols indicate operation														
counting range:	hour counter 0 - 99999,99 h operation indication by flashing of the decimal point totalising counter = 7 digits														
supply voltage:	hour counter and totalising counter (20 - 230 V AC and DC in one unit)														
mains supply:	3-wire connection														
current consumption:	20 µA to 5 mA, depending upon operating mode														
max. switch-on current:	70 mA, at 230 VAC or DC														
signal voltage:	hour counter 20 - 230 V AC and DC totalising counter 8 - 24 V DC amplitude threshold \approx 2 V and \approx 8 V DC														
counting type:	adding or subtracting														
counting frequency:	hour counter < 1 Hz (on - off) totalising counter \approx 200 Hz														
reset:	manual with button - electrical via Pin 0 + 31 with external voltage (8 - 24 V DC/AC or 230 V AC, depends upon your order) or automatic, approx. 100 msec., electrical reset of relay														
value recording:	installed lithium battery, life duration: with external current supply (connection: 3 wires) up to 8 years (without: approx. 4 years)														
operation temp.:	-10 °C to +50 °C														
protection class:	front IP 41 or IP 54, depends upon selected type														
relay output:	<table border="0"> <tr> <td>hour- and minutes/seconds counter:</td> <td rowspan="2">} bistable until clearance is effected, monostable</td> <td rowspan="2"> 1sec. </td> </tr> <tr> <td>totalising counter:</td> <td rowspan="2">} bistable until clearance is effected, monostable</td> <td rowspan="2"> 109 msec. </td> </tr> </table> <p>At automatic reset the relay output is monostable, if specially requested also bistable.</p>	hour- and minutes/seconds counter:	} bistable until clearance is effected, monostable	 1sec.	totalising counter:	} bistable until clearance is effected, monostable	 109 msec.								
hour- and minutes/seconds counter:	} bistable until clearance is effected, monostable	 1sec.													
totalising counter:			} bistable until clearance is effected, monostable	 109 msec.											
time divergence:	quartz base														
relay output:	<table border="0"> <tr> <td>1 U</td> <td></td> </tr> <tr> <td>8 A</td> <td>switch-on current</td> </tr> <tr> <td>3 A</td> <td>permanent current</td> </tr> <tr> <td>2 A</td> <td>switch-off current</td> </tr> <tr> <td>250 V</td> <td>maximum switching voltage AC or DC according to VDE 0110, group A</td> </tr> <tr> <td>60 VA</td> <td>apparent power</td> </tr> <tr> <td>30 W</td> <td>load resistance</td> </tr> </table>	1 U		8 A	switch-on current	3 A	permanent current	2 A	switch-off current	250 V	maximum switching voltage AC or DC according to VDE 0110, group A	60 VA	apparent power	30 W	load resistance
1 U															
8 A	switch-on current														
3 A	permanent current														
2 A	switch-off current														
250 V	maximum switching voltage AC or DC according to VDE 0110, group A														
60 VA	apparent power														
30 W	load resistance														
connections:	type range 3200 with round plugs \varnothing 1,5 mm silver-plated and additional soldered bush, at additional cost even slip-on threaded terminal connection, type range 3300, 3400 with plug connection, 2,8 x 0,8 mm (contact box)														
fixing:	3200 = retaining clip 3300 = front plate via 2 sunk screws M4 3400 = contact box can be fixed on a metal strip 12 x 3 mm or the special mounting frame for 2 or 3 counters														
weight:	approx. 70 g														
approval:	CE														

Dimension diagram:

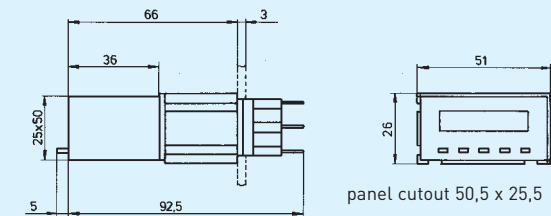
Type range 3200



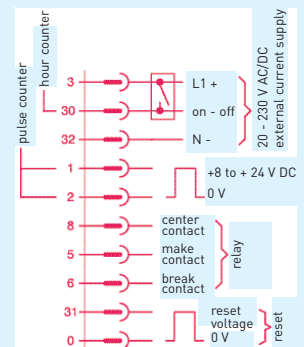
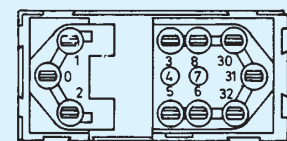
Type range 3300



Type range 3400



Wiring diagram:



* please observe the 3-wire connection, otherwise the battery would discharge earlier

- connection 3-32 power supply, 20 to 230 V AC/DC
- connection 30 ON/OFF hour counter, potential as for PIN3
- connection 1-2 pulse counter, inputs 8 - 24 V DC
- connection 8 center contact, relay input
- connection 5 make contact, relay output
- connection 6 break contact, relay output
- connection 0-31 reset of display or display and relay inputs 8 - 24 V AC/DC or 230 V AC depending on desired type

Electronic preselection counters (time and pulses)

control working- and production operations.

6 decades with polarity sign and scaling factor programmable as pulse, frequency or time counter

These counters are easily programmable and cover the following application fields: preselection of pulses, cutting into lengths, dosing, time control, speed and rate supervision, flow control.

Description:

- 6 digit LCD preselection counter with polarity sign
- 2-line indication for counter status and preselection value
- symbols for active outputs and current preselection
- programmable as pulse, frequency or time counter
- simple operation and preselection of values via 4 buttons
- factor input of 0,0001 to 9,9999
- two preselections (type 320 one preselection)
- relay output
- voltage: 90-...260 V AC or 11-...30 V DC
- normal housing 48 x 48 mm with adapter for 50 x 50 mm cutout
- electrical connection through plug-in screw terminals

Programmable features are:

- operating mode, polarity of the inputs, input type, factor, decimal point
- output signals as continuous or wiping contact
- automatic repeat
- gate time as frequency counter, while programming
- resolution in sec., min., h or h:min:sec as time counter

Inputs:

INP A, INP B

Counter input; the maximum counting frequency of these two inputs is for every channel separately settable on 30 Hz or 10 kHz.

Gate

Static gate input; no counting while this input is activated.

Reset

Dynamic reset input: has the same function as the red SET button and resets the counter to zero (accumulative counting mode) or to the preselection value (subtractive counting mode).

Key

Static input for locking of the buttons; while this input is activated the buttons in front remain locked for operation.

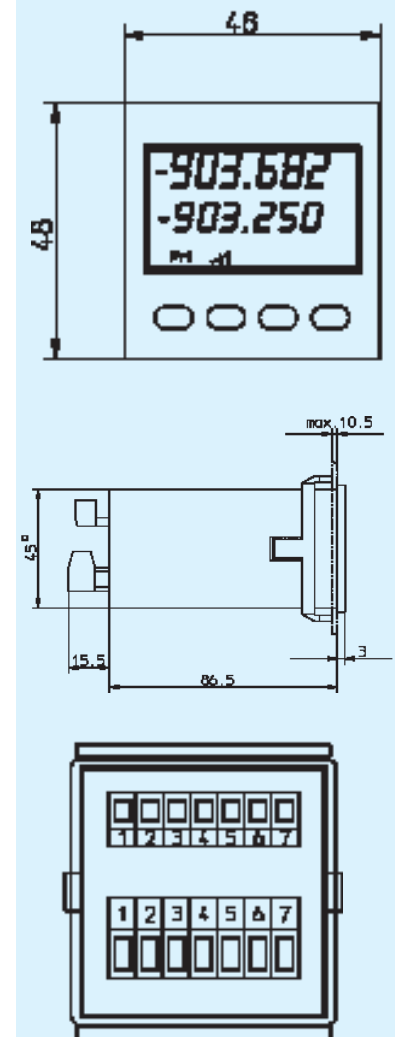
Outputs:

2 potential-free outputs (320: 1 output) as relay.



type 320, 321

Dimensions:



mounting cross section 45 x 45 mm

Technical details on page 2-6.

Electronic preselection counters (time and pulses)

control working- and production operations.

Type 320 = 1 preselection Type 321 = 2 preselections

Included in delivery:

- Type 320 or 321
- **plug-in screw terminals**
7-pole,
grid 5,08 mm
- **plug-in screw terminals**
7-pole,
grid 3,81 mm
- **frontal frame
for screw fixing**
60 x 75 mm
mounting cross section
50 x 50 mm
- **frontal frame for
retaining clip fixing**
55 x 55 mm
mounting cross section
50 x 50 mm
- **frontal frame for
retaining clip fixing**
48 x 48 mm
mounting cross section
45 x 45 mm
- **retaining clip**

Programming:

The programming of the counter 320 and 321 takes place via 4 buttons on the front of the unit. A user guidance on the display offers an operation without problems. Here you can effect all adjustments and the corresponding parameters can be selected out of one menu.

Programmable are:

Polarity of the inputs

Switching positive (PNP) or negative (NPN). The selection is valid for all inputs at the same time.

Operation variants, pulse or time counting

- accumulative with starting to count from zero
- subtractive with starting to count from the preselection value (320) or preselection value 2 (321)
- accumulative with automatical reset by reaching the preselection value (320) or the preselection value 2 (321)
- subtractive with automatical setting on the preselection value (320) or preselection value 2 (321) by reaching of zero
- additional preselection cycle counter (only at type 321)

Input variants, pulse and frequency counter

- E1: 1 counting input, 1 switching input for the counting direction
- E2: 1 counting input upwards, 1 counting input down
- E3: quadrature input
- E4: quadrature input with pulse doubling

Decimals

The indication can be effected without, with one, two or three decimal places after the decimal point.

Technical specifications:

indication:	2 lines, 6 digits, 7 segments LC-display with polarity sign
preselection:	2 preselections at type 321, 1 preselection at type 320
counting input:	2 counting inputs, 4 input variants programmable
polarity of the inputs:	programmable, switching positive (PNP) or negative (NPN)
input resistance:	10 kOhm
max. counting frequency:	10 kHz, reducible to 30 Hz via DIL switcher
min. pulse time of the control inputs:	5 msec.
switching level of the inputs:	at AC supply: Log "0": 0...4 V DC, Log "1": 12...30 V DC at DC supply: Log "0": 0...0,2 x U ₀ , Log "1": 0,6 x U ₀ ... 30 V DC
pulse form:	variable, Schmitt-trigger input
output:	type 320: 1 relay output, type 321: 2 relay outputs
transmitter voltage:	24 V DC, 100 mA at 90...260 V AC
value recording:	minimum 10 years or 10 ⁶ memory cycles
interference resistance:	EN 50082, part 2
interference transmission:	EN 55011, class B
operation temperature:	0 to +50 °C
housing:	48 x 48 mm DIN
protection class:	IP 65 (front)
operating voltage:	90 - 250 V AC 10 - 30 V DC

Factor

For an optimal transmitter adjustment the counting values can be introduced with a factor between 0,0001 and 9,9999.

Output signal

The output signal (at type 321 even separate signal for both outputs) can be preselected as make or break contact, positive or negative wiping signal, duration 0,01 to 99,99 sec.

Gate time at frequency counter

Programmable from 0,01 sec. to 99,99 sec.

Time counter

The counting can be done in h, min. or sec., with a resolution of 0,001; 0,01; 0,1 and 1,0 or in h:min:sec

Modules

can be integrated individually in your equipment and machinery.

BAUSER LCD modules as time, service or pulse counters LC - Display with 7 mm digit height, optionally with signal output

Are you searching for individual solutions for recording time, service or pulses, which are integratable into your equipment or machinery? Additionally to the digital counter range BAUSER offers also different modules:

- single counter for time and pulses,
- BAUSER Twin-counters, which supply two indications in one display.
You decide which value should be indicated permanently and which one in the background. The background counter appears for approx. 10 sec. on the display every time you switch-on.

These smart double counters are also available as counters with housing. See register 1, pages 1-3 to 1-5.

The fix values for service intervals and prewarning are programmed factory set to your priority. Choose between the following software configurations:



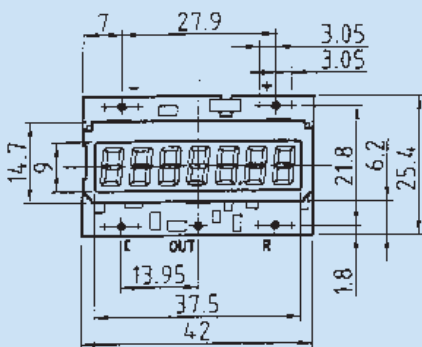
type 6000 to 6090

Order specifications

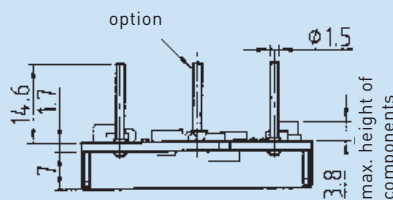
counter type	LCD module 7 mm	signal output	reset for the following counter	notes
single counter				
HC*	6000	-	HC	
PC*	6010	-	PC	
Twin-counter				
HC with HC (bg)*	6020	-	HC	HC (bg) not resetable
PC with PC (bg)*	6030	-	PC	PC (bg) not resetable
HC with PC (bg)*	6040	-	HC + PC	both counters are resetable, even PC while appearing on the display
PC with HC (bg)*	6050	-	PC + HC	both counters are resetable, even HC while appearing on the display
HC with SHC (bg)*	6060	optionally	SHC	HC not resetable
PC with SPC (bg)*	6070	optionally	SPC	PC not resetable
SHC with HC (bg)*	6080	optionally	SHC	HC not resetable
SPC with PC (bg)*	6090	optionally	SPC	PC not resetable

* HC= hour counter, PC=pulse counter, SHC=service hour counter, SPC=service pulse counter, bg=background

Drawings:



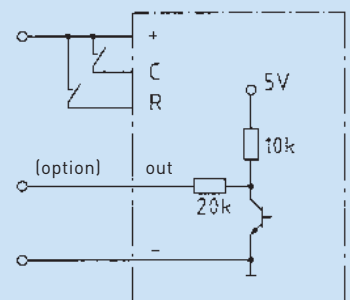
alternative positions of the connection pins are optionally possible



Pin:

- + = DC "+"
- = DC "-"
- C = time and pulse counter input
- OUT = service counter output (option)
- R = reset

Wiring diagram (for positive signal inputs):



Further order- and technical specifications on page 3-2.

Modules

can be integrated individually in your equipment and machinery.

BAUSER LCD modules as time, service or pulse counters

Order specifications in addition to page 3-1:

6



0 blank
1 4 connecting pins (+, -, C, R)
2 5 connecting pins (+, -, C, R, out) | pins*

0 blank
1 1/100 h indication
2 1/10 h indication | indication time counter

0 blank
1 30 Hz
2 200 Hz
3 30 Hz with prescaler
4 30 Hz with multiplier
5 200 Hz with prescaler
6 200 Hz with multiplier | max. counting frequency pulse counter

0 blank
1 reset input pos./counting input pos.
2 reset input neg./counting input neg.
3 reset input pos./counting input neg.
4 reset input neg./counting input pos.
5 counting input pos.
6 counting input neg. | input signal

0 blank
1 without reset
2 with el. reset | reset type

* c = count, R = reset, out = output

written fat = preferred variants

Further order specifications for the Twin-modules:

Please state your required service and prewarning time. i.e.: The service should happen after 500 hours and the prewarning time activated after 480 hours through a flashing display, maximum 4 - minimum 1 digit values.

At pulse counters you can introduce a prescaler or multiplier value. i.e.: prescaler 10, multiplier 5

Mounting:

Please note: Setup and operation of the module only according to the current national guide lines and standards!

Technical specifications:

indication:	LC-display with 7 digits (only active while connected)
character height:	type 6000 - 6090 = 7mm
version:	uninsulated brass display holder optionally black-chromed (on request)
operating voltage:	12-24 V DC ± 25%
current consumption:	2-4 mA
ambient temp.:	-30° C to +70° C
stocking temp.:	-40° C to +80° C
electr. connection:	pins for soldering
reset:	electrical
vibration resistance:	20 g acc. to SAEJ1378, 1 g (10 ... 500 Hz) acc. to EN 60068-2-34
shock resistance:	55 g acc. to SAEJ1378, 30 g (18ms) acc. to EN 60068-2-27 25 g (6ms) acc. to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II
approval:	CE, UL, cUL
counting frequency/pulse counter:	30 or 200 Hz
data storage:	EEPROM

Modules

To be integrated individually in your equipment and machinery.

NEW

The smallest LCD modules are available as time and pulse counters in ASIC technology with multi voltage from 12 - 48 V DC or even battery-operated

For recording time and pulses BAUSER offers you a brand new LCD module family to be integrated in your equipment and machinery. With these modules you are able to realize quite individual solutions.

The basis is an especially developed ASIC component by BAUSER. One of the remarkable features of this ASIC is the very low power consumption as well as an integrated temperature compensation for the high visibility LCD.

The counter modules are powered by an external power supply or by an internal lithium battery (life time of minimum 10 years). For the external power supply the data are stored by an EEPROM. Battery-operated modules feature a permanently readable indication.

The wide voltage range as well as the small dimensions are the basis for various applications. The high quality is an additional feature for applying these modules in utility vehicles and in the industrial sector.



type 6100, 6110

The technical advantages of this Modules:

- high visibility LCD with digits height of 5mm and temperature range of - 40°C to + 85°C
- battery-operated version (life time of battery: 10 years) is a real alternative to the electromechanical hour or pulse counters
- multi voltage from 12 - 48 V DC and low current consumption
- pulse counter with input frequency of up to 500 Hz (DC operation)
- 2- or 3-wire connection for hour counter
- highly shock and vibration resistant
- operating indication: clock-symbol on display
- data storage by battery (life time: min. 10 years) or EEPROM (min. 25 years)
- optionally with single reset
- optionally with decimal point for the pulse counter (for example kilometres counter)



type 6150, 6160

Order specifications of range 61XX

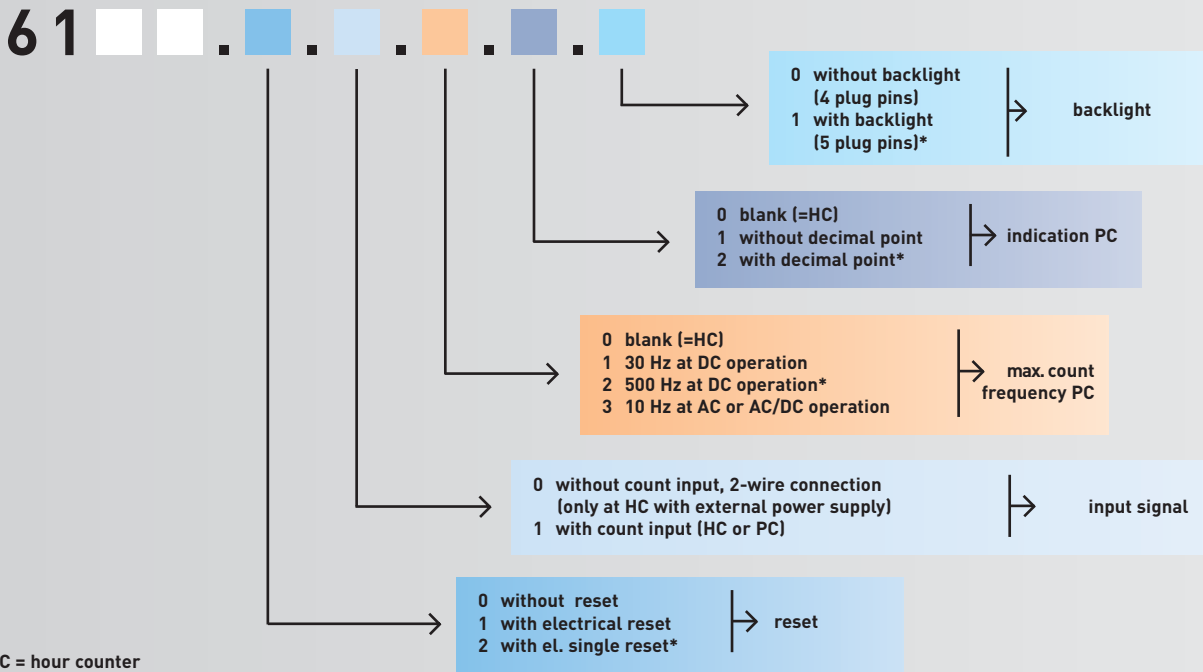
Counter type	Module with 5 mm digits height
Module with external power supply	
Time counter	6100
Pulse counter	6110
Module with internal lithium battery	
Time counter	6150
Pulse counter	6160

Further order- and technical specifications on page 3-4.

Modules

To be integrated individually in your equipment and machinery.

Order specifications in addition to page 3-3:



HC = hour counter
PC = pulse counter

* = no standard version - available on request!

Technical specifications:

housing:	black plastic		
indication:	LC-Display, 7 digits, at battery-operated version permanent indication		
character height:	5 mm		
reset :	without or electrical		
data storage:	EEPROM (min. 25 years) or battery (min. 10 years)		
ambient temp.:	- 40° C to + 85° C		
storage temp.:	- 40° C to + 90° C		
electr. connection:	pins for soldering		
vibration resistance:	20 g according to SAEJ1378, 1 g (10..500 Hz) according to EN60068-2-34		
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) according to EN60068-2-27 25 g (6 ms) according to EN60068-2-29		
counting frequency (PC):	maximum 30 Hz or 500 Hz at DC operation maximum 10 Hz for AC or AC/DC variant		
operating voltage:	12 V DC - 48 V DC ±25%		
current consumption:	1 mA - 5 mA		
input resistance:	approx. 40kOhm (count, reset)		
life time of battery:	minimum 10 years Conditions: 10 million on/off-operations on count or reset minimum rise time on count and reset: 5 ms signal voltage on count and reset on: operating voltage ±25%, off: < 0,75V or open		
option	operating voltage:	12 V DC ±25%	24 V DC ±25%
backlight:	current consumption:	ca. 30 mA	ca. 15 mA
EMC:	EN 55011, EN 61000-6-2		
industrial norm:	EN 61010		
approval:	CE, UL, cUL		
protection class:	pins IP00		

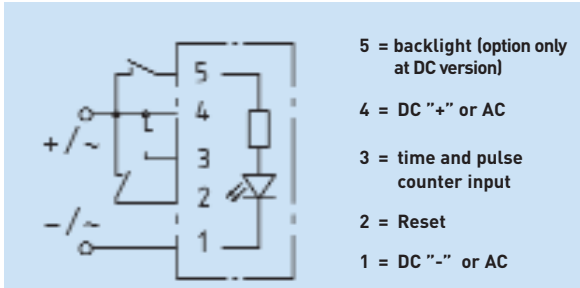
Attention: Wiring diagram and dimensions on page 3-5.

Please note: Setup and operation of the module only according to the current national guide lines and standards!

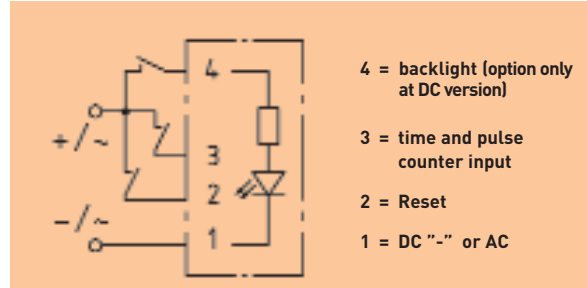
Modules

To be integrated individually in your equipment and machinery.

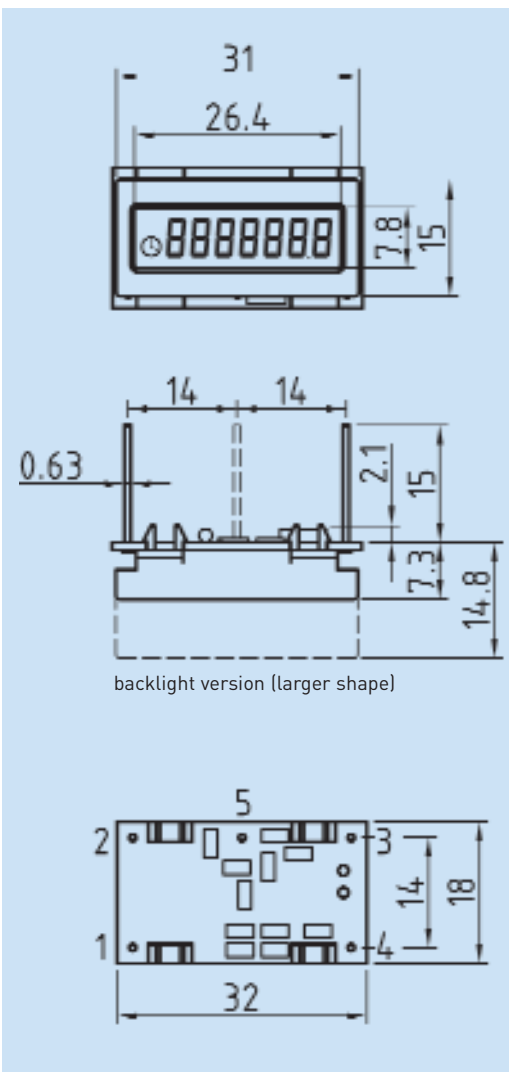
Wiring diagram :



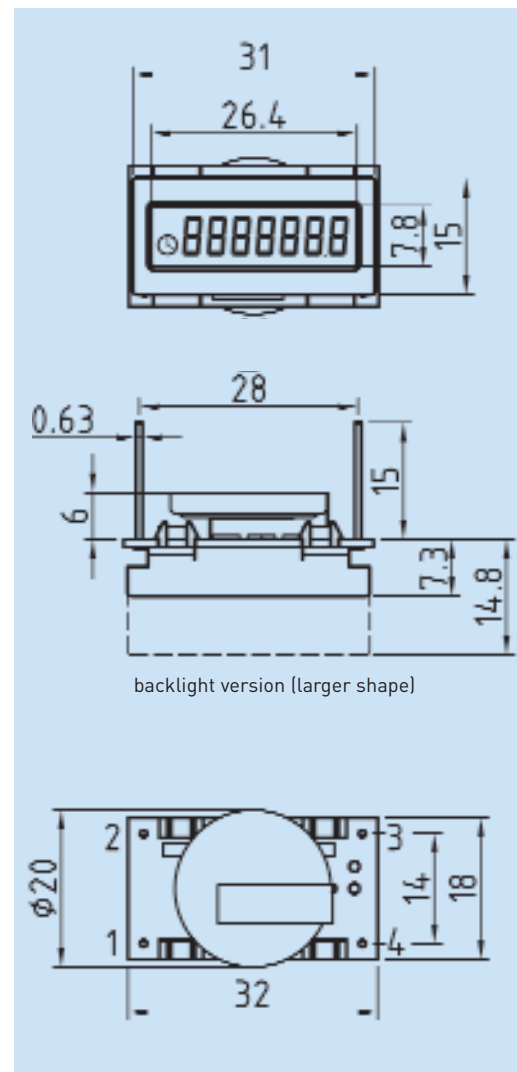
Wiring diagram :



Drawing type 6100, 6110



Drawing type 6150, 6160

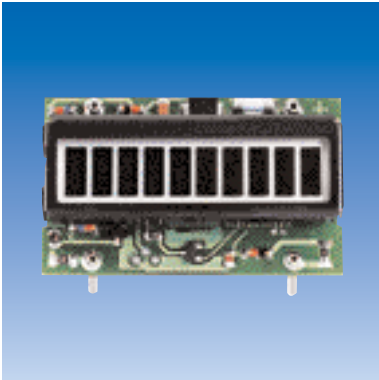


Modules

can be integrated individually in your equipment and machinery.

BAUSER LCD/LED sensing modules

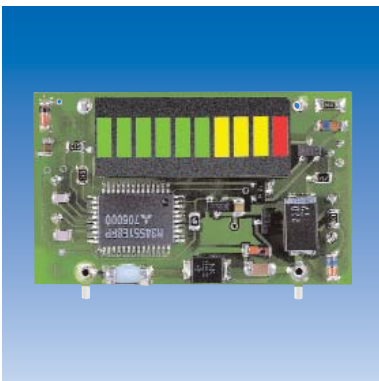
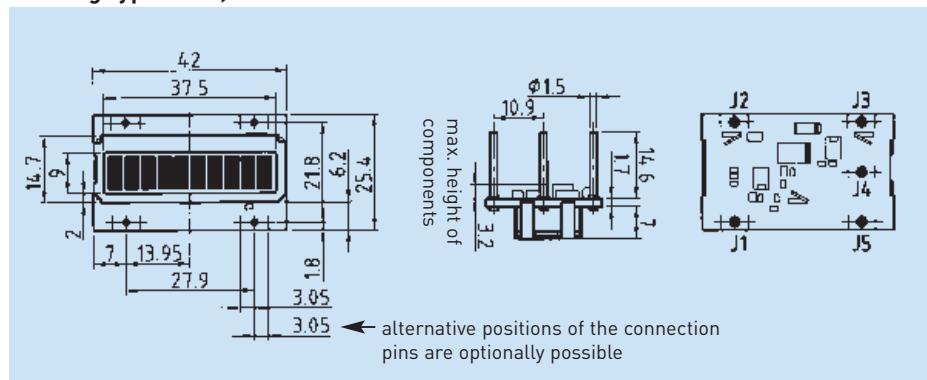
With BAUSER you will find modules with a 10-segment display as LCD or LED single or multi bar indication. The process indications can be especially adapted to individual requirements of temperature, voltage, pressure, level indication etc. At certain quantities the colours of the LEDs can also be adjusted to customers requirements.



type 6601

type	single LCD indication	LCD multi bar indication
6600	●	
6601		●

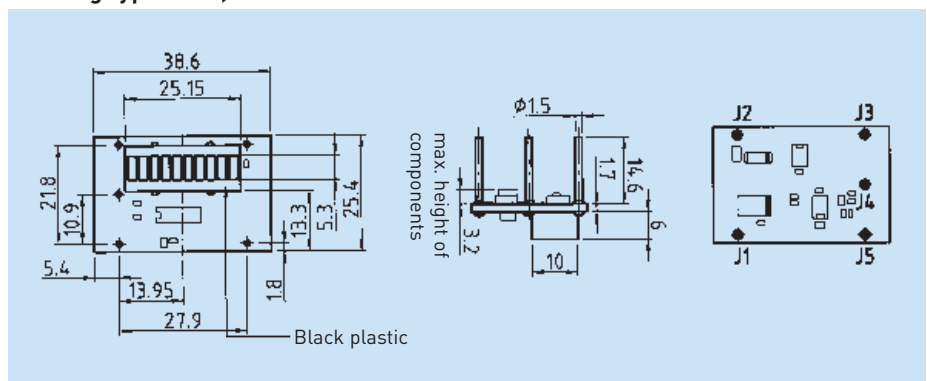
Drawing type 6600, 6601



type 6701

type	single LCD indication	LCD multi bar indication
6700	●	
6701		●

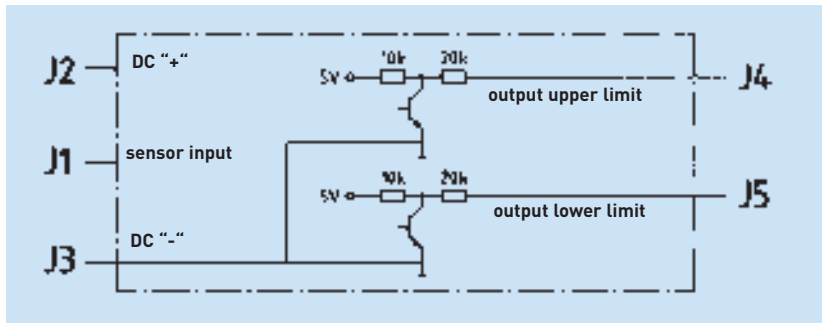
Drawing type 6700, 6701



Modules

can be integrated individually in your equipment and machinery

Wiring diagram:



Technical specifications:

type	LCD 6600, 6601	LED 6700, 6701
version:	uninsulated brass displ. holder optionally black-chromed (on request)	
display:	LCD, 10-segment indication as single or multi bar indication	LED, 10-segment indication as single or multi bar indication (at certain quantities the LED colours can be selected according to the customers' requirements)
height of segment:	7 mm	5 mm
operating voltage:	12 - 24 V DC / ± 25%	LED single indication: 12 - 24 V DC / ± 25% LED multi bar indication: 12 V DC, 24 V DC / ± 25%
current consumption:	<5 mA	<20 mA <50 mA <30 mA
programming: (factory set)	<ul style="list-style-type: none"> • 255 measuring points on 10 segments for: <ol style="list-style-type: none"> 1. linearization 2. partial expansion or compression of measuring range 3. inversion of the sensor signal • programmable scanning rate, time delay and hysteresis • flashing of the first or last segment: lower limit, upper limit • output signal 0 V → 5 V or 5 V → 0 V 	
sensor interface:	0 - 10 V, 0 - 5 V, 0 - 20 mA, 4 - 20 mA, 33 - 240 Ohm, 54 - 705 Ohm (further resistance interfaces on request)	
ambient temp.:	- 40° C to + 85° C	- 40° C to + 85° C
stock temp:	- 40° C to + 85° C	- 40° C to + 85° C
electr. connections:	pins for soldering	pins for soldering
vibration resistance:	20 g acc. to SAEJ1378, 1 g (10...500 Hz) acc. to EN 60068-2-34	20 g acc. to SAEJ1378, 1 g (10...500 Hz) acc. to EN 60068-2-34
shock resistance:	55 g acc. to SAEJ1378, 30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29	55 g acc. to SAEJ1378, 30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2	EN 55011, EN 61000-6-2
approval:	CE	CE

Inform us of your application or send us your specifications with your annual requirements. We will be pleased to assist you individually.

Order specifications:

Type, single or multi bar display, version, sensor interface

In case of further assistance, feel free to contact our service-hotline.
phone no: +49 (0) 74 85/ 181 - 20

Battery and time controllers

are the gauges for your battery. Monitor and control exactly your battery-operated vehicles.

NEW

The BAUSER all round battery and time controllers

The BAUSER all round controller monitors the remaining capacity of your traction batteries and registers totalising and service hours. The heart of the controller is the BAUSER microprocessor technology and the environmentally friendly data storage by EEPROM. The remaining capacity is clearly visible by a LED display. The single LEDs are active from the right to the left. If the capacity falls under the limit value "prewarning" at type 830 and 830.1 the penultimate red LED will flash. At type 855 and 855.1 the last yellow LED will flash. When reaching the discharge voltage at type 830 and 830.1 the two last red LEDs flashes alternately. At 855 and 855.1 the red LED lights up. Simultaneously a voltage free relay contact would open (i.e. lift lockout). The batteries are therefore safely protected against exhaustive discharge!

Features of the new BAUSER controllers:

- New: The types 830 and 830.1 have 10 LED (5 green, 3 yellow and 2 red) as single indication. A partial recharge is displayed.
- The types 855 and 855.1 have 8 LED as multi bar indication. A partial recharge would be registered, but not displayed.
- Optionally: service hour counter.
- Setting of different battery types by battery discharge voltage, which can be selected through the potentiometer on the rear of the unit.
- After cutoff the relay locking for restart would be activated. In order to terminate a started operation (i.e. lifting process), the locking for restart can be abolished one single time for about 30 seconds by switching off and on again.
- Microprocessor technology offers an exact indication and protection against an exhaustive discharge.
- Relay breaking capacity: 5 A / 24 V DC.
- customised units available on request.



type 830, 830.1



type 855, 855.1

type	operating voltage (*)	10 LEDs (green, yellow, red) single indication, with partial recharge	8 LEDs (yellow, red) multi bar display without partial recharge	totalising hour counter		relay contact
				"without" service counter	"with" service counter	
830	12, 24, 36 oder 48 V DC	●		●		●
830.1	12, 24, 36 oder 48 V DC	●			●	●
855	12, 24, 36 oder 48 V DC		●	●		●
855.1	12, 24, 36 oder 48 V DC		●		●	●

* 24 V DC = standard 12, 36 and 48 V DC = special voltages
 option: with chromed front bezel, order code: .../C
 without relay output,
 with polycarbonate glass
 accessory: adapter for cutout Ø 60mm, order code: .../60 at additional cost

The different battery types are adjustable by the discharge voltage. A potentiometer enables this simple setting. The standard adjustment of the discharge voltage is 1,73 V/cell. If you require other discharge voltage values, please indicate them when ordering.

Discharge voltages in V/cell (adjustable via potentiometer on the rear of the unit):

A	B	C	D	E	F	G	H	I	J	K
1,57	1,63	1,68	1,73	1,78	1,82	1,84	1,86	1,89	1,91	1,93

Battery and time controllers

are the gauges for your battery. Monitor and control exactly your battery-operated vehicles.

The BAUSER all round battery and time controllers

There are 2 methods to reset the controller:

- battery is separated from the vehicle: reset voltage is 2,09 V/cell.
- battery remains in the vehicle while charging: reset voltage is 2,35 V/cell.

The operating hours (totalising hour counter) are permanently indicated by a LC display. Select between a positive and negative counting input. Types 830.1 and 855.1 offers additionally a factory set service-hour counter (standard value 500h or value according to your priorities). The service counter indicates the remaining time before service has to be done for about 5 sec. every time you switch-on. The display flashes after termination of the service time and a reset has to be effected via the R button on the rear of the controller. At type 886.1 you can change the factory set service counter value by yourself. Find details on page 4-3.

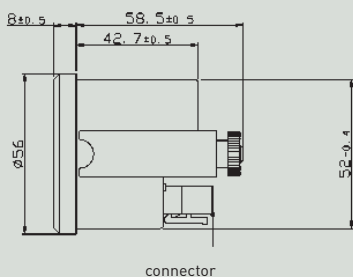
Technical specifications:

housing:	black plastic with bevelled black chrome-plated bezel, accessory on request: adapter Ø 60 mm
operating voltage:	12, 24, 36, 48 V DC / ± 25 %
max. current consumpt.:	50, 35, 35, 25 mA
display:	LED-indication: 10 LEDs (5 green, 3 yellow, 2 red) or 8 LEDs multi bar display (7 yellow, 1 red), LC-Display: 6 digits, height 4,5 mm
partial recharge:	type 830 or 830.1
counting range:	hour counter: 0 to 99999,9 h service time: 0000 to 9999 h (fix value 500 h, factory set)
operation indication:	clock symbol on the display
time divergence:	max. 0,02 % in 24 h
counter input:	a positive and a negative hour counter input
prewarning:	type 830, 830.1: penultimate red LED flashes type 855, 855.1: last yellow LED flashes
ambient temp.:	-30° C to +70° C
stocking temp.:	-40° C to +80° C
electr. connection:	8 pole molex connector with locking
reset/servicecounter:	no reset or manual (button on the rear of the unit)
protection:	IP 65 (front), on request with rubber seal
EMC:	EN 55011, EN 61000-6-2
relay contact:	make contact, opens when reaching discharge voltage, voltage-free breaking capacity 12, 24 V DC/5A, 36 V DC/3A, 48 V DC/2A relay restart: after relay cutoff one single restart for 30 sec. possible
signal inputs:	minimum pulse duration 0,5 sec.
vibration resistance:	20 g according to SAEJ1378, 1 g (10...500 Hz) acc. to EN 60068-2-34
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29
approval:	CE, UL, cUL
data storage:	EEPROM (25 years)
fixing:	metal clamping bracket with two nuts
weight:	approx. 100 g

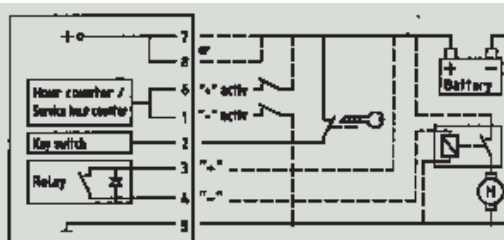
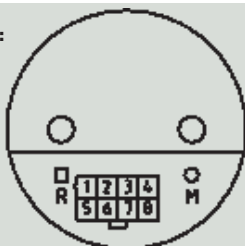
Order specifications:

Type, voltage, other discharge voltages or service times as the standard unit provides

Drawing:



Wiring diagram:



- 1 = hour counter input "-"
- 2 = key switch "+"
- 3 = relay "+"
- 4 = relay "-"
- 5 = battery "-"
- 6 = hour counter input "+"
- 7 = battery "+"
- 8 = battery "+"
- M = adjustable potentiometer
- R = reset (option)

Battery- and time controllers

are the gauges for your battery. Supervise and control exactly your battery-operated vehicles.

Battery and time controllers from the specialist

With these controllers you can even satisfy special needs.

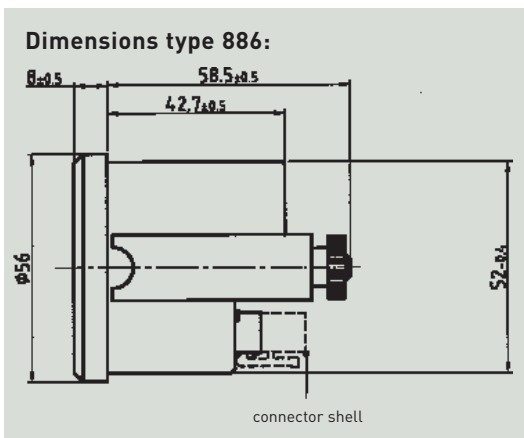
- exact measurement
- customer set parameters and inquiry of data for statistics purposes
- selection of four discharge curves in the EEPROM
- residual capacity visualised by a multi LED bar display
- protection against exhaustive discharge
- totalising hour counter with/without variable service counter
- best possible efficiency in the electro-vehicle-management (fork lift trucks, electro vehicles, sweeping machines, golfing cars,...)
- personalisation of the product with customised logo (on request)



type 885 ..., 886 ...

type	voltage (*)	with additional service counter		mounting depth mm	dashboard	
		active	inactive		metal	plastic
886	24, 36 or 48 V DC		●	58,5	●	●
886.1	24, 36 or 48 V DC	●		58,5	●	●
885	72 or 80 V DC	●		79		●
885/921	72 or 80 V DC		●	79		●
885/918	72 or 80 V DC	●		79	●	
885/739	72 or 80 V DC		●	79	●	

* 24 V DC = standard 36, 48, 72 and 80 V DC = special voltages
 option: with chromed front bezel, order code: .../C
 accessory: adapter for cutout Ø 60mm, order code: .../60 at additional cost



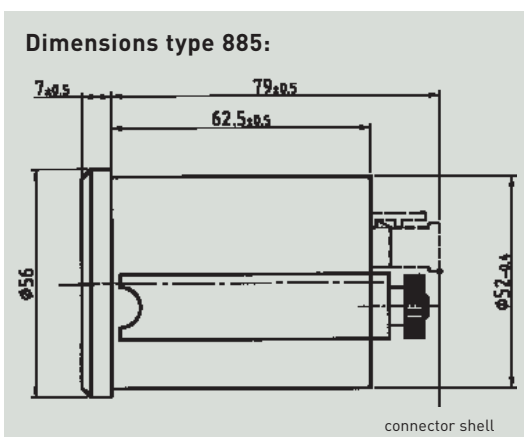
With this battery controller you can select exactly the appropriate discharge curve and therefore obtain a safe indication of the residual capacity of your battery. The controller takes the discharge curve out of the EEPROM; there you can find the 4 most important battery types: 1. lead-acid batteries, type PzS (according to DIN 43567/43595), 2. high performance batteries, 3. maintenance free batteries, 4. lead-acid batteries, type PzS liquid with increased DIN values. These curves can be selected via a mode button (with operator guidance on the display) on the rear of the housing or adjusted through an external button. Optionally this controller can also be programmed to non-standard discharge curves.

The different parameters are programmed factory set with standard or customised values or values can be adjusted by the customer where battery change occurs. * Fat printed parameter values = factory set standard values. Please indicate other than the standard value in your order specifications.

The battery controller has individually programmable limiting values.

An optical warning is effected by flashing of the LEDs. Additional protection offers the relay lockout - visualised by the illuminated red LED. Both values are adjustable between 20 and 60%.

There are 2 methods of resetting the controller: battery remains in the vehicle while charging: the values of the gassing voltage have to be reached. Battery is separated from the vehicle (alternate battery): the values of the reset voltage for a 100% charge have to be reached.



The battery controller - the combination unit with a totalising and a variable service-interval hour counter. You can positively or negatively reach up to 2 or 3 inputs (user). The counting state is indicated via a 6 digit LC display (0....99999,9h). Alternatively you can choose the indication of an adding service counter on the LC-display (i.e. supervision of the service intervals). The service preselection value is factory set on 500h. This value can be changed later (via mode button). Please indicate other than the standard service value in your order specifications. From the display you can also request different statistics values, i.e. quantity of loading cycles, etc...

The environmentally friendly recording of the data is effected by an EEPROM. In case of excess-voltages that are above the approved EMC/EMI protection, we recommend a shielding from custom's side.

Battery- and time controllers

are the gauges for your battery. Supervise and control exactly your battery-operated vehicles.

Reliable supervision of the battery's residual capacity and operating times

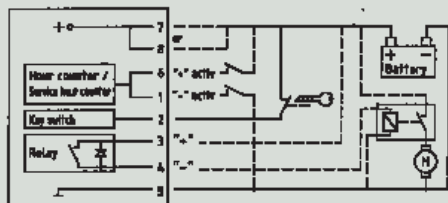
Order example:
individual setting of parameters:
type 886, 21.1, 36 V DC, ...

controller:	886
discharge curve (high perform. battery):	21.1
voltage:	36 V DC
relay lockout:	30 %
prewarning:	40 %
gassing voltage:	2,39 V/cell
delay time:	8 minutes
warning of defective cell:	1,51 V/cell
time:	6 minutes
service presel. value:	1000 h

Battery- and time controller – technical specifications:

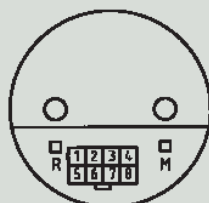
battery discharge curves:	11.1 = lead-acid, type PzS 21.1 = lead-acid, type PzS (high-performance) 81.1 = maintenance free (gel) 21.2 = lead-acid, type PzS liquid with increased DIN values	} selection via mode button or for type 885... external button connection 5
operating voltage:	Type 886...: 24 36 48 Type 885...: 24 36 48 72 80	
current consumption:	35 35 25 25 25	mA
voltage range:	16-32 24-48 32-64 48-96 54-106	V DC
EMC:	EN 55011, EN 50082-2	
control inputs, levels:	0 V = low level; 5 V ... rated voltage = high level	
display:	8 segment yellow multi LED bar display + 1 red LED for relay contact	
prewarning:	20, 30, 40, 50, 60 %; through flashing of the yellow multi LED bar display	
loading of battery:	20, 30, 40, 50, 60 %; indication via red LED	
relay lockout:	20, 30, 40, 50, 60 %	
relay contact:	1 make contact, potential-free (optionally: 1 change-over)	
breaking capacity:	24 V DC 5 A ... 80 V DC 1,5 A / 120 VA maximum	
gassing voltage:	1,95...2,31, 2,35, 2,39...2,55 V/cell, programmable in 16 steps on each step 0,04 V/cell	
delay time:	0, 1, 2, 4, 8, 15, 30, sec.; 1, 2, 4, 8 minutes, 0,25, 0,5, 1, 2, 4 h	
reset voltage:	1,95...2,07, 2,11, 2,15...2,55 V/cell, programmable in 16 steps on each step 0,04 V/cell	
delay time:	0, 1, 2, 4, 8, 15, 30, sec.; 1, 2, 4, 8 minutes, 0,25, 0,5, 1, 2, 4 h	
warning of defective cell:	flashing of the yellow multi LED bar display	
voltage:	1,15...1,27, 1,31, 1,35...1,75 V/cell, programmable in 16 steps on each step 0,04 V/cell	
time:	0,5...4, 4,5, 5...8 minutes, in 16 steps	

Type 886 – wiring diagram:



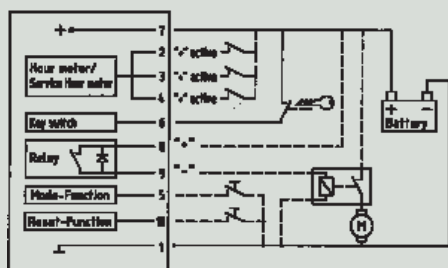
- 1 = hour counter input "-"
- 2 = key switch "+"
- 3 = relay "+"
- 4 = relay "-"
- 5 = battery "-" (ground)
- 6 = hour counter input "+"
- 7 = battery permanent "+"
- 8 = battery permanent "+"

Rear view:



The reset button "R" is not present at all units with disabled service hour counter

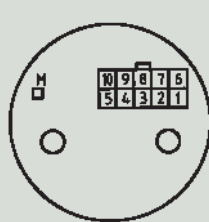
Type 885 – wiring diagram:



- 1 = battery "-" (ground)
- 2 = hour counter input "+"
- 3 = hour counter input "+"
- 4 = hour counter input "+"
- 5 = mode [button connected to battery "-"]
- 6 = key switch "+"
- 7 = battery permanent "+"
- 8 = relay "+"
- 9 = relay "-"
- 10 = reset [button connected to battery "-"]

External mode and reset can be connected optionally.

Rear view:



time counter/service counter – technical specifications:

current consumption:	all voltage ranges < 1 mA
display:	LC-display, character height of digits 4,5 mm
counting range:	time counter: 0 to 99999,9 h service counter: 0000 to 9999 h (fix value 500h factory set) resetable through → reset button (type 886) → or external button connection 10 (type 885)
operation indication:	clock symbol on the display
time divergence:	0,02 % in 24 h
triggering:	2 or 3 inputs, depending upon type, see wiring diagram in the margin
humidity:	maximum 95 %
shock resistance:	IEC 68-2-32
vibration resistance:	IEC 68-2-6
protection class:	IP 65 (front) 40050 (front) IP 20 (rear)
approval:	CE
ambient temperature:	- 30 °C to + 70 °C
fixing:	metal clamping bracket with two screws
mounting:	Ø 52 mm, type 886...= plastic housing type 885...= metal housing (accessory: adapter for Ø 60mm)
electrical connections:	8 or 10 pole compact molex connector with locking
weight:	type 886 approx. 110 g, type 885 approx. 190 g

*Fat printed parameter values = factory set standard values.
Please indicate other than the standard value in your order specifications.

Battery- and time controllers

are the gauges for your battery. Supervise and control exactly your battery-operated vehicles.

Cost effective battery indicators, with or without relay output

Cost effective battery indicators, with or without relay output!

If you want to view the residual capacity of your battery in larger segments, then you should choose these cost effective battery indicators.

The indication of the discharge status is effected in three steps. A clear prewarning as protection against exhaustive discharge would be activated.

Type 852 is available with relay output. On reaching the threshold "approx. 20 - 25 %" of the residual capacity, a red LED illuminates and a relay lockout will occur.

In case of heavy loads for short terms, **an integrated time delay** prevents a too early relay lockout.

Of course, you can get the BAUSER battery indicators without relay connection.

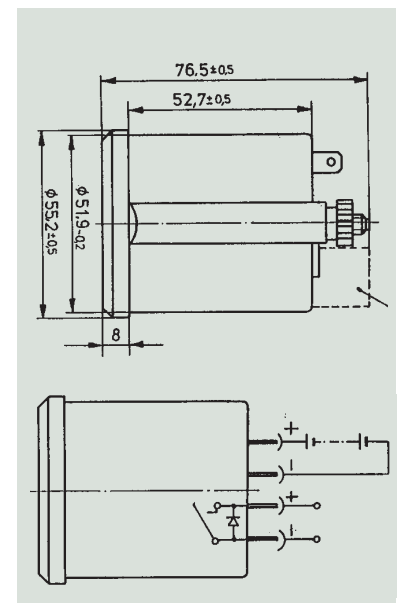
These are the cost effective alternatives for i.e. simple sweeping machines, wheel-chairs for patients, golfing cars, etc.



type range 852 to 853 C

Type range 852 to 853 C

type	front dimensions	front	relay output	
			with	without
852	∅ 56 mm	front bezel black chromed	●	
852 C	∅ 56 mm	front bezel chromed	●	
853	∅ 56 mm	front bezel black chromed		●
853 C	∅ 56 mm	front bezel chromed		●



Technical specifications: range 852...

type	852, 852 C	853, 853 C
battery type	all known battery types	all known battery types
operating voltage:	24 V DC	24 V DC
special voltages (at additional cost):	12, 36, 48, 72, 80 V DC further on request	12, 36, 48, 72, 80 V DC further on request
EMC protection:	EN 50082-2	EN 50082-2
display:	4 LEDs (3 yellow, 1 red)	4 LEDs (3 yellow, 1 red)
relay lockout:	yes (approx. 20 - 25 %)	no
relay contact:	1 make contact	-
option:	1 break contact	-
breaking capacity:	12, 24 V DC/2 A, 36 V DC/1,5 A 48 V DC/1A, 72, 80 V DC/0,5 A	-
ambient temperature:	- 25 °C to + 70 °C	- 25 °C to + 70 °C
shock resistance:	IEC 68-2-32: 10 g	IEC 68-2-32: 10 g
vibration resistance:	IEC 68-2-6	IEC 68-2-6
protect. class (front):	IP 65 (DIN 40050)	IP 65 (DIN 40050)
fixing:	retaining clip	retaining clip
connection:	flat plug (DIN 46244) 6,3 mm	2 flat plugs (DIN 46244) 6,3 mm
approval:	CE	CE

Accessories at additional cost:

adapter for cutout ∅ 60 mm,
order code: .../60.

optionally with rubber seal

Battery- and time controllers

are the gauges for your battery. Supervise and control exactly your battery-operated vehicles.

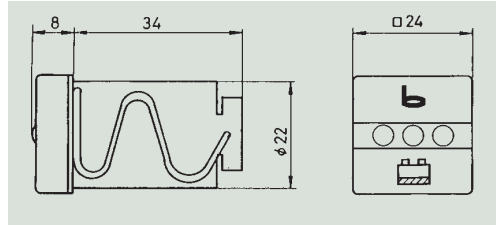
Battery indicators – the low cost variants! Flexibility with different housing sizes.



type 810

Battery indicators type 810 – "mini" (without relay output)

If you want to supervise the battery capacity in limited space, this mini battery indicator with its front dimensions of 24 x 24mm offers just the right solution.



A mini indication for the residual capacity. A cutout of $\varnothing 22,3$ mm - more space is not required for this tiny unit. The battery level is displayed by the illuminated red, yellow or green LED.



type 823

Battery indicator type 823 – with relay output, integrated time delay and locking for restart.

Though type 823 is a real "mini", it also can be supplied with relay output. As a result it offers safe battery protection with prewarning just-in-time.

type	front dimensions	colour	relay output		time delay, locking for restart	
			with	without	with	without
810	24 x 24 mm	black		●		●
823	36 x 24 mm	black	●		●	

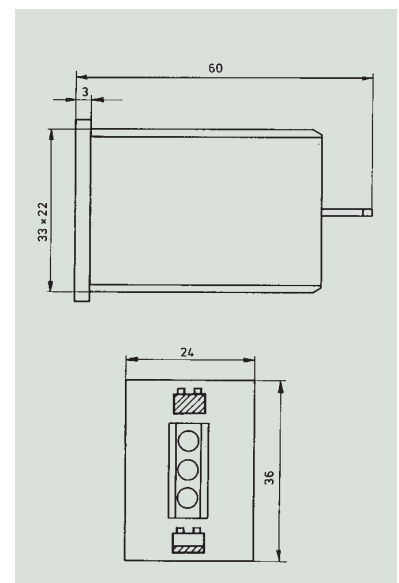
Technical specifications: range 810, 823

type	810	823
battery type:	all known battery types	all known battery types
operating voltage:	24 V DC	24 V DC
special voltages (at additional cost):	12, 36 V DC further on request	12, 36, 48 V DC further on request
EMC protection:	EN 50082-2	EN 50082-2
display:	3 LEDs (red, yellow, green)	3 LEDs (red, yellow, green)
relay lockout:	no	yes
relay contact:	-	1 make contact
option:	-	1 break contact
breaking capacity:	-	12 V and 24 V = 2 A 36 V = 1,5 A 48 V = 1 A
protect. class (front):	IP 54 (DIN 40050)	IP 65 (DIN 40050)
ambient temperature:	- 10 °C to + 50 °C	- 10 °C to + 50 °C
vibration resistance:	EN 60068-2-34 (1 g eff., 10 - 500 Hz, 2,5 h/axle)	EN 60068-2-34 (1 g eff., 10 - 500 Hz, 2,5 h/axle)
shock resistance:	IEC 68-2-27 (30 g, 18 msec., 3 shocks/direction), continuous shock IEC 68-2-29 (25 g, 6 msec., 1000 shocks/direction)	IEC 68-2-27 (30 g, 18 msec., 3 shocks/direction), continuous shock IEC 68-2-29 (25 g, 6 msec., 1000 shocks/direction)
fixing:	wire clip	retaining clip
connection:	2 cables (500 mm long)	4 cables (500mm long)
approval:	CE	CE

Special type 823:

This range is also available with horizontally placed LEDs.

Option: even without relay output



Battery and time controllers

are the gauges for your battery. Monitor and control exactly your battery-operated vehicles.

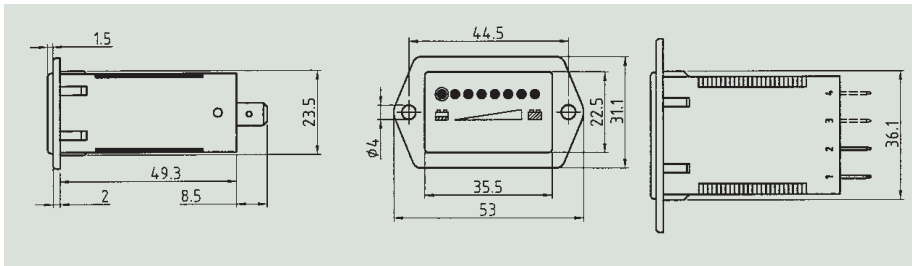
NEW

Battery controllers “mini”, with or without relay or signal output

The well-known microprocessor controlled BAUSER battery controllers with or without relay or signal output are available in further housing versions. They monitor the remaining capacity of traction batteries. The controllers are produced with a standard discharge voltage of 1,73 V/cell. Standard units are available in 24 V DC. Other customised discharge voltages are available on request (depends upon quantities).

Plastic housing black, with front fixing

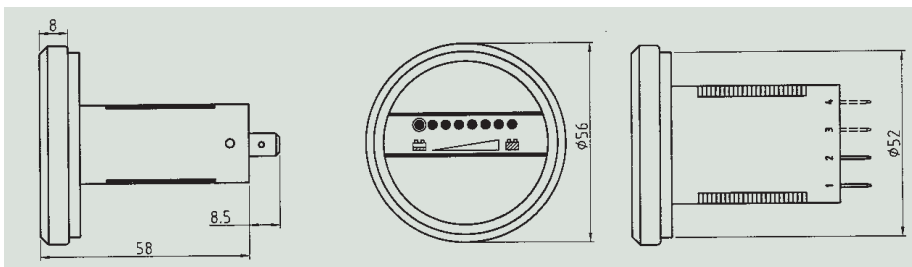
	with relay output	without relay output	with signal output (on request)
826	●		
826.6		●	
826.7*			●



type 826, 826.6, 826.7

Housing for flush-mounting: Ø 52 mm, front: glass with bevelled-black-chrome-plated bezel

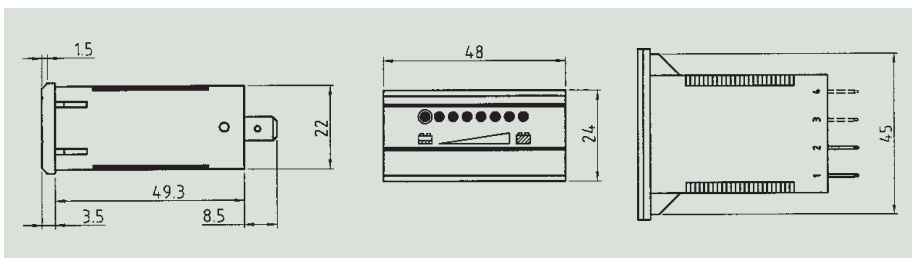
	with relay output	without relay output	with signal output (on request)
827	●		
827.6		●	
827.7*			●



type 827, 827.6, 827.7

Plastic housing black 48 x 24 mm

	with relay output	without relay output	with signal output (on request)
828	●		
828.6		●	
828.7*			●



type 828, 828.6, 828.7

* on request!

Battery and time controllers

are the gauges for your battery. Monitor and control exactly your battery-operated vehicles.

Battery controllers “mini” with or without relay or signal output

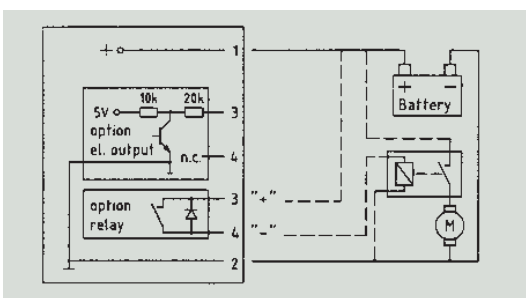
The remaining capacity of the battery is clearly visible by a multi LED indication (7 yellow LEDs, 1 red LED). The single LEDs extinguish from the right to the left. If the remaining capacity falls under the limiting value “prewarning” (approx. 25%), the last yellow LED will flash. By reaching the discharge voltage, the red LED lights up. The unit also features of a relay or signal output (it depends upon the type).

After cutoff the relay locking for restart would be activated. In order to terminate a started operation, i.e. lifting process, the locking for restart can be abolished one single time for about 30 sec. by switching the unit off and on again.

Technical specifications: type 826... to 828.7

housing:	type 826: black plastic housing, with front fixing type 827: housing for flush-mounting: Ø 52 mm, glass with bevelled-black-chrome-plated bezel type 828: plastic housing black 48 x 24 mm
operating voltage:	24 V DC / ± 25%
special voltages:	12, 36, 48 V DC / ± 25%, others on request
current consumption:	<50 mA at 12 V DC / <30 mA at 24...48 V DC
display:	multi bar display (7 yellow, 1 red)
prewarning:	approx. 25 % - last yellow LED flashes
discharge voltage:	1.73 V/cell (on request other special discharge voltages available)
relay contact:	voltage free, breaking capacity 12V / 2A, 24V / 2A, 36V / 1.5A, 48V / 1A
cutoff:	red LED active, relay or signal output, relay contact opens, resp. signal output “ low”
relay restart:	after relay cutoff one single restart for 30 sec. possible
reset voltage:	2.09 V/cell (battery is separated from the vehicle while charging) 2.35 V/cell (battery remains in the vehicle while charging)
ambient temp.:	- 30° C to + 70° C
stocking temp.:	- 40° C to + 80° C
electr. connections:	AMP plugs 6.3 x 0.8 straight
protection:	IP65 (frontal)
vibration resistance:	20 g according to SAEJ1378, 1 g (10...500 Hz) according to EN 60068-2-34
shock resistance:	55 g according to SAEJ1378, 30 g (18 ms) according to EN 60068-2-27 25 g (6 ms) according to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2
approval:	CE, UL, cUL
data storage:	EEPROM (25 years)
fixing:	retaining clip or frontal fixing
weight:	type 826: approx. 30 g type 827: approx. 50 g type 828: approx. 30 g
cutout:	type 826: 36.8 ± 0.2 x 24.1 ± 0.2 mm type 827: Ø 52 + 0.5 mm type 828: 45 + 0.5 x 22 + 0.5 mm

Wiring diagram: type 826... to 828.7



Order specifications:

Type, voltage, other discharge voltages or service times as the standard unit provides.

If you need further assistance, please feel free to contact our service hotline phone no: +49 (0) 74 85 / 181 - 20

Panels

Are you searching for better solutions? We solve it for you!

Multi-Controllers "MC" Constructed and configured individually – to your priorities.

These miniature indication boards are especially developed for utility vehicles and can replace different single indication instruments.

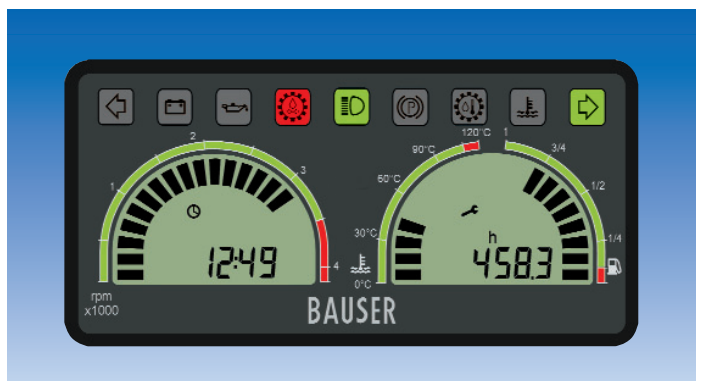
- In one view you can see all required data:
i.e. operating hours, programmable service intervals, real time clock, battery voltage, temperature, fuel level, pressure, revolution per minute or kilometre indication, different warning and control signals.
- All this information in only one unit – a miniature unit. Because the BAUSER MCs come in housing size of only: 100 x 50 mm or 56 mm diameter.
- Multi-Controllers with an "oval" front plate are possible examples of customised solutions, with front dimensions of approx. 190 x 130 mm.
- But with a large, back lighted display, so that you can comfortably read all the vehicle operating parameters. Different display variants as multi bar and digital indication are realisable.
- The data from the Multi-Controllers are available from analogue measuring inputs or optionally through a data interface CAN (SAEJ1939, CAN open).
- The MCs can be delivered with or without a front push button to visualise further data on the display or to acknowledge or configure service values. The configuration is factory set or effected by the customer via a serial interface.



Type 806






Type 808 - with a display with or without front push buttons



Type 808.2 - with 2 displays, without front push buttons, example of configuration: rpm, real time clock, temperature, fuel level, time and service counter.

Panels

Are you searching for better solutions? We solve it for you!

Type	MC	Indication / function	Housing
	806	<p>LC-Display with 10-multi bar segments, 6-digit 7-segment indication, several icons with back light</p> <p>up to 3 signal lamps, 2 to be supplied externally</p> <p>connections: 8 or 10 pole Molex Minifit</p> <p>2 analogue inputs</p>	<p>black plastic</p> <p>front dimensions: Ø 56 mm</p> <p>cutout: Ø 52 mm</p> <p>mounting depth: 45 mm</p>
	808	<p>LC-Display with maximum 21-multi bar segments, which can be used for 1, 2, 3 or 4 single multi bar indications</p> <p>6-digit 7-segment indication, several icons</p> <p>up to 10 signal inputs, 6 to be supplied externally, with or without 2 front push buttons.</p> <p>connections: 8 or 10 pole Molex Minifit or waterproof AMP-connector</p> <p>3 analogue inputs</p>	<p>black plastic</p> <p>front dimensions: 100mm x 50mm</p> <p>cutout: 92 mm x 45 mm or 96 mm x 46 mm</p> <p>mounting depth: 40 mm</p>
	808.2	<p>Two LC-Displays with maximum 21-multi bar segments for each, which can be used for 1, 2, 3 or 4 single multi bar indications</p> <p>6-digit 7-segment indication, several icons</p> <p>up to 9 signal inputs, 6 to be supplied externally, without front push buttons</p> <p>connections: 8 or 10 pole Molex Minifit or waterproof AMP-connector</p> <p>3 analogue inputs</p>	<p>black plastic</p> <p>front dimensions: 100mm x 50mm</p> <p>cutout: 92 mm x 45 mm or 96 mm x 46 mm</p> <p>mounting depth: 40 mm</p>

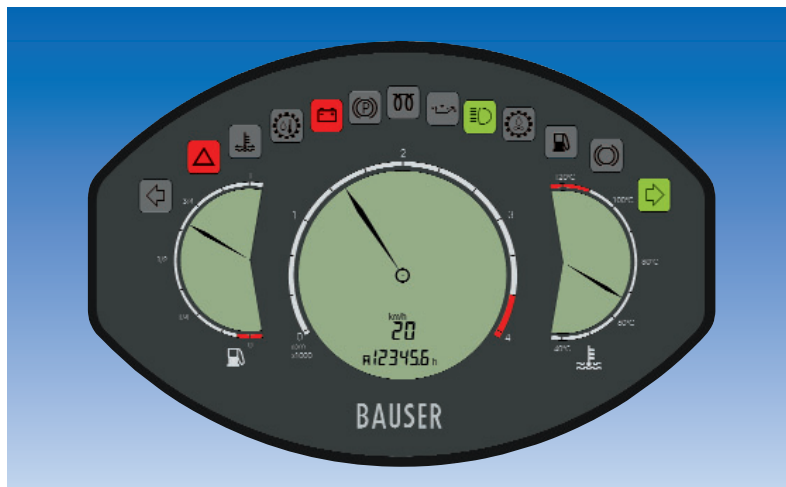
Options:

- indication instrument for CAN (SAEJ1939, CAN open).
- factory set configuration via serial interface or via two front push buttons. Release of input through PIN.
- with the front push buttons further data could be visualised on the display or service values acknowledged.

Panels

Are you searching for better solutions? We solve it for you!

Individual solutions:



Examples of realisable variants



Benefits and advantages

- The miniature panels can be easily and rapidly mounted. Therefore you save a lot of time and money.
- With prompt maintenance intervals and permanent controls of the single functions, the operating time of your vehicle could demonstrably be prolonged.
- The new BAUSER MCs support you in checking and controlling your vehicle functions and offer a new look for your cockpit.

Individual solutions

- Select between different standard types or choose a customised solution. As the BAUSER Multi-Controllers can be developed according to your priorities.
- This is possible due to our proven microprocessor – or ASIC-technology and to our decades of development experience in the field of electronics, electro-technique and software engineering.

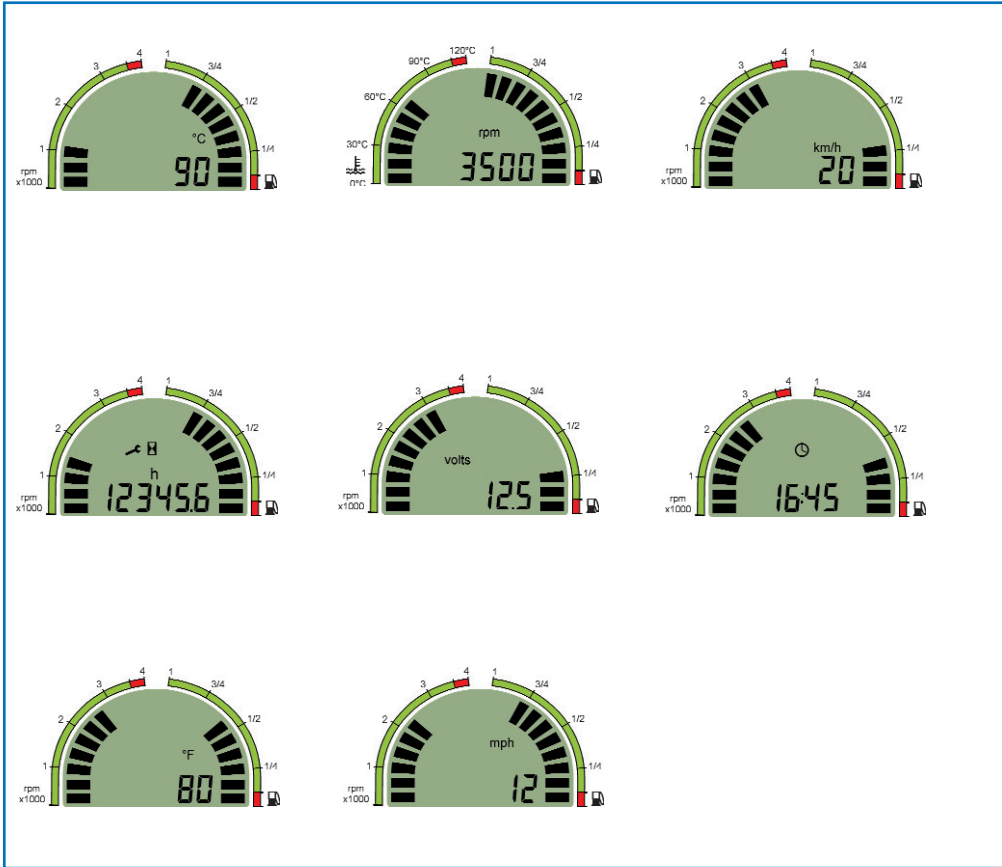
Quality and safety

- Our DIN EN ISO 9001:2000-certificated Company guarantees you a constant high quality – in all sectors.

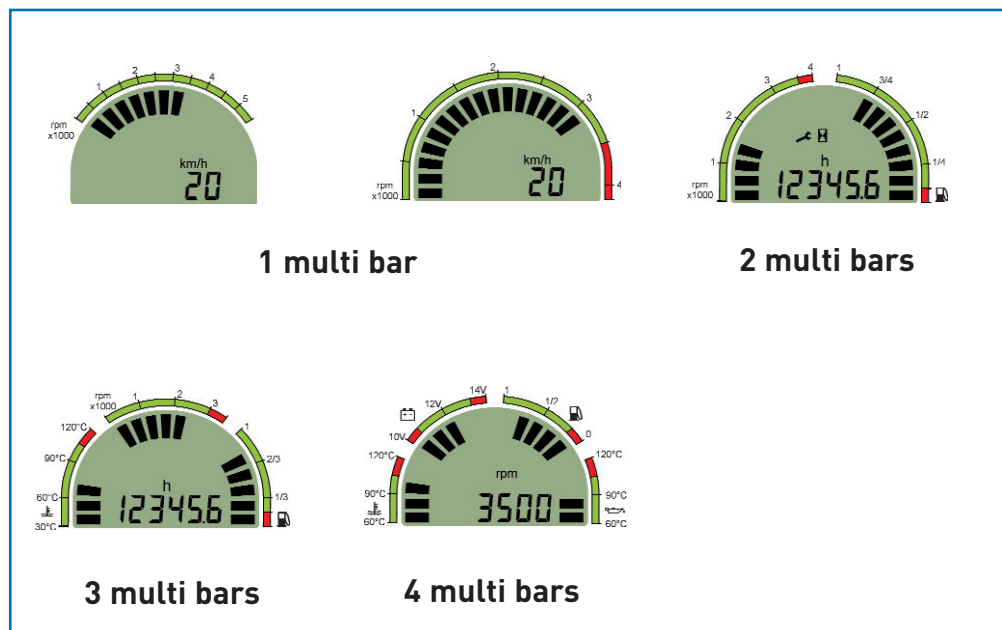
Panels

Are you searching for better solutions? We solve it for you!

Different display variants – configurable multi bar and 7-segment indications with respective icons.



LC-Displays with a maximum 21-segment multi bar indication, which could be used for 1, 2, 3 or 4 single multi bar indications:



Panels

Are you searching for better solutions? We solve it for you!

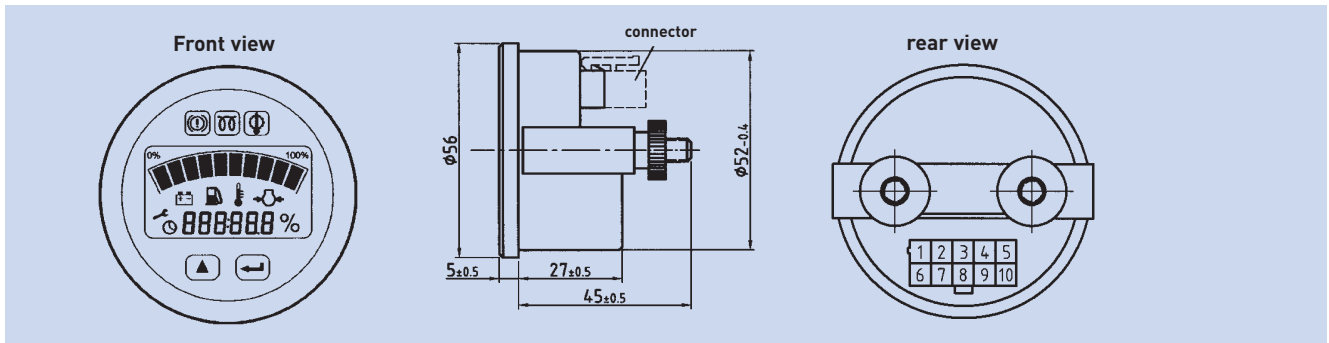
Technical specifications:

Type	806	808, 808.x
Housing	Black plastic	Black plastic
LC-Display:	10 multi bar segments, 6-digit 7-segment indication, with back light, indication of battery voltage, fuel level, temperature, pressure, rpm, operating hours (max. 99999,9h), service hours (max. 9999h), real time clock (adjustable)	1 or 2 LC-Displays with max. 21-multi bar segments, which can be used for 1,2,3 or 4 single multi bar indications, 6-digit 7-segment indication, several icons, indication of battery voltage, fuel level, temperature, rpm, speed km/h, hour counter (max. 99999,9h), service counter (max. 9999h), real time clock (adjustable)
LED-Indication:	3 LEDs, 2 of them can be supplied externally	9 or 10 LEDs, 6 to be supplied externally - with customised limit values, flasher right/left, battery, oil, gear oil pressure, water temperature, headlight, preheat, parking brake, gear oil temperature
Analogue inputs:	resistance, voltage	resistance, voltage, current
Options:	version for CAN (SAEJ1939, CAN open) data version for configuration via serial interface version with or without front push buttons at version with front push buttons a configuration and inquiry via push button is possible	version for CAN (SAEJ1939, CAN open) data version for configuration via serial interface version with or without front push buttons (808) version only without front push buttons (808.2) at version with front push buttons a configuration and inquiry via push button is possible
Operating voltage:	12, 24 V DC	12, 24 V DC
Current consumption:	max. 25mA	max. 200mA
Switching output:	FET 0.5A - optionally with relay output	FET 0.5A - optionally with relay output
Ambient temp.:	-40°C...85°C	-40°C...85°C
Stocking temp.:	-40°C...90°C	-40°C...90°C
Elect. connection:	Molex minifit 8-pole or 10-pole with lock	Molex minifit 8-pole or 10-pole with lock, optionally with waterproof AMP-connector
Fixing:	metallic clamp with 2 screws	metallic clamp with 2 screws
Data storage:	EEPROM	EEPROM
Protection class:	IP67 frontally, IP40 on the rear	IP67 frontally, IP 40 rear side – optionally IP67 on the rear
Vibrations:	EN 60068-2-34 (1g, 10-500Hz), SAE J1378 (20g, 10-80Hz)	EN 60068-2-34 (1g, 10-500Hz), SAE J1378 (20g, 10-80Hz)
Shock:	EN 60068-2-27 (30g, 18ms), EN 60068-2-29 (25g, 6ms) SAE J1378 (55g, 9-13ms)	EN 60068-2-27 (30g, 18ms), EN 60068-2-29 (25g, 6ms) SAE J1378 (55g, 9-13ms)
EMC:	EN 61000-6-2, EN55011	EN 61000-6-2, EN55011
Approvals:	CE	CE
Accessories:	rubber seal	rubber seal

Panels

Are you searching for better solutions? We solve it for you!

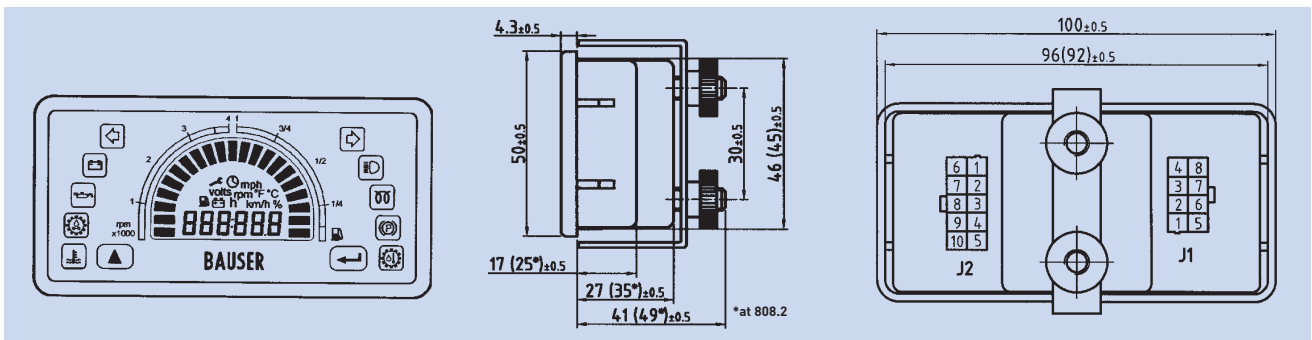
Drawings Type 806:



Configuration of PINs:

- | | |
|----------------------|--------------------------------|
| 1 = analogue input 1 | 6 = analogue input 2 |
| 2 = key switch + | 7 = release of configuration + |
| 3 = FET output | 8 = hour counter + |
| 4 = battery - | 9 = battery + |
| 5 = LED 2 - (option) | 10 = LED 3 - (option) |

Drawings Type 808, 808.2:



Configuration of PINs J1:

- | | |
|----------------------|----------------------|
| 1 = LED 6 - | 5 = battery - |
| 2 = LED 7 - | 6 = FET-output |
| 3 = LED 8 - | 7 = battery + |
| 4 = analogue input 1 | 8 = analogue input 2 |

Configuration of PINs J2:

- | | |
|------------------|--------------------------------|
| 1 = km/h + | 6 = CAN L (optionally) |
| 2 = key switch + | 7 = CAN H (optionally) |
| 3 = LED 3 - | 8 = release of configuration + |
| 4 = LED 4 - | 9 = Hour counter + / rpm + |
| 5 = LED 5 - | 10 = analogue input 3 |

BAUSER®

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E-mail: mail@bauser-control.de

BAUSER®

Electromechanical hour counters

register operating and service times.

Hour counters for AC or DC in BAUSER design, type range 631...-638...

The world-wide known BAUSER hour counters can be fast and easily mounted. As the counters are available in all current front dimensions, you do not require additional bezels.

Front frame 52 x 52 mm, cutout $\varnothing 50,2^{+0,3}$ mm or $\square 45,2^{+0,3}$ mm

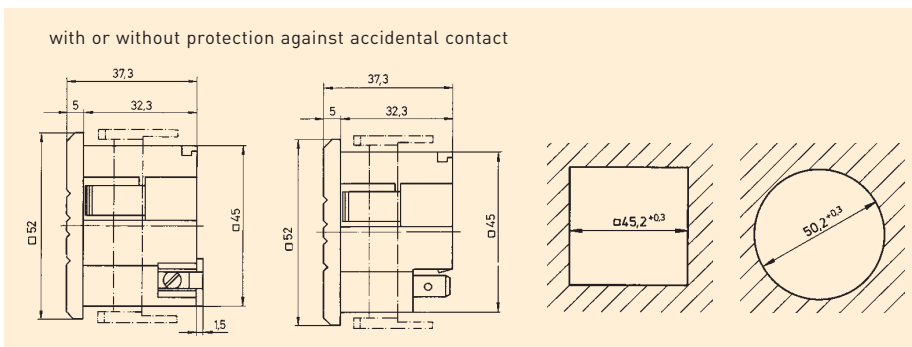
AC	DC	grey	black	terminal connection	plug connection	protection against accidental contact	
						with	without
631	629	●		●		●	
632	630		●	●		●	
633	637	●		●			●
634	638		●	●			●
631.1	629.1	●			●	●	
632.1	630.1		●		●	●	
633.1	637.1	●			●		●
634.1	638.1		●		●		●



type 631, 631.1, 633, 633.1, 629, 629.1, 637, 637.1



type 632, 632.1, 634, 634.1, 630, 630.1, 638, 638.1



Front frame 48 x 48 mm, cutout $\square 45,2^{+0,3}$ mm

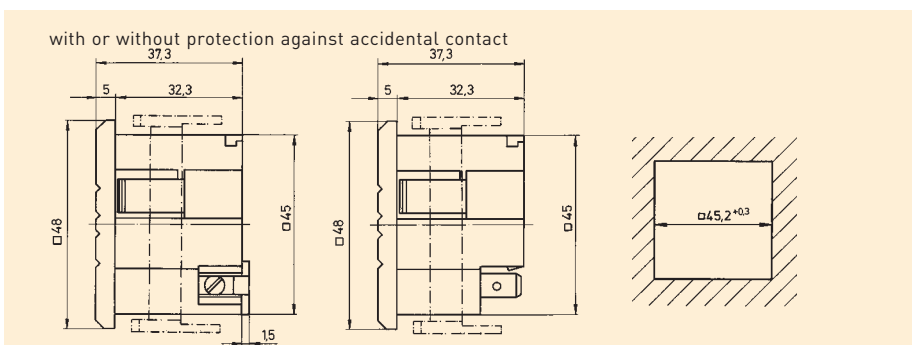
AC	DC	grey	black	terminal connection	plug connection	protection against accidental contact	
						with	without
631.2	629.2	●		●		●	
632.2	630.2		●	●		●	
633.2	637.2	●		●			●
634.2	638.2		●	●			●
631.3	629.3	●			●	●	
632.3	630.3		●		●	●	
633.3	637.3	●			●		●
634.3	638.3		●		●		●



type 631.2, 631.3, 633.2, 633.3, 629.2, 629.3, 637.2, 637.3



type 632.2, 632.3, 634.2, 634.3, 630.2, 630.3, 638.2, 638.3



Electromechanical hour counters

register operating and service times.

Hour counters with or without integrated protection against accidental contact according to VBG4, protection class IP 65 (front)



type 631.4, 631.5, 633.4, 633.5, 629.4, 629.5, 637.4, 637.5



type 632.4, 632.5, 634.4, 634.5, 630.4, 630.5, 638.4, 638.5



type 631 A.2, 629 A.2



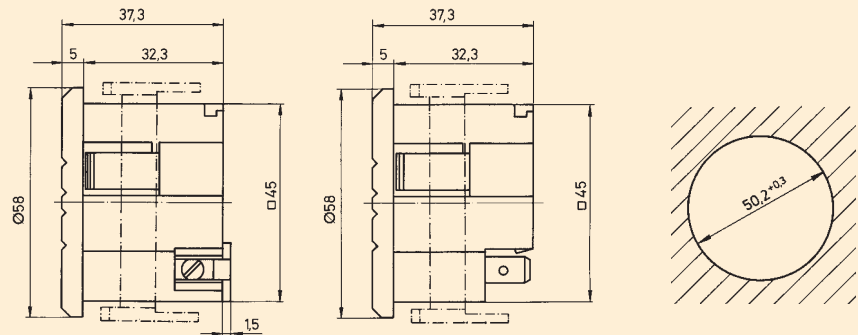
type 632 A.2, 630 A.2
with additional terminal cover type A

You can obtain the BAUSER counters in the housing colours grey (RAL no. 7032) and black, on request even in light-grey (RAL no. 7035) and with your logo on it (minimum quantity required). Approved to UL/CSA, CE, VDE.

Front frame $\varnothing 58$ mm, cutout $\varnothing 50,2 \pm 0,3$ mm

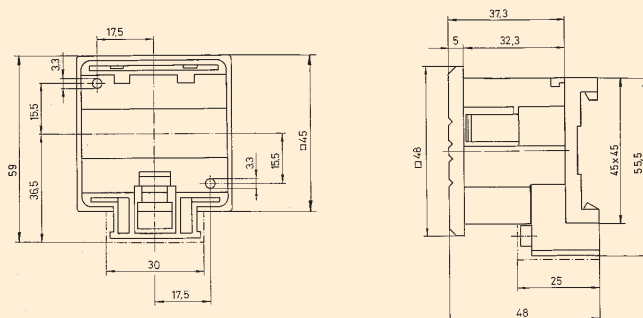
AC	DC	grey	black	terminal connection	plug connection	protection against accidental contact	
						with	without
631.4	629.4	●		●		●	
632.4	630.4		●	●		●	
633.4	637.4	●		●			●
634.4	638.4		●	●			●
631.5	629.5	●			●	●	
632.5	630.5		●		●	●	
633.5	637.5	●			●		●
634.5	638.5		●		●		●

with or without protection against accidental contact



Front frame 48 x 48 mm, surface or DIN rail 35 mm (DIN 46277)

AC	DC	grey	black	terminal connection	plug connection	protection against accidental contact	
						with	without
631A.2	629A.2	●		●		●	
632A.2	630A.2		●	●		●	



Electromechanical hour counters

register operating and service times.

Accessories and special types at additional cost

Beside the standard program BAUSER offers you a range of individual special developments. Inform us about your requirements and ideas – we find a solution for you.

variants for 50 and 60 Hz operation:
order code, i.e. 631/943

bezel 55 x 55 mm:
grey or black, fitting to the counter with front frame 48 x 48 mm

bezel 72 x 72 mm:
grey or black, fitting to the counter with front frame 48 x 48 mm

blind cover 53 x 53 mm:
suited for types with square cutout

terminal cover type A:
fitting for type 631A.2, 632A.2, 629A.2, 630A.2
A later combination to get a DIN-rail counter is possible with types 633... or 634...or 637...or 638... and a mounting socket.

additional sealing:
rubber seal for all versions with square or round cutout – please indicate type in your order

metal clamp:
available for all types, but the mounting depth changes: ...+ 16 mm,
order code, i.e.: 631.4/879

additional water-proof surface housing:
available for all types with 48 x 48 front frame – (protection class IP 65, with cable)
order code, i.e.: 633.3/765

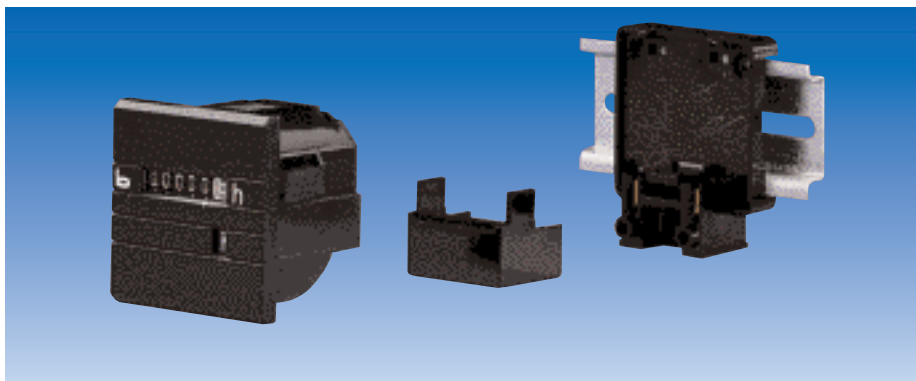
illuminated display:
at important quantities on request



counter 48 x 48 mm, with bezel 55 x 55 mm



counter 48 x 48 mm, with bezel 72 x 72 mm



type 632A.2, 630A.2 with additional terminal cover type A

Electromechanical hour counters

register operating and service times.

Hour counters of type range 631... - 638... – High in capacity, low in price



* This retaining clip is included in the delivery at types for flush mounting (panel thickness up to 10 mm).

Our developing and production know-how is excellent. This was certified according ISO9001. That is why we can guarantee to our world-wide OEM customers high quality products in the shortest time.

Technical specifications:

	AC	DC
reset:	no	no
counting range:	99999,99 h	99999,99 h
digits:	1,5 x 3,5 mm (with lens 4 mm), white on black, decimals black on white	1,5 x 3,5 mm (with lens 4 mm), white on black, decimals black on white
standard voltages:	115 or 230 V AC	10 - 80 V DC (1,5 - 15 mA)
special voltages: (at additional cost)	12, 24, 36 - 48 and 400 V AC	2 - 20 V DC (0,5 - 27 mA) 80 - 220 V DC (1,5 - 4,5 mA)
voltage tolerance:	± 10 %	-
frequency:	50 or 60 Hz (on request 50 and 60 Hz)	-
current consumption:	approx. 10 mA at rated voltage	see above
protection class:	DIN 40050, housing IP 65 (front) terminals: IP 20 (Variant VBG 4) IP 00 (without VBG 4)	DIN 40050, housing IP 65 (front) terminals: IP 20 (Variant VBG 4) IP 00 (without VBG 4)
testing voltage:	winding and contact against GND 2500 V/50 Hz	-
ambient temperature:	- 20 °C to + 70 °C	- 20 °C to + 70 °C
fixing:	via included retaining clip*, panel thickness up to 10 mm, or via integrated snap-in lugs, panel thickness up to 2 mm, whereas the cutout should be 45,2 ^{+0,3} x 45,2 ^{+0,3}	via included retaining clip*, panel thickness up to 10 mm, or via integrated snap-in lugs, panel thickness up to 2 mm, whereas the cutout should be 45,2 ^{+0,3} x 45,2 ^{+0,3} mm
connection:	terminals or plugs, with or without protection against accidental contact	terminals or plugs, short circuit and reverse battery protected
approval:	CE (UL, CSA and VDE at additional cost)	CE
operation indication:	yes	yes
weight:	approx. 46 g	approx. 46 g

Electromechanical hour counters

register operating and service times.

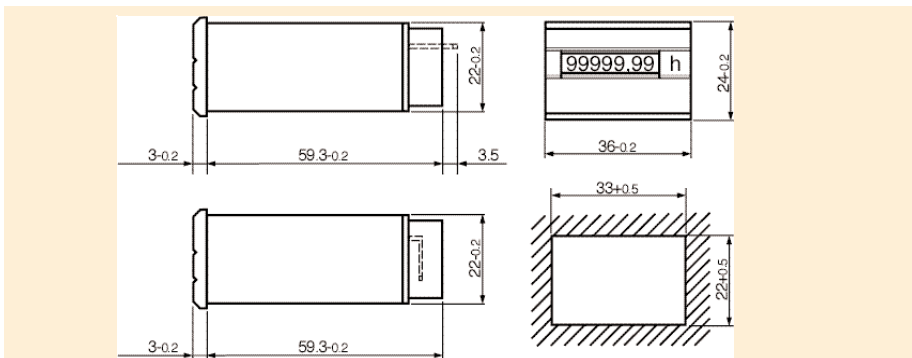
New hour counters – now with large digits and DIN dimensions 48 x 24 mm type range 250...

These are 7 digit BAUSER hour counters with the smallest dimensions for AC and DC operation. They are even suited for heavy applications on utility vehicles. Even for this range a protection class of IP65 (front) is offered.

A BAUSER top program, where everything is correct. From the technical solution, through the design up to the usual good value for money.

Front frame 36 x 24 mm, protection class IP 65

AC	DC	front black	front grey	plug connect. 6,3 x 0,8 "straight"	plug connect. "bent" 90°	terminal connect. "bent" 90°
250	260	●		●		
250.1	260.1	●			●	
250.2	260.2	●				●
251	261		●	●		
251.1	261.1		●		●	
251.2	261.2		●			●



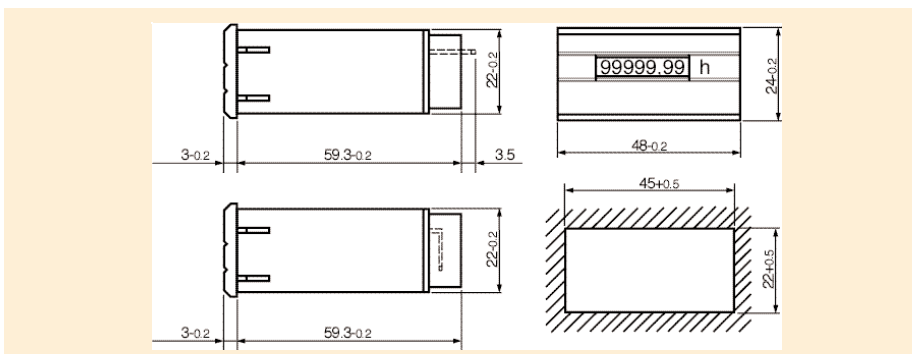
type 250, 250.1, 250.2, 260, 260.1, 260.2



type 251, 251.1, 251.2, 261, 261.1, 261.2

Front frame DIN dimension 48 x 24 mm! Protection class IP 65

AC	DC	front black	front grey	plug connect. 6,3 x 0,8 „straight“	plug connect. „bent“ 90°	terminal connect. „bent“ 90°
252	262	●		●		
252.1	262.1	●			●	
252.2	262.2	●				●
253	263		●	●		
253.1	263.1		●		●	
253.2	263.2		●			●



type 252, 252.1, 252.2, 262, 262.1, 262.2



type 253, 253.1, 253.2, 263, 263.1, 263.2

Electromechanical hour counters

register operating and service times.

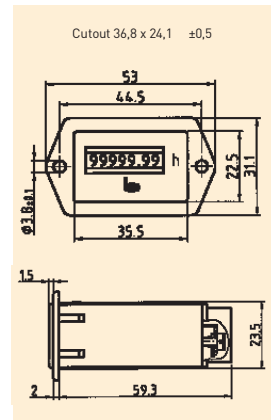
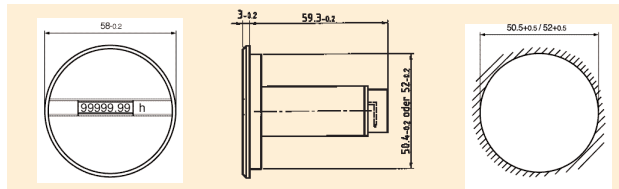
Hour counters with different front, connection and colour variants, with protection class IP65 (front), quartz controlled



type 254, 254.1, 254.2-256, 256.1, 256.2, 264, 264.1, 264.2-266, 266.1, 266.2,

BAUSER offers – especially for your vehicle technology – hour counters with different housing variants. For power supply, you can choose between the classical plug- or terminal connection.

Front frame Ø 58 mm, with two cutouts:
Ø 50,5 mm or Ø 52 mm, or type for front fixing.



AC	DC	front black	front grey	cutout Ø 50,5 mm	cutout Ø 52 mm	cutout 36,8 x 24,1 ± 0,5 mm	plug-con. 6,3 x 0,8 "straight"	plug-con. "bent" 90°	terminal-con. "bent" 90°
254	264	●		●			●		
254.1	264.1	●		●				●	
254.2	264.2	●		●					●
255	265		●	●			●		
255.1	265.1		●	●				●	
255.2	265.2		●	●					●
256	266	●			●		●		
256.1	266.1	●			●			●	
256.2	266.2	●			●				●
257	267		●		●		●		
257.1	267.1		●		●			●	
257.2	267.2		●		●				●
258	268	●				●	●		
258.1	268.1	●				●		●	
258.2	268.2	●				●			●

Accessories and special types at additional cost:

variant for 20- and 100 Hz operation:
order code i.e.: 250/943

rubber seal: for additional sealing (please indicate for which type it is required)

spring wire bracket: optionally, if there is only little space available – but only up to maximum 48 V

variant with front fixing,
panel cutout 36,8 x 22 ± 0,5 mm



type 258, 258.1, 258.2, 268, 268.1, 268.2

Technical specifications:

	AC	DC
reset:	no	no
counting range:	99999,99 h	99999,99 h (new - two decimals)
digit height:	1,8 x 3,6 mm (with lens), white on black, decimals black on white	1,8 x 3,6 mm (with lens), white on black, decimals black on white
voltages:	115 or 230 V AC	12 - 24 V DC
special voltages (at additional cost):	12, 24 or 42 V AC	on request
voltage tolerance:	± 10 %	-
frequency:	50 or 60 Hz (on request 20 and 100 Hz operation)	-
current consumption:	approx. 8 mA	approx. 5 - 15 mA
protection DIN 40050:	housing: IP 65 (front) terminals: IP 00	housing: IP 65 (front) terminals: IP 00
ambient temperature:	- 30 °C to + 70 °C	- 20 °C to + 70 °C
fixing:	retaining clip	retaining clip
connections:	terminals or plugs (straight or bent)	terminals or plugs short circuit and reverse battery protected
approvals:	CE, VDE (UL, CSA – at additional cost)	CE
weight:	approx. 35 g	approx. 35 g

Electromechanical hour counters

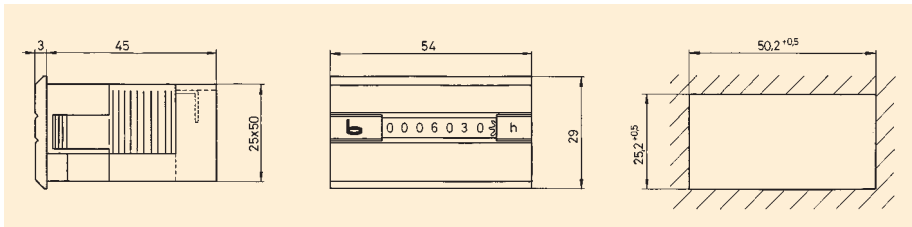
register operating and service times.

Hour counters for AC and DC with or without reset type range 603...617....

These AC or DC counters offer a snap-in fixing for fast mounting and are available with or without cable connection and reset. On request even with detachable key, that is why they are protected against manipulation.

Front frame 54 x 29 mm, in BAUSER design

AC	DC	grey	black	terminal connection	plug connection 6,3 x 0,8	cable 2 x 0,38 \square L: 500 mm
603	608	●			●	
603.2	608.2	●		●		
603.3	608.3	●				●
604	609		●		●	
604.2	609.2		●	●		
604.3	609.3		●			●



type 603, 603.2, 603.3, 608, 608.2, 608.3



type 604, 604.2, 604.3, 609, 609.2, 609.3

Front frame 54 x 29 mm, without bezel

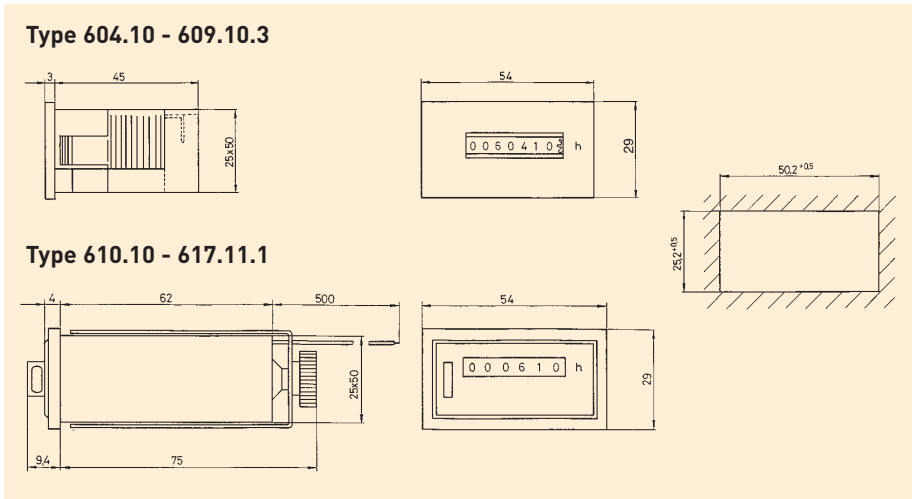
AC	DC	grey	black	terminal connection	plug connection 6,3 x 0,8	cable 2 x 0,38 \square L: 500 mm	reset without	with
604.10	609.10		●		●		●	
604.10.2	609.10.2		●	●			●	
604.10.3	609.10.3		●			●	●	
610.10	617.10	●				●		●
610.10.1*	617.10.1*	●				●		●
610.11	617.11		●			●		●
610.11.1*	617.11.1*		●			●		●



type 604.10, 604.10.2, 604.10.3, 609.10, 609.10.2, 609.10.3



type 610.11, 610.11.1, 617.11, 617.11.1



Electromechanical hour counters

register operating and service times.

Hour counters with protection against accidental contact according to VBG4

BAUSER offers hour counters for operation on 50 and 60 Hz for the world-wide sales. These special types are available with order code .../943. Just as the AC standard counters are UL- and CSA approved.

Technical specifications:

	AC	AC	DC	DC
type:	603 - 604.10.3	610.10, 610.10.1, 610.11, 610.11.1	608 - 609.10.3	617.10, 617.10.1, 617.11, 617.11.1
reset:	no	yes	no	yes
counting range:	99999,99 h	9999,99 h (99999,9 h = 610.10.1, 610.11.1)	999999,9 h	9999,99 h (99999,9 h = 617.10.1, 617.11.1)
digits:	1,5 x 4 mm (with lens) white on black, decimals black on white	2 x 4 mm, white on black, decimals black on white	1,5 x 4 mm (with lens) white on black, decimals black on white	2 x 4 mm, white on black, decimals black on white
voltages:	115 or 230 V AC	115 or 230 V AC	10 - 50 V DC	12 - 24 V DC
special voltages (at additional cost):	12, 24, 42 and 400 V AC	12, 24 and 42 V AC over 230 V AC with loose capacitor	50 - 120 V DC	36, 80, 110 V DC
voltage tolerance:	± 10 %	± 10 %	-	± 15 %
frequency:	50 or 60 Hz (on request 20 and 100 Hz operation)	50 or 60 Hz (on request 20 and 100 Hz operation)	-	-
current consumption:	approx. 8 mA	approx 2 VA	2,6 - 14,5 mA (1,3 - 3,5 mA at special voltage)	7,5 - 30 mA (8 - 14 mA at special voltage)
protection class DIN 40050:	housing: IP 65 (front) terminals: IP 00	housing: IP 41 (front) -	housing: IP 65 (front) terminals: IP 00	housing: IP 41 (front) -
ambient temperature:	- 20 °C to + 70 °C	- 20 °C to + 70 °C	- 20 °C to + 70 °C	- 10 °C to + 50 °C
fixing:	integr. snap-in lugs, panel thickness 0,5 - 3 mm cutout 50,5 x 25,5 mm	metal clamp	integr. snap-in lugs, panel thickness 0,5 - 3 mm cutout 50,5 x 25,5 mm	metal clamp
retaining clip (at additional cost):	for panel thickness up to 15 mm -		for panel thickness up to 15 mm -	
approvals:	CE (VDE, UL and CSA - at additional cost)	CE	CE	CE
operation indication:	yes	no	yes	no
conn. short circuit a. reverse batt. prot.:	-	-	yes	yes
protect. ag. accidental contact (to VBG 4):	yes	yes	yes	yes
weight:	approx. 45 g	approx. 135 g	approx. 45 g	approx. 135 g



retaining clip at additional cost

Accessories and special types at additional cost:

variants for 20- and 100 Hz operation:
order code i.e.: 603/943

reset with key:
for types 610.10/S, 610.11/S, 617.10/S, 617.11/S (detachable key)

retaining clip:
for type range 603 - 609.10.2

rubber seal for additional sealing:
between counter and panel

blind cover:
grey or black and cutout of minimum 50,2 x 25,2^{±0,5} mm

prolonged cable connection

option:
anthracite housing

Electromechanical hour counters

register operating and service times.

Mini-hour counters for recording time in minimum available space

If you want to register operation hours and have only minimum space available, then you can count on the mini counter with a counting range of rounded up 10.000 hours. This counter needs only a cutout of 22,3 mm.

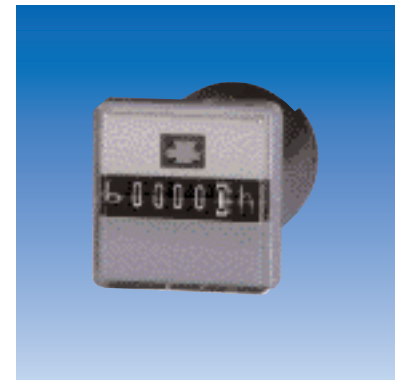
Accessories and special types at additional cost:

variants for 20- and 100 Hz operation:
order code i.e.: 200.4/943, but only up to 24 V AC or a pre-resistor is needed

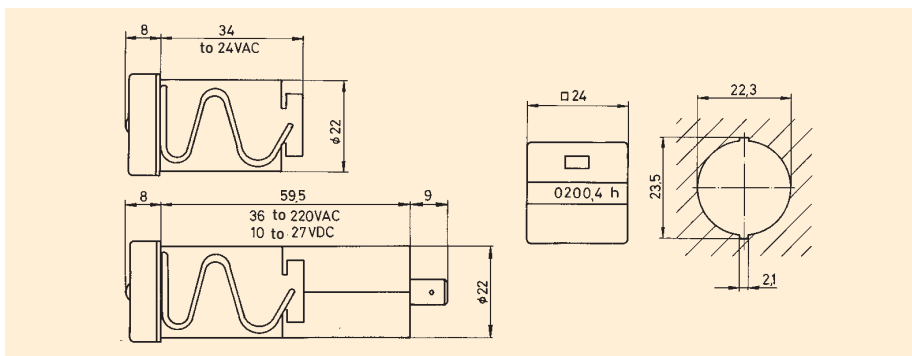
type 200.4 R with 2 counting inputs:
for recording of different sizes

UL-approval:
for AC type 200.4

AC	DC	solder or plug connection	grey housing
200.4	208	●	●



type 200.4, 208



Technical specifications:

	AC	DC
reset:	no	no
counting range:	9999,9 h	9999,9 h
digits:	1,5 x 3,5 mm (with lens) white on black, decimals black on white	1,5 x 3,5 mm (with lens) white on black, decimals black on white
voltages:	12 - 24 or 230 V AC	10 - 27 V DC
special voltages (at additional cost):	36 - 60, 60 - 140 V AC, over 230 V with separate capacitor	-
voltage tolerance:	± 10 %	-
frequency:	50 or 60 Hz (on request 20 -100 Hz operation)	-
current consumption:	approx. 8 mA	7,5 - 39 mA
protection class DIN 40050:	housing: IP 54 terminals: IP 00	housing: IP 54 terminals: IP 00
ambient temperature:	- 30 °C to + 80 °C	- 10 °C to + 50 °C
fixing:	spring wire	spring wire
approval:	CE (UL at additional cost)	CE
operation indication:	yes	yes
cutout:	Ø 22,3 mm, for an optimal fixing	Ø 22,3 mm, for an optimal fixing
mounting depth:	34 mm at 12 - 24 V counters, 68,5 mm at higher voltages	68,5 mm
connection:	at 12 - 24 V, plugs 1,5 x 0,5 as solder part, for all higher voltages 2 plugs 6,3 x 0,8 mm	2 plugs 6,3 x 0,8 mm
weight:	approx. 30 g	approx. 30 g

Electromechanical hour counters

register operating and service times.

Minutes and hour counters for AC or DC with or without reset, type range R5 72... R5 97



type R5 72, R5 77

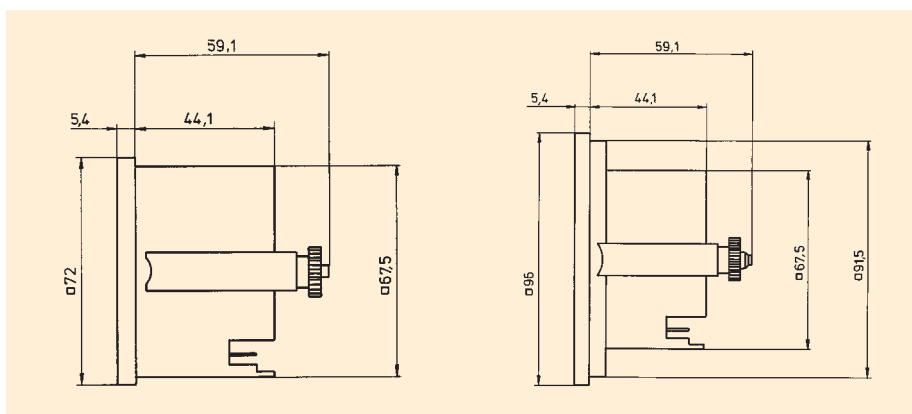


type R5 72N

Hour counters with DIN dimensions 72 and 96 mm □, suitable for all standard measuring instruments. For AC or DC, for recording of hours or minutes, with or without reset.

Front frame 72 x 72 mm or 96 x 96 mm

AC	DC	reset		front frame mm	cutout mm	counting range
		with	without			
R5 72	R5 77		●	72 x 72	68 x 68	99999,99 h
R5 72 N		●		72 x 72	68 x 68	9999,99 h
R5 72 N/M		●		72 x 72	68 x 68	99999,9 min.
R5 96	R5 97		●	96 x 96	92 x 92	99999,99 h
R5 96 N		●		96 x 96	92 x 92	9999,99 h
R5 96 N/M		●		96 x 96	92 x 92	99999,9 min



Technical specifications:

	AC	DC
reset:	yes and no	no or on request*
digits:	2 x 4 mm, white on black, decimals black on white	2 x 4 mm, white on black, decimals black on white
voltages:	115 or 230 V AC	10 - 50 V DC
special voltages (at additional cost):	12, 24, 42 and 400 V AC	36, 80, 110 V DC
voltage tolerance:	± 10 %	-
frequency:	50 or 60 Hz	-
current consumption:	approx. 2 VA	7,5 - 30 mA
protection class DIN 40050:	housing with reset button: IP 52 housing without reset button: IP 41 terminals: IP 00	housing: IP 52 terminals: IP 00
ambient temperature:	- 10 °C to + 60 °C	- 10 °C to + 50 °C
fixing:	metal bracket	metal bracket
connection:	terminal or plug (0,8x6,3 mm)	terminal or plug (0,8x6,3 mm)
approval:	CE (UL at additional cost)	CE
protect. ag. accidental contact (at add. cost):	terminal cover type R5 VBG-4-requirements	terminal cover type R5 VBG-4-requirements
operation indication:	yes	yes
short circuit and rev. battery protected:	-	yes
weight:	approx. 115 or 140 g	approx. 120 or 145 g

Accessories and special types at additional cost:

terminal cover type R5 protection against accidental contact
detachable key for reset order code i.e.: R5 72 N/S
*DC hour counter with reset
grey front frame
anti-reflective front glass

Electromechanical hour counters

register operating and service times.

Hour counter for DIN rail mounting, for AC or DC, overall height: 55, 60 or 64 mm

With its overall height of 55, 60 or 64 mm it is an ideal counter program for DIN rail mounting. A part of these AC or DC counters are produced with two decimals and special terminals (lift principle) values in just one single housing.

Find pulse counter as single counter on page 7-1.

AC	DC	counting range	overall height in mm			terminal connection	"Lift"-terminal connection
			55	60	64		
660.5	665.5	99999,9 h	●			●	
661.6	666.6	99999,99 h		●			●
661.7	666.7	99999,99 h			●		●

Technical specifications:

	AC	DC
housing:	plastic light grey RAL 7035	plastic light grey RAL 7035
gearing:	plastic	plastic
counting range:	see table above	see table above
digits:	1,8 x 3,6 mm, white on black, Decimals black on white	1,8 x 3,6 mm, white on black, Decimals black on white
voltages:	115 or 230 V AC	12 - 24 V DC
special voltages: (additional charge)	12, 24, 48, 400 V AC	
voltage tolerance:	± 10 %	± 10 %
frequency:	50 or 60 Hz (on request 20 to 100 Hz)	
current consump.:	approx. 5-15 mA	approx. 5-15 mA
protection (front):	IP 65, screws IP 20	IP 65, screws IP 20
ambient temp.:	- 10° C to + 70° C	- 10° C to + 70° C
stocking temp.:	- 40° C to + 80° C	- 40° C to + 80° C
elec. connection: (see table above)	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire
vibration resist.:	1 g (10...500 Hz) acc. to EN 60068-2-34	1 g (10...500 Hz) acc. to EN 60068-2-34
shock resistance:	30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29	30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II	EN 61010, protection class II
reset:	without	without
weight:	approx. 75 g	approx. 75 g
approval:	CE	CE
fixing:	snap-on fixing for DIN-rail according to DIN EN	snap-on fixing for DIN-rail according to DIN EN

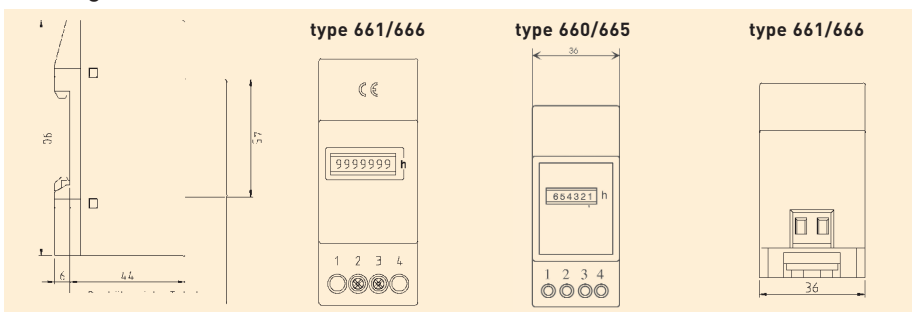


type 660.5, 665.6



type 661.6, 661.7, 666.6, 666.7

Drawings:



Electromechanical hour counters

register operating and service times.

DC hour counters for printed circuit or front panel mounting, disable input, protection class IP 65



type 656

Mini hour counter for 5, 12 or 24 VDC

These mini hour counters for DC operation are suited for panel or printed circuit mounting. Find the corresponding pulse counters with same dimensions on page 7-2.

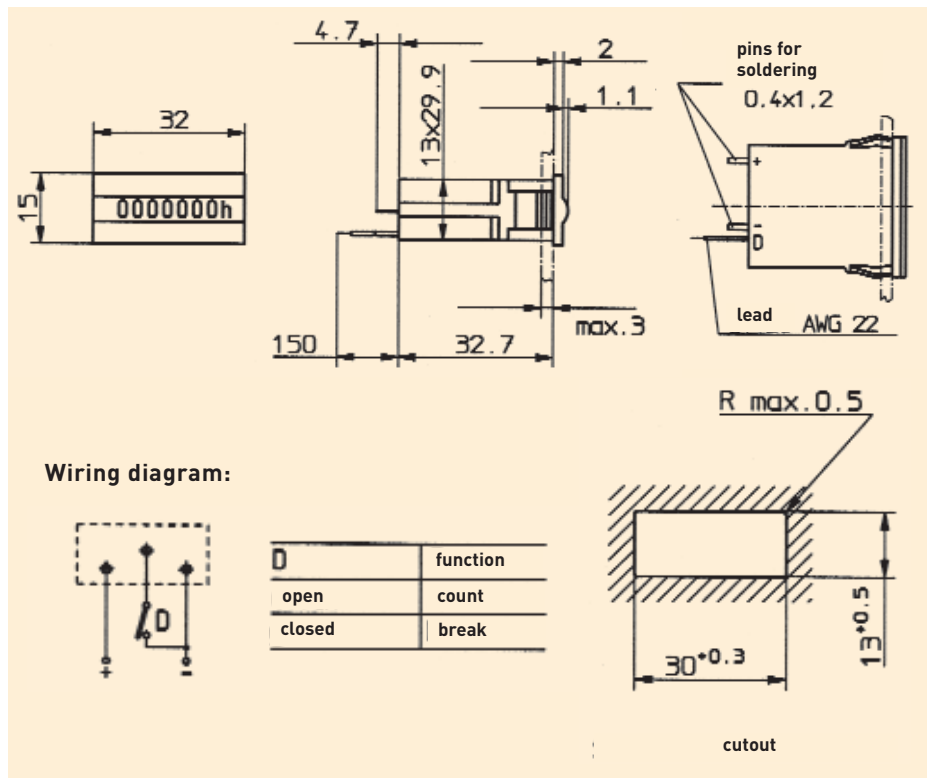
DC	front panel mounting (snap-in fixing max. 3 mm)
656	●

Technical specifications:

	DC
reset:	no
counting range:	99999,99 h
character height:	4 mm
operating voltage:	4,5 to 35 V DC
power consumption:	at $U_b = 5$ V DC type 82 mW at $U_b = 12$ V DC type 135 mW at $U_b = 24$ V DC type 135 mW max. 170 mW Only every 36 s with a pulse length of 3 ms
protection:	IP 65 (front)
ambient temperature:	- 10° C to + 60° C
electr. connections:	soldered conn. 0,4 x 1,2 mm
weight:	16 g
maintenance-free operation:	yes

Special features:

- with disable input for recording very short operating times
- high shock- and vibration resistance
- little current consumption
- well suited for battery-operated application and electronic circuits



Electromechanical hour counters

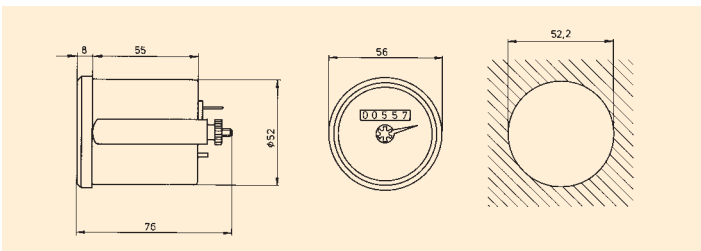
register operating and service times.

DC hour counters with hour and minute indication, vibration resistant, low current consumption

These quartz-operated hour counters for the utility vehicle industry have stood the test of decades. They have an elevated design, are robust, with water-proof front-face and available for the 52 or 60mm panel cutout. The time is rapide and easily readable with the circulating minute hand.

Housing Ø 52 mm with chromed 3-edge-frontal ring

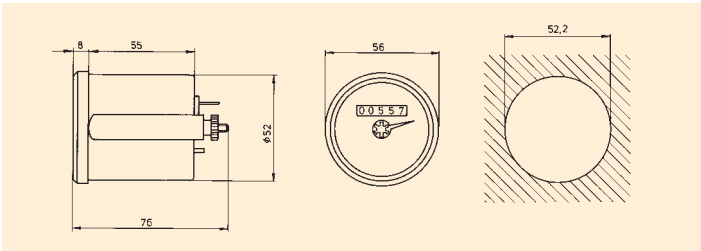
DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-frontal ring chromed
557		●	●
558	●		●



type 557, 558

Housing Ø 52 mm with black-chromed 3-edge-frontal ring

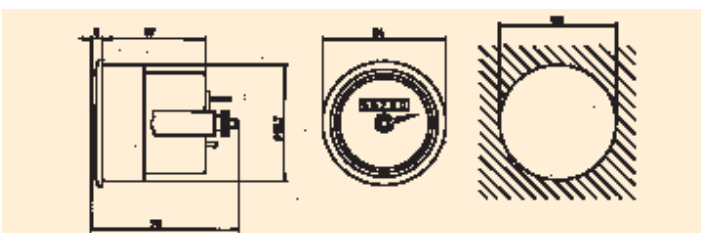
DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-frontal ring black chromed
557.2		●	●
558.2	●		●



type 557.2, 558.2

Housing Ø 52 mm with detachable adapter ring for reaching housing of Ø 60 mm with chromed or black-chromed 3-edge-frontal ring

DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-frontal ring chromed	3-edge-frontal ring black chromed
557/60		●	●	
557/60.2		●		●
558/60	●		●	
558/60.2	●			●



type 557/60, 558/60

Find the technical specifications for the DC hour counters with hour and minute indication on page 6-14.

Electromechanical hour counters

register operating and service times.

Quartz-operated hour counters, 10 - 80 V DC in one housing, protection class IP 65

The standard type is suited for applications with a voltage range of 10 - 80 V DC. Further they can be used for different applications, for example with damping rubber ring for extreme vibrations.

Housing \varnothing 52 mm with detachable adapter ring (= \varnothing 60 mm) and damping rubber ring (= \varnothing 72 mm)

DC	terminal connection	plug connection 6,3 x 0,8 mm	rubber ring for damping \varnothing 72 mm	3-edge frontal ring chromed	3-edge frontal ring black-chromed
557/60.1		●	●	●	
557/60.1.2		●	●		●
558/60.1	●		●	●	
558/60.1.2	●		●		●

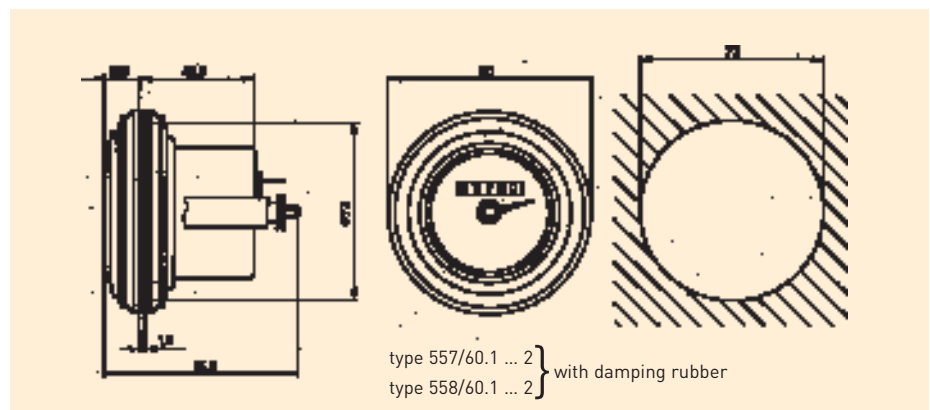
Accessories and special types at additional cost:

flat frontal ring
available for all counters

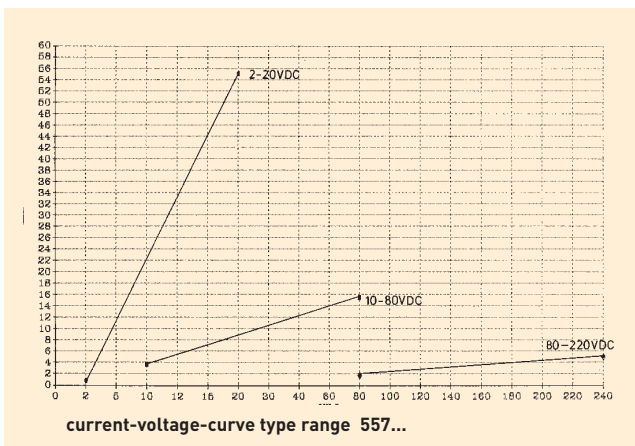
housing \varnothing 60 mm (without adapter ring)
available for all counters
order code .../600

rubber seal ring
available for housing of \varnothing 52 mm or \varnothing 60 mm

metal fastening bolt
for extreme applications
order code .../894



Technical specifications:



	DC
reset:	no
counting range:	99999 h and 0 - 60 minutes
digits char. height:	2 x 4 mm, white on black
voltage:	10 - 80 V DC (1,4 - 15 mA)
special voltages (at additional cost):	2 - 20 V DC (1,5 - 27 mA) 80 - 220 V DC (1,4 - 4,5 mA)
protection class (DIN 40050):	housing: IP 65 (front) terminals: IP 00
ambient temperature:	- 40 °C to + 80 °C
fixing:	metal bolt
approval:	CE
operation indication:	yes
connection:	short circuit and reverse battery protected
vibration resistance:	tested on 3 levels at 45 Hz, amplitude \pm 0,5 mm each level, electronic and plastic version = little specific weight
time divergence:	only 0,01 % in 24 h: compared to the electromechanical counters no after running differences arise on the indication
weight:	approx. 110 g

Electromechanical hour counters

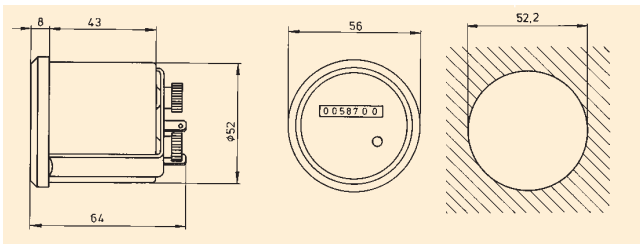
register operating and service times.

Quartz-operated hour counters, 10 - 80 V DC in one housing

These instruments meet the high-level requirements for hour counters in construction machines, fork lift trucks or other vehicles. The quartz-controlled electronic and the known BAUSER housing technology offer a basis for optimum value for money. In large quantities it is possible to print your logo on the counter.

Housing Ø 52 mm – now with price effective 3-edge-plastic frontal ring

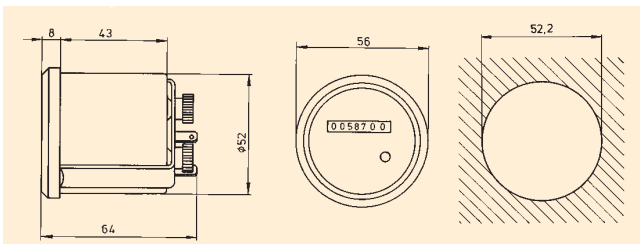
DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-plastic ring, black
587.10.2		●	●
588.10.2	●		●



type 587.10.2, 588.10.2

Housing Ø 52 mm with chromed or black-chromed 3-edge-frontal ring

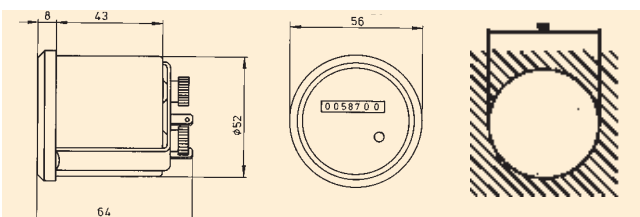
DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-frontal ring, chromed	3-edge-frontal ring, black chromed
587		●	●	
588	●		●	
587.2		●		●
588.2	●			●



type 587.2, 588.2

Housing Ø 52 mm with detachable adapter ring for reaching housing of Ø 60 mm with chromed or black-chromed 3-edge-frontal ring

DC	terminal connection	plug connection 6,3 x 0,8 mm	3-edge-frontal ring, chromed	3-edge-frontal ring, black chromed
587/60		●	●	
587/60.2		●		●
588/60	●		●	
588/60.2	●			●



type 587/60, 588/60

Find the technical specifications for the quartz-controlled hour counters on page 6-16.

Electromechanical hour counters

register operating and service times.

Cost effective DC hour counters, protection class IP65, variants with 3 separate inputs

BAUSER technology has convinced already a large number of known OEM customers world-wide. The quartz-controlled hour counters are suited for cutout of Ø 52 or 60 mm and offer a protection class of IP 65 (front).

Housing Ø 52 mm with detachable adapter ring (= Ø 60 mm) and damping rubber ring (Ø 72 mm)

DC	terminal conn.	plug connection 6,3 x 0,8 mm	rubber ring for damping Ø 72 mm	3-edge frontal ring chromed	3-edge frontal ring black chromed
587/60.1		●	●	●	
587/60.1.2		●	●		●
588/60.1	●		●	●	
588/60.1.2	●		●		●

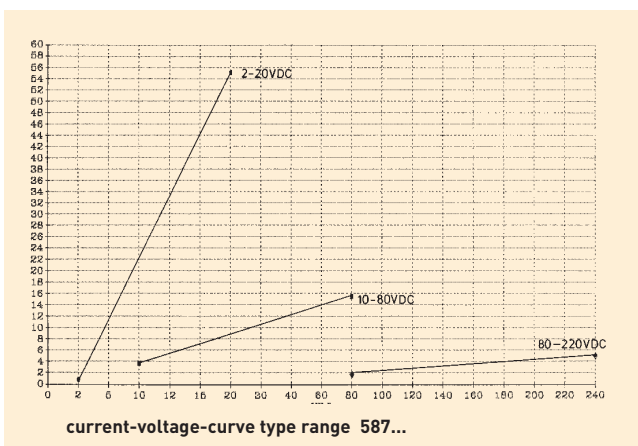
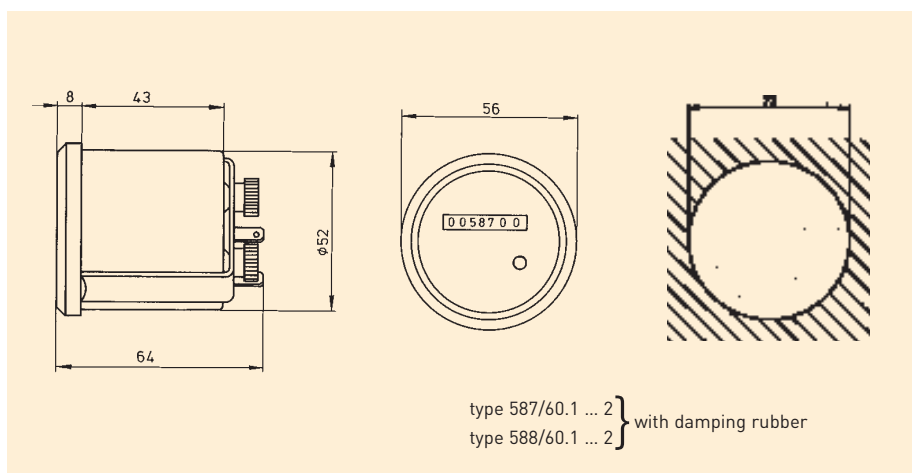
Accessories and special types at additional cost:

Flat fronting
available for all counters

housing Ø 60 mm (without adapter ring)
available for all counters
order code .../600

rubber seal ring
for housing of Ø 52 or Ø 60 mm

metal fastening bolt
for extreme applications
order code .../894



Technical specifications:

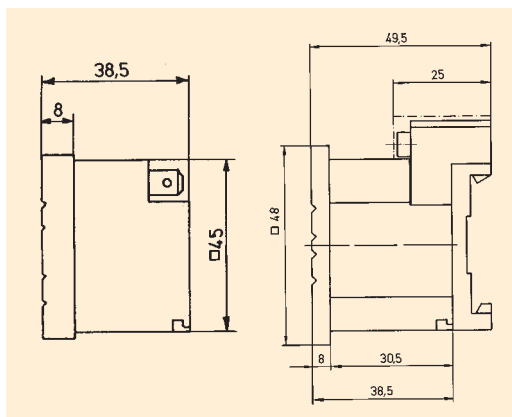
	DC
reset:	no
counting range:	99999,99 h
digits char. height:	1,5 x 3,5 mm, white on black, decimals black on white
voltage:	10 - 80 V DC (1,4 - 15 mA)
special voltages (at additional cost):	2 - 20 V DC (0,5 - 27 mA) 80 - 220 V DC (1,5 - 4,5 mA)
protection class (DIN 40050):	housing: IP 65 (front) terminals: IP 00
ambient temperature:	- 40 °C to + 80 °C
fixing:	metal bolt
approval:	CE
operation indication:	yes
connection:	short circuit and reverse battery protected
vibration resistance:	tested on 3 levels at 45 Hz, amplitude ± 0,5 mm each level, electronic and plastic version with little specific weight
time divergence:	only 0,01 % in 24 h; compared to the electromechanical counters no after-running differences arise on the indication
weight:	approx. 100 g

Electromechanical hour counters

register operating and service times.

Cost effective hour and pulse counter combinations for flush and surface/DIN-rail mounting, AC or DC

Here you will find a solid solution for a hour and pulse counter combination. Choose between flush or surface/DIN-rail mounting. The connections can be adjusted for a common or separate AC or DC current supply.



type 920



type 920 A.2

Type range 920, 920 A.2

type	flush mounting	DIN-rail	front frame 48 x 48 mm	terminal connection
920	●		●	●
920 A.2		●	●	●

Descriptions and application field:

This counter combination consists of one hour counter and one pulse counter.

As standard version operates with common current supply, that means the pulse counter registers the connecting frequency and the hour counter the total operating time of a machine/equipment, i.e. oil burner. On request at additional cost the counter can be separately current supplied (only for flush mounting) - order code: 920/860.

Technical specifications:

	920	920 A.2
mounting type:	flush mounting	surface/DIN-rail mounting
counting range:	hour counter: 99999,99 h pulse counter: ED 100 %, 9999999	
digits character height:	1,5 x 3,5 mm (with lens)	
voltages:	115, 230 V AC, 50 and 60 Hz	
special voltages:	24, 48 V AC, 50 and 60 Hz (at additional cost)	
voltage:	24 V DC	
special voltages (at additional cost):	48, 110, 230 V DC	
connections:	standard: with common current supply at additional cost: with separate current supply, but with same voltage; that means both counters can be separately triggered, order code: z.B. 920/860 (= only for flush mounting)	
voltage tolerance:	± 10 %	
current consumption (common current supply):	V AC 3 - 8 mA V DC 7 - 13 mA	
protection class DIN 40050:	housing: IP 65 (front) terminal: IP 00	housing: IP 65 terminals: IP 20, at additional cost with terminal cover: IP 40
ambient temperature:	- 10 °C to + 50 °C	
fixing:	retaining clip	surface/DIN-rail
approval:	CE	
operation indication:	yes	
weight:	approx. 55 g	approx. 70 g

Electromechanical hour counters

register operating and service times.

Hour counter and/or pulse counter combinations, with or without reset, for AC or DC

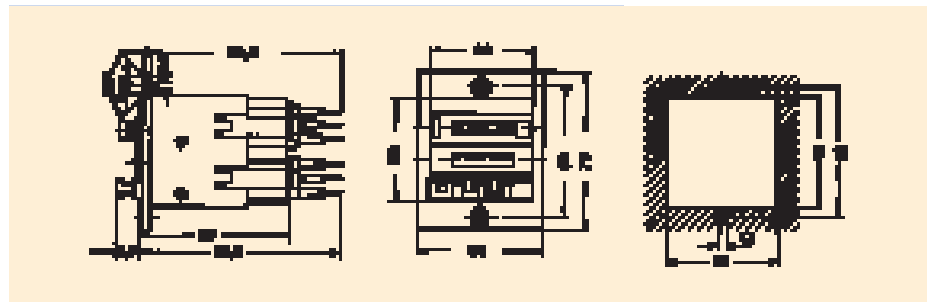


type 593

Here you will find robust counters for recording of operating times, quantities or both combined in only one housing. It is also possible to reset a counter with a button or a key. Inform us about your wishes, we find the suitable solution for you.

Type range 593 ...

AC	time counter with button reset	totalising hour counter without reset	fixing
593	●	●	mounting frame with front fixing



Technical specifications:

	AC
reset:	hour counter: yes totalising counter: no
counting range:	hour counter: 9999,99 h totalising counter: 99999,9 h
digits character height:	2 x 4 mm, white on black, decimals black on white
voltages:	115 or 230 V AC
special voltages (at additional cost):	12, 24 and 400 V AC
voltage tolerance:	± 10 %
frequency:	50 or 60 Hz
current consumpt.:	approx. 2 VA
prot. class DIN 40050:	housing: IP 41 (front)
ambient temperature:	- 20 °C to + 70 °C
approval:	CE
operation indication:	no
weight:	250 g

Special types at additional cost:

first counter without reset or with key reset, for AC or DC operation

counter combination with 3 resettable units in one frame, dimensions: on request

combinations with pulse counters, with our without reset or hour counter and pulse counter combined according your requirements, for AC or DC operation.

example of order:
counter combination type 593,
but consisting of: ...

Electromechanical pulse counters

register quantities and therefore make production clear.

Pulse counter and hour counter combinations for DIN-rail mounting in AC or DC version

Electromechanical pulse counters register quantities and therefore document production results or operating cycles. These are units for DIN-rail mounting with overall height of 55, 60 or 64 mm and on request with additional time counter available.

AC	DC	overall height in mm			terminal connection	"Lift" - terminal connection
		55	60	64		
160.5	165.5	●			●	
663.6	668.6		●			●
663.7	668.7			●		●

Technical specifications:

	AC	DC
housing:	plastic light grey RAL 7035	plastic light grey RAL 7035
gearing:	plastic	plastic
counting range:	9999999	9999999
max. frequency:	10 pulses/sec max. duty cycle 100%	10 pulses/sec max. duty cycle 100%
digits:	1,8 x 3,6 mm, white on black,	1,8 x 3,6 mm, white on black,
voltages:	115 or 230 V AC	12 - 24 V DC
special voltages: (additional charge)	24, 42, 48, 400 V AC	on request
voltage tolerance:	± 10 %	± 10 %
frequency:	50/60 Hz	
current consump.:	approx. 5-15 mA	approx. 5-15 mA
protection (front):	IP 65, screws IP 20	IP 65, screws IP 20
ambient temp.:	- 10° C to + 70° C	- 10° C to + 70° C
stocking temp.:	- 40° C to + 80° C	- 40° C to + 80° C
elec. connection: (see table above)	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire	Terminal Blocks (lift principle) with Philips-Head-Screw (+/- screw) in combination with slotted screw with 3 mm screwdriver size, 0-2.5 mm ² fine wire or 0-4 mm ² single wire
vibration resist.:	1 g (10...500 Hz) acc. to EN 60068-2-34	1 g (10...500 Hz) acc. to EN 60068-2-34
shock resistance:	30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29	30 g (18 ms) acc. to EN 60068-2-27 25 g (6 ms) acc. to EN 60068-2-29
EMC:	EN 55011, EN 61000-6-2	EN 55011, EN 61000-6-2
industrial norm:	EN 61010, protection class II	EN 61010, protection class II
reset:	without	without
weight:	approx. 75 g	approx. 75 g
approval:	CE	CE
fixing:	snap-on fixing for DIN-rail according to DIN EN	snap-on fixing for DIN-rail according to DIN EN

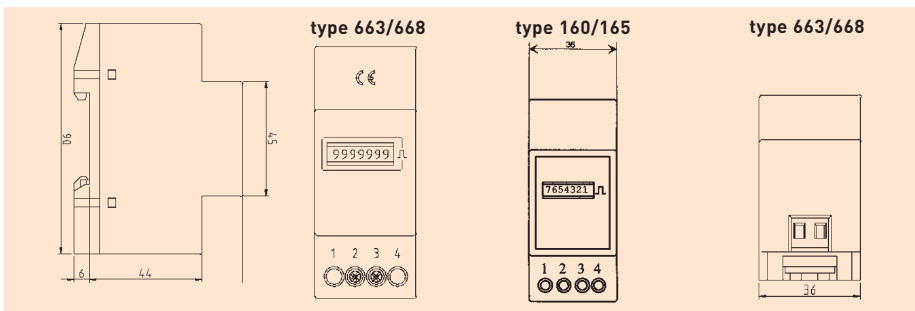


type 160.5, 165.5



type 663.6, 663.7, 668.6, 668.7

Drawings:



Electromechanical pulse counters

register quantities and therefore make production clear.

DC pulse counters for printed circuit or front panel mounting, protection class IP65



Typ 128



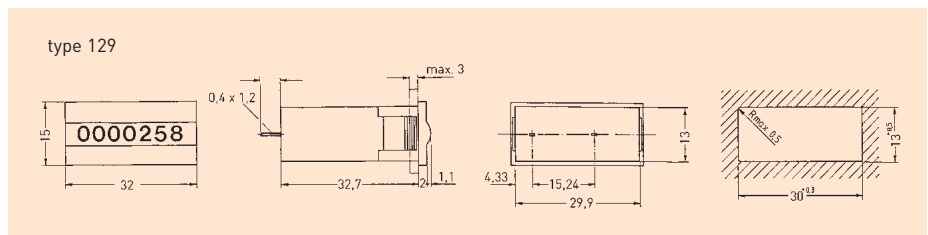
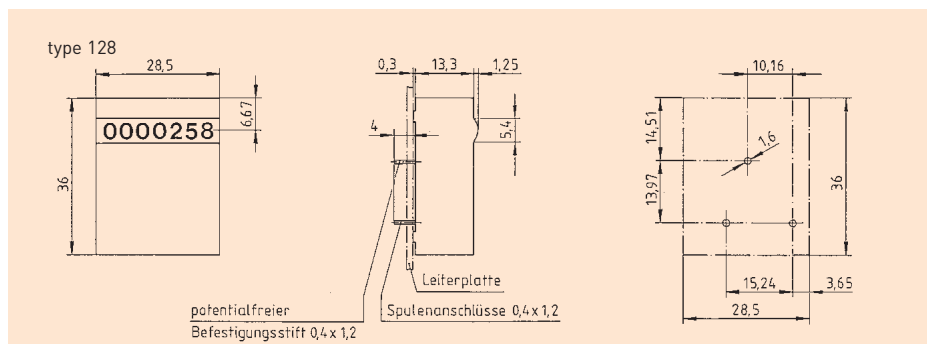
Typ 129

Mini pulse counters for 5, 12 or 24 V DC

Special features:

- mini pulse counter in solder and water-proof version
- highly shock and vibration resistant
- low current consumption
- well suited for battery operation and electronic circuit

type	printed circuit counter washable	front panel mounting (snap-in fixing max. 3 mm)
128	●	
129		●



Technical specifications:

	DC
reset:	no
counting range:	7 digits
character height:	4 mm (with lens)
operating voltages:	5, 12, 24 V DC
voltage tolerance:	± 10 %
duty cycle:	100 %
counting frequency:	10 pulses/s (25 l/s = 24 V DC)
mean power consumption:	70 mW at 1 - 12 V DC 250 mW at 24 V DC
protection class (DIN 40050):	type 128: IP 65 type 129: IP 65 (front)
ambient temperature:	- 10 ° C to + 60 ° C (option: to + 85 ° C)
electr. connections:	soldered conn. 0,4 x 1,2 mm
maintenance-free operation:	> 50 x 10 ⁶ pulses
approval:	CE
weight:	15 - 18 g

Options:

- type 128 - indication visible on face (on request)
- type 129 - for large quantities also available in 12, 24, 110 or 230VAC (on request)
- 6 digit variant with smaller housing dimensions (on request for large quantities)

Electromechanical pulse counters

register quantities and therefore make production clear.

Flush mounting pulse counters with or without button reset for AC or DC

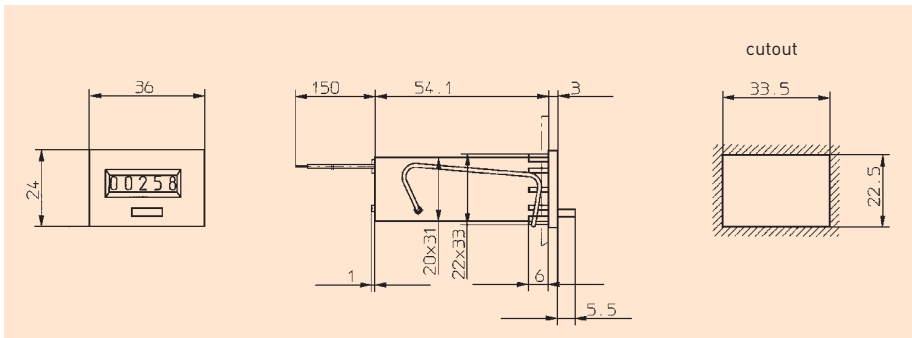
Type range 170, 171

Description:

Type	without reset	with reset	display
170	●		6 digit
171		●	5 digit

Cost effective adding counter, black plastic housing, fixing via a spring wire bracket

Option: flat plugs 0,8 x 2,8 mm (at important quantities)



type 170



type 171

Technical specifications:

	AC	DC
voltages:	24, 230 V AC	24 V DC
digits:	1,7 x 4 mm, white on black	1,7 x 4 mm, white on black
voltage tolerance:	± 10 %	± 10 %
frequency/residual ripple:	50/60 Hz	□ 48 %
testing speed:	10 pulses/sec.	10 pulses/sec.
pulse-/break duration:	50/50 msec.	50/50 msec.
power consumption:	1,5 VA	0,5 W
duration of operation at 25 °C:	100 %	100 %
ambient temperature:	- 10 °C to + 50 °C	- 10 °C to + 50 °C
maintenance-free oper.:	> 50 x 10 ⁶ pulses	> 50 x 10 ⁶ pulses
approval:	CE	CE
protection class :	type 170: IP 51 (front) type 171: IP 50 (front)	type 170: IP 51 (front) type 171: IP 50 (front)
electrical connection:	flex approx.150 mm long	flex approx.150 mm long
weight:	approx. 50 g	approx. 50 g

Electromechanical pulse counters

register quantities and therefore make production clear.

Pulse counters for flush mounting with or without button reset for AC or DC



type 180



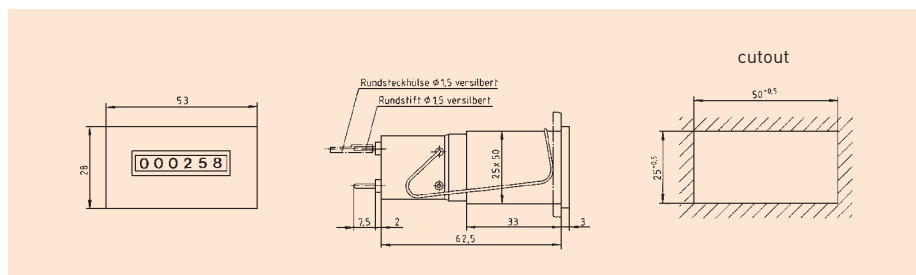
type 181

Type range 180, 181

type	without reset	with reset	display
180	●		6-digit
181		●	6-digit

Description:

Cost effective adding counter, black plastic housing, fixing via a spring wire bracket



Technical specifications:

	AC	DC
voltage:	230 V AC	24 V DC
digits:	2 x 4,5 mm, white on black	2 x 4,5 mm, white on black
voltage tolerance:	± 10 %	± 10 %
frequency/residual ripple:	50/60 Hz	≥ 48 %
testing speed:	18 pulses/sec.	25 pulses/sec.
pulse-/break duration:	2 : 3	3 : 2
minim. pulse duration:	22,2 msec.	24 msec.
power consumption:	2,9 VA	2 W
duration of operation at 20 °C:	100 %	100 %
ambient temperature:	- 10 °C to + 55 °C	- 10 °C to + 60 °C
maintenance-free oper.:	> 50 x 10 ⁶ pulses	> 50 x 10 ⁶ pulses
approval:	CE	CE
electrical connection:	silver-bladed round pins Ø 1,6 with plug bushes	silver-bladed round pins Ø 1,6 with plug bushes
protection class:	type 180: IP 52 (front) type 181: IP 50 (front)	type 180: IP 52 (front) type 181: IP 50 (front)
weight:	approx. 100 g	approx. 100 g

Accessories at additional cost:

Sealing cover for protection class IP 55 (front)

Mechanical time switches/buzzers

are the industrial "egg-timers" in controlling processes.

Flush mounting time switches with clockwork/spring movement for 5 minutes to 24h at attractive prices

Well-tested mechanical time switches for controlling time processes individually, that means switching-on or off machinery or equipment. The operation is very simple.

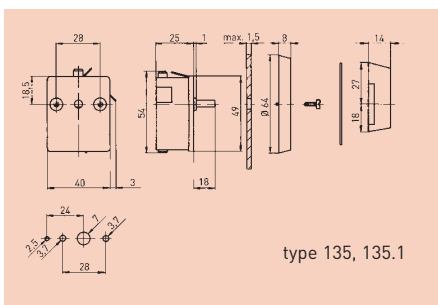
Types - technical specifications:

type	135	135.1	136.2	136.2.1
movement:	escape movement	escape movement	spring movement	spring movement
setting time:	5 or 15 minutes	30 or 60 minutes	6, 12, 24 h	6, 12, 24 h
time divergence:	5 - 10 %	5 - 10 %	< 5 %	< 5 %
connection assignment:	changeover contact	changeover contact	1 pole changeover contact	2 pole make contact (P1 - 1) + (P2 - 2)
optionally - on request:	1 make/break cont. 2 make/break cont.	1 make/break cont. 2 make/break cont.	-	-
switch:	16 (4) A 250 V	16 (4) A 250 V	15 (5) A 250 V	15 (5) A 250 V
prot. class DIN 40050 electrical con. complete switch:	IP 00 IP 30	IP 00 IP 30	IP 00 IP 30	IP 00 IP 30
ambient temp.: complete unit	- 10 °C to + 70 °C	- 10 °C to + 70 °C	- 10 °C to + 70 °C	- 10 °C to + 70 °C
without knob, dial and fixing plate	- 10 °C to + 125 °C	- 10 °C to + 125 °C	- 10 °C to + 120 °C	- 10 °C to + 120 °C
fixing:	2 screws M 3 x 5	2 screws M 3 x 5	2 screws M 3,5 x 9,5	2 screws M 3,5 x 9,5
connection:	plug contacts 6,3 x 0,8 mm (DIN 46244)	plug contacts 6,3 x 0,8 mm (DIN 46244)	plug connections 6,3 x 0,8 mm	plug connections 6,3 x 0,8 mm
approvals:	CE, VDE	CE, VDE	CE, VDE	CE, VDE
switching angle:	50 °	50 °	30 °	30 °
winding angle:	310 °	310 °	330 °	330 °
weight:	85 g	85 g	190 g	190 g
wiring diagram:				

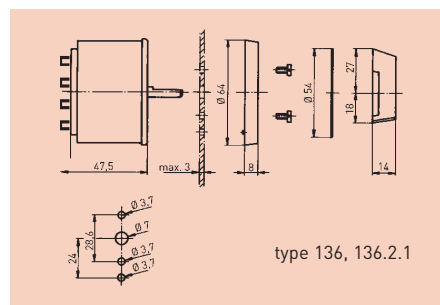


type 135.1

Type range 135...



Type range 136...



Well-tested short time measurer, simple mounting

Working procedure

The clockwise setting of the dial on the desired pass time commences timing period. The set time can be adjusted in both directions.

Materials

Dial knob (polyacetal), clockface (polystyrene), fixing plate (acrylonitrile-butadiene-styrene/ABS), black, on request white, housing: moulded plastics.

Special version:

Time switch even available without knob and dial

Buzzers

audible indication of disturbances.

Buzzers for continuous or intermittent signals



type range 2001...

Buzzer type 2001...

Buzzers in housing of 24 x 24 mm with continuous or intermittent signals for AC or DC voltage supply, fitting to i.e. mini hour counters on page 6-9.

Types

type	
2001	for 24 V AC or V DC in one housing
2002	for 230 V AC

Technical specifications:

front dimensions:	24 x 24 mm
cutout:	22,3 mm
mounting depth:	56 mm
sound level :	approx. 75 db at cs* approx. 65 db at is**
fixing:	with spring wire bracket

*cs = continuous signal, **is = intermittent signal



type 2005

Buzzer type 2005

Buzzers in housing of 48 x 48 mm, fitting to i.e. hour counters on page 6-1 – with continuous or intermittent signal – for AC or DC only for large quantities.

Technical specifications:

front dimensions:	48 x 48 mm
sound level:	> 80 dBA at 1 m distance
buzzer:	continuous or intermittent signal
voltage supply:	12 - 24 V DC 12 - 24 V AC
protect. class (front):	IP 30
ambient temperature:	- 20 °C to + 70 °C
fixing:	with included retaining clip, wall thickness to 10 mm, with snap-in-lugs, wall thickness to 2mm, whereby the panel cutout should be 45,2+0,3 x 45,2+0,3 mm.
connection:	screw terminals or plugs AMP 6,3 mm with or without protection against accidental contact

Further technical details on request.