■ Modules

type 6000 to 6090

alternative positions of the connection pins are optionally possible

Pin:

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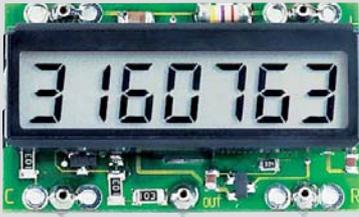**R** = reset

wiring diagram
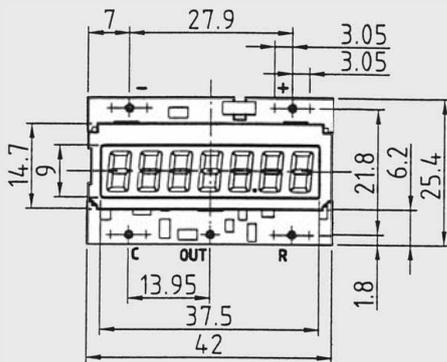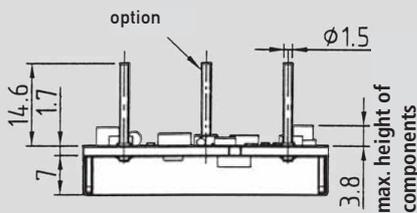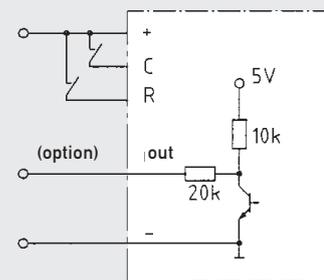
LCD modules as time, service or pulse counters, (single or Twin-counters), 7 mm digit height, 12 - 24 V DC

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 pages 4 to 6.

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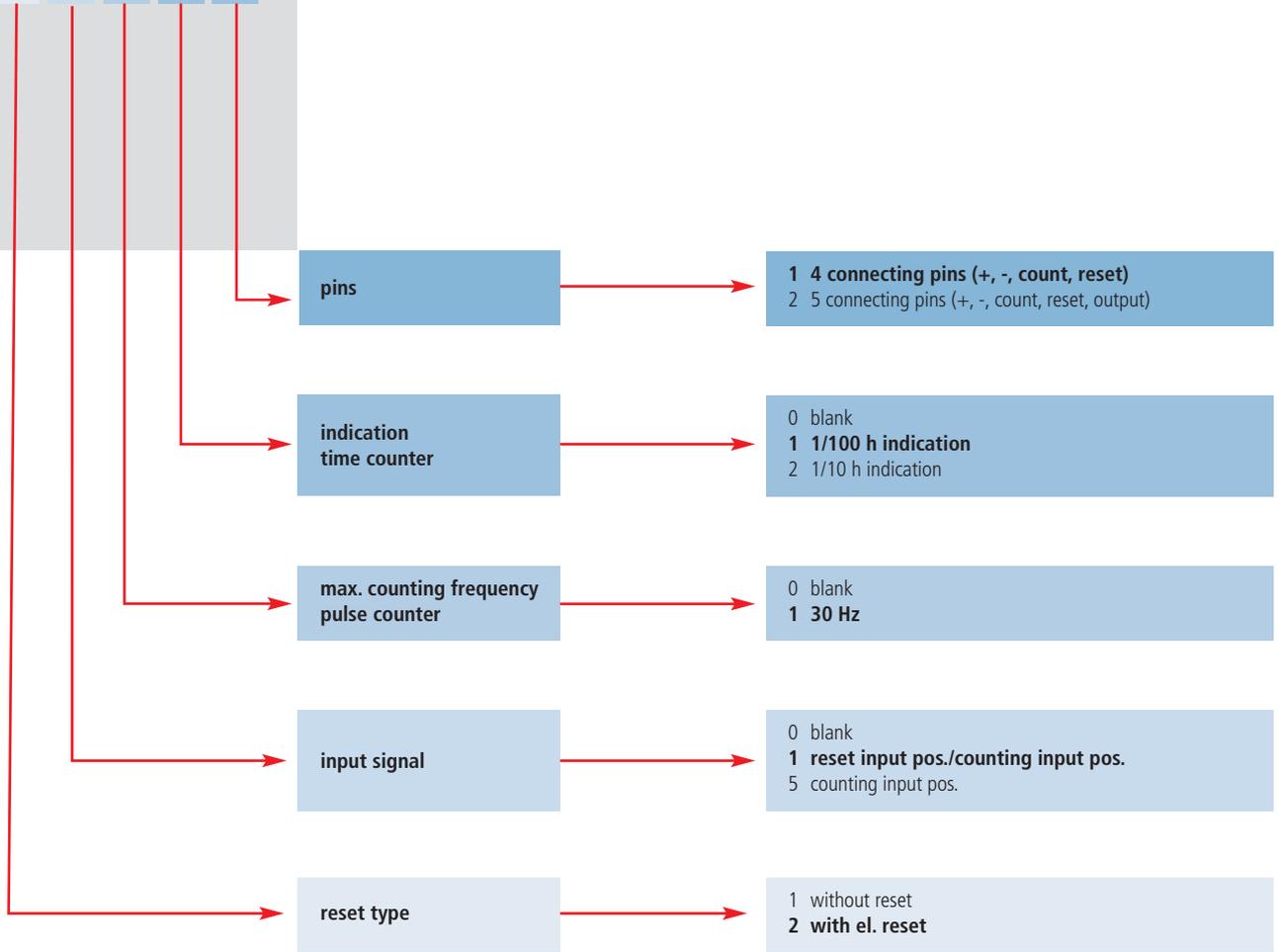
Order specifications

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 (e.g. combination of power-on time and frequency)
PC with HC (bg)*	6050	-	PC + HC	both counters are resetable, even HC while appearing on the display (e.g. combination of power-on time and frequency)
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

■ Modules

Further specifications for your order selection

60XX.X.X.X.X.X

| pins | **1 4 connecting pins (+, -, count, reset)** |
| | 2 5 connecting pins (+, -, count, reset, output) |

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

| max. counting frequency pulse counter | 0 blank |
| | **1 30 Hz** |

input signal	0 blank
	1 reset input pos./counting input pos.
	5 counting input pos.

| reset type | 1 without reset |
| | **2 with el. reset** |

written fat = preferred variants

Technical specifications:

indication:	LC-display with 7 digits (only active while connected)
character height:	7 mm
version:	display holder black-chromed, optionally brass-blank (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:	$C \epsilon$, UL, cUL
counting frequency/ pulse counter:	30 or 200 Hz
data storage:	EEPROM

Further order specifications:

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.

Mounting:

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

■ Modules

type 6100, 6110

type 6150, 6160

LCD modules as time or pulse counters, 5 mm digit height, 12 - 48 V DC or battery-operated

For recording time and pulses BAUSER offers you a 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.

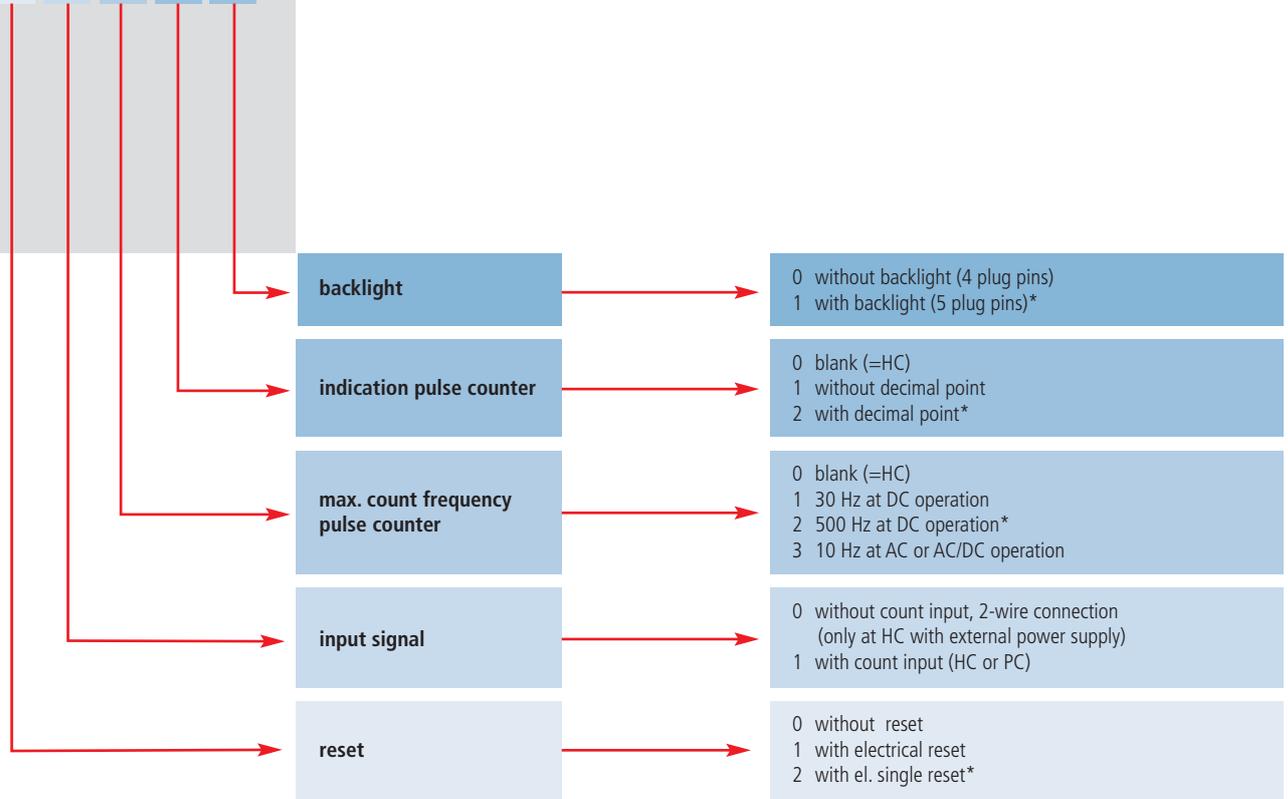**The technical advantages of this Modules:**

- high visibility LCD with digits height of 5 mm 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)

Order specifications of range 61XX

counter type	module with 5 mm digits height
module with external power supply	
time counter	6100
puse counter	6110
module with internal lithium battery	
time counter	6150
puse counter	6160

■ Modules

Further specifications for your order selection

61XX.X.X.X.X.X

backlight	→	0 without backlight (4 plug pins) 1 with backlight (5 plug pins)*
indication pulse counter	→	0 blank (=HC) 1 without decimal point 2 with decimal point*
max. count frequency pulse counter	→	0 blank (=HC) 1 30 Hz at DC operation 2 500 Hz at DC operation* 3 10 Hz at AC or AC/DC operation
input signal	→	0 without count input, 2-wire connection (only at HC with external power supply) 1 with count input (HC or PC)
reset	→	0 without reset 1 with electrical reset 2 with el. single reset*

HC = hour counter
PC = pulse counter
* = no standard version – available on request!

Technical specifications:

Please note:

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

display holder:	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, -40 °C to +70 °C at battery supply
storage temp:	-40 °C to + 90 °C, -40 °C to +70 °C at battery supply
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. 40 kOhm (count, reset)
life time of battery:	Min. 10 years under the following conditions: • 10 Mio. switching cycles of count and reset at 23 °C • mean duty cycle at count and reset: 12h/day • min. signal rise time at count and reset: 5 ms • signal voltage at count and reset: Ub ±25 %, off: < 0,75V or floating
option backlight:	operating voltage: 12 V DC ±25 % 24 V DC ±25 % 36 V DC ±25 % - 48 V DC ±25 % current consumption: ca. 30 mA ca. 15 mA ca. 5 mA - 8 mA
EMC:	EN 55011, EN 61000-6-2
industrial norm:	EN 61010
approval:	CE, UL, cUL
protection class:	pins IP00
fixing:	print mounting

■ Modules

wiring diagram external power supply:
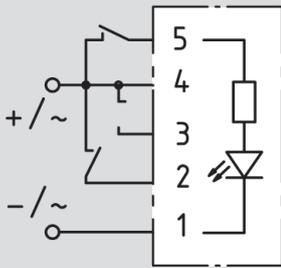
5 = backlight (option only at DC version)
4 = DC ″+″ or AC
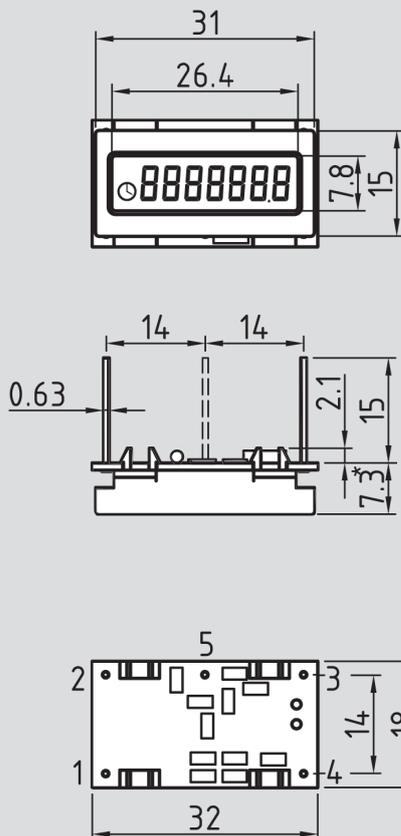3 = time and pulse counter input
2 = reset
1 = DC ″-″ or AC
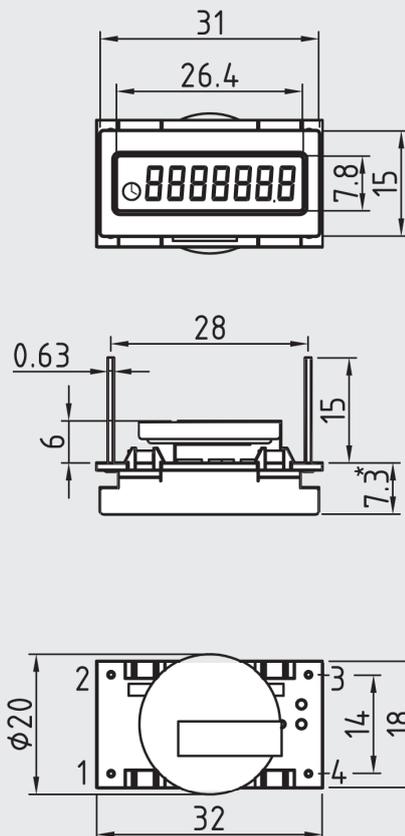
wiring diagram battery version:
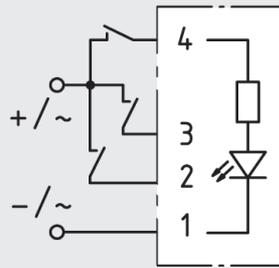
4 = backlight (option only at DC version)
3 = time and pulse counter input
2 = reset
1 = DC ″-″ or AC

**Wiring diagrams
type 6100 to 6160:**

drawing type 6100, 6110

drawing type 6150, 6160

**Drawings
type 6100 to 6160:**

*optional: 5,9 mm,
 backlight version: 14,8 mm