LCD Modules – 166

- 4-digit LCD totaliser for panel mounting
- Removable housing for special applications
- Power supply from replaceable lithium battery, 3 ... 4 years at 20 °C [68 °F]
- Max. count frequency 18 Hz by contact

Applications:

devices without power supply
easy counting
self powered device
vending machines
gaming machines
printers and copiers

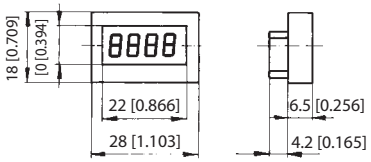
Technical data:

Power supply:	1.5 V lithium battery Type 386 or SR 43
Battery operating life:	3 ... 4 Years at 20 °C [68 °F]
Display:	LCD 4-digit, 6 mm [0.236"] high
Count range:	9999 with zero blanking
Count input:	max. count frequency 18 Hz counting by closed contact low: < 1,8 V high: 0 ... 0.7 V
0 reset:	quick removal or the battery or connect the two pins on the back of the unit

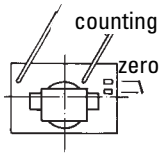
EMC:	Emitted interference EN55011 Class B Immunity to interference: EN61000-6-2
Working temperature:	0 ... +50 °C [32 ...122 °F]
Storage temperature:	–10 ... +60 °C [14 ... 140 °F]
Housing:	clear and black
Protection:	IP 40
Weight:	7.5 g [0.265 oz]
Electrical connections:	flying leads 18 cm [0.591 feet] long

Dimensions:

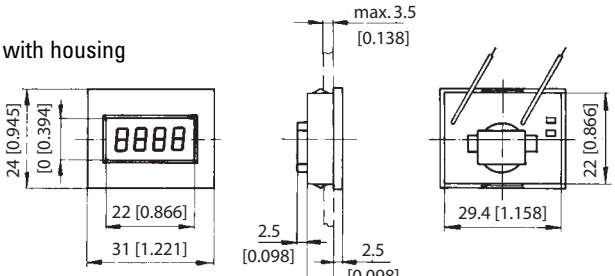
without housing



Flying leads
180 mm [7087"] long



with housing



Panel cut out
29.4 x 22 mm
[1.158 x 0.866"]

Order code:

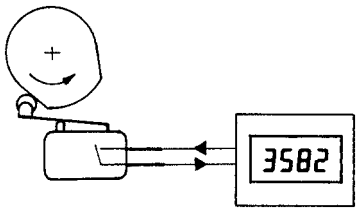
Art. no.: 0.166.012.830*

Delivery specification:

LCD module
Operating manual

* standard stock model

Application:



Control with contact

LCD Modules – 167/168

- 6-digit LCD display counter for panel or PCB mount (removable mounting)
- 3 V DC power supply
- Current consumption <5 µA (10 µA at max. count frequency 10 kHz)
- Inputs TTL/CMOS compatible
- Electrical zero reset

Type 167:
count mode: adding

Type 168:
count mode: adding/subtracting
1 count input
1 direction input

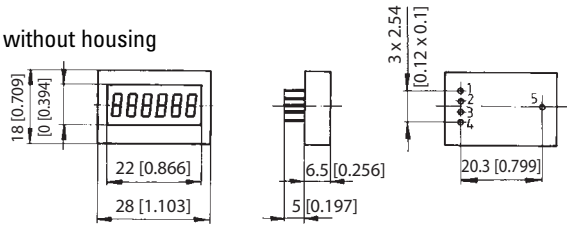
Applications:
Event counting,
position-, length- and distance measurement, PCB counter

Technical data:

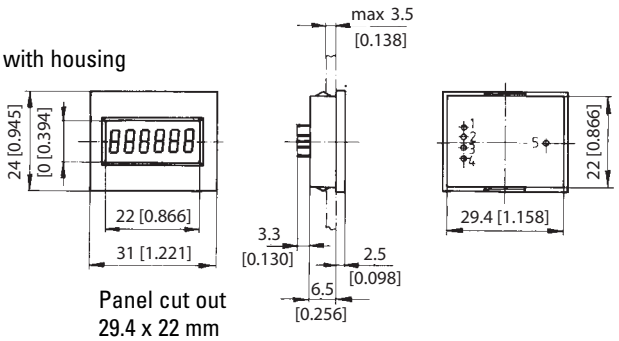
Power supply:	2.6 ... 3.4 VDC
Current consumption:	typical 5 µA, 10 µA at 10 kHz
Display:	LCD, 6-digit, 6 mm [0.236"] high
Count range:	999999
Overflow	
Type 167:	from 999 999 to zero
Type 168:	adding from 999 999 to zero subtracting from zero to 999 999
Count input:	max. count frequency 10 kHz min. pulse time 50 µs negative triggered (NPN)
0 reset:	min. pulse time 15 ms negative triggered (NPN)
Direction input (Only Type 168):	switch to 0 V or negative triggered (NPN) open input: count mode adding Input to zero: 0 V: count mode subtract.
Interference resistance:	EN 50081-1
Emitted interference:	EN 55022 class B
Working temperature:	–10 ... +60 °C [14 ... 140 °F]
Storage temperature:	–10 ... +60 °C [14 ... 140 °F]
Housing:	clear polycarbonate and black ABS housing
Protection:	IP 40
Weight:	7.5 g [0.265 oz]
Electrical connection:	PCB pin ø 0.4 mm [0.016"]

Dimensions:

without housing

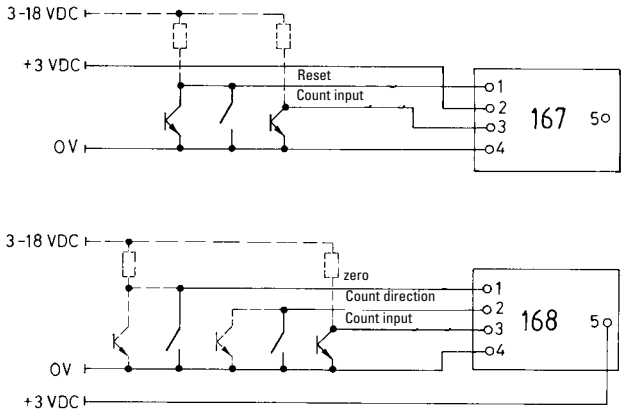


with housing



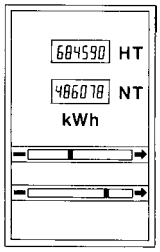
Panel cut out
29.4 x 22 mm
[1.158 x 0.866"]

Connections:



	Function	
Pin-No.	Type 167	Type 168
1	Reset	Reset
2	+ 3 VDC	Count direction
3	Count input	Count input
4	0 V	0 V
5	0 V	+3 VDC

Applications:



kWh meter

Order code:

Type 167: 0.167.012.000*
Type 168: 0.168.012.000*

Delivery specification:

LCD module
Operating manual

*standard stock model

LCD Modules – Type 180

Your benefit
- Small dimensions
- PCB mount
- Low current consumption, for battery

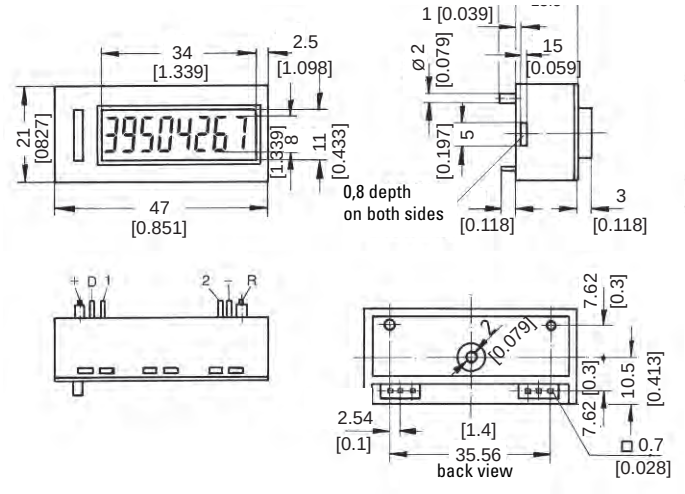
Product features
- With manual and/or manual and electrical reset
- Using a lithium battery with 1000 mAh the life is more than 10 years
- CMOS and TTL compatible

Technical data:

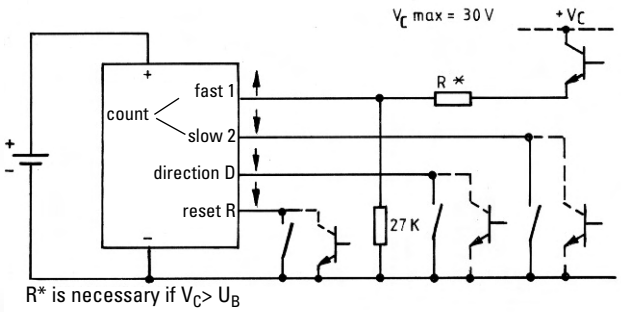
Power supply:	3 V (+0.2, -0.6 V) DC
Display:	LCD, 8-digit, figures 8 mm [0.315"] high
Counting system:	adding or subtracting
Inputs:	
Fast count input:	max. count frequency, 10 kHz, min. pulse time 50 µs Input resistance 1 MΩ switching level: Low: <0.7 V DC High: <2.5 V – UB (without R*) positive triggered see connection diagram
Slow count input:	max. count frequency, 40 Hz min. pulse time 13 ms Input resistance 1 MΩ switching level Low: <0.7 V DC High: <2.5 V – UB , negative triggered
Count direction:	static input, subtracting count as long as the input is 0.

Reset input:	static input, i.e. no count as long as the input is active. please note: the reset input will be active, when switching to 0 V
min. pulse time	12 ms
Input resistance	1 MΩ
Switching voltage	1.4 V negative triggered
Interference resistance:	EN 50081-1
Interference emission:	EN 55022 class B
Operating temperature:	-10 ... +60 °C
Storage temperature:	-20 ... +70 °C
Housing colour:	black
Connections:	1 fast count input 2 slow input D count direction R reset +, – Power supply
Type:	180.2: module with electrical reset 180.3: module with manual and electrical reset

Dimensions:



Connections:



R* is necessary if $V_C > U_B$

Calculation: $R^* = 9\ (V_C – 3)k\Omega$

Example: VC = 24 V, –> R* = 189 kΩ

Order code:

Module with electrical reset	Order-No.: 0.180.200.000*
Module with manual and electrical reset	Order-No.: 0.180.300.000*

* standard stock model

LCD Module – 190

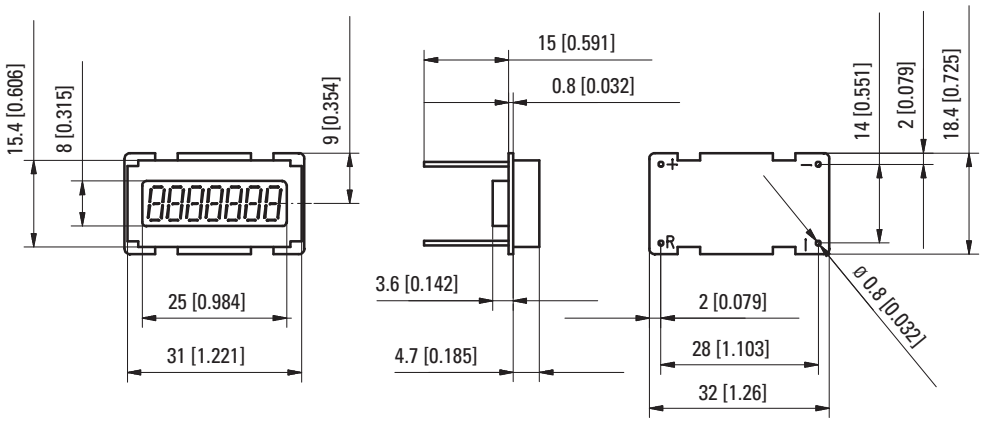
- Counting frequency up to 10 kHz
- 7-digit display, height 6 mm [0.236“]
- Non-volatile memory (no battery, EEPROM)
- High reliability
- Low operating current
- Wide operating voltage and temperature range
- Very high shock and vibration resistance

Technical data:

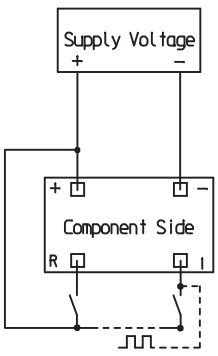
Supply:	1. 4.75 ... 15 V DC 2. 9 ... 60 V DC reverse polarity protection
Current consumption:	1. 8 mA at 4,75 ... 15 V DC 2. 6 mA at 9 ... 60 V DC
Count and reset input:	high 4 ... 60 V DC, low: 0 ... 0,7 V DC
Max. count frequency:	10 kHz (edge triggered)
Display:	7-digit display, figure height 6 mm [0.236“]
Data backup:	EEPROM
Colour:	black
Working temperature:	–20 ... +80 °C [–4 ... 185 °F] non-condensing
Operating temperature:	–40 ... +80 °C [–40 ... 176 °F]
Storage temperature:	–50 ... +90 °C [–58 ... 194 °F]

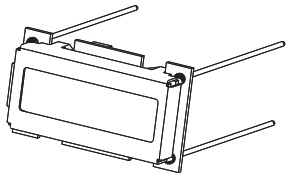
EMC:	Emitted interference EN55011 Class B Immunity to interference: EN61000-6-2
Weight:	approx. 8 g [0.282 oz]
Memory capacity:	CMOS EEPROM. non-volatile memory has data retention in excess of 10 years.
Shock resistance acc. to DIN-IEC 68-2-27:	550 m/s^2, 11 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	50 ... 200 m/s^2, 10 ... 80 Hz
Needs protection from:	inductive stress peaks, high energy noise, fields switching, alternator load dump

Dimensions:



Connecting diagram:





Order code:

LCD count module type 190:

4.75 ... 15 V DC	Order-No.: 6.190.012.F00 Art-No.: 162 135
9 ... 60 V DC	Order-No.: 6.190.012.G00 Art-No.: 162 136

Delivery specifications:

– LCD Counter Module Type 190
– Operating instructions

LCD Module – 192

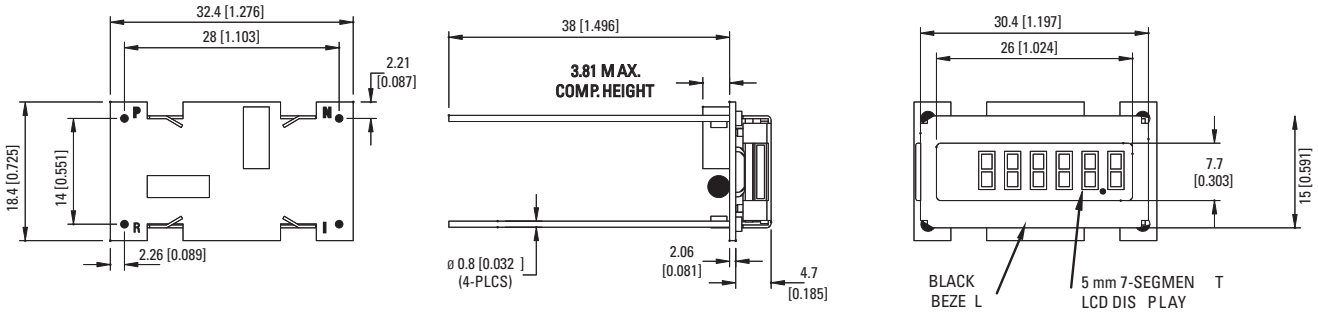
- Non-volatile memory (no battery)
- High reliability
- Low cost and small size
- Low operating current
- Wide operating voltage and temperature range
- Very high shock and vibration resistance

Technical data:

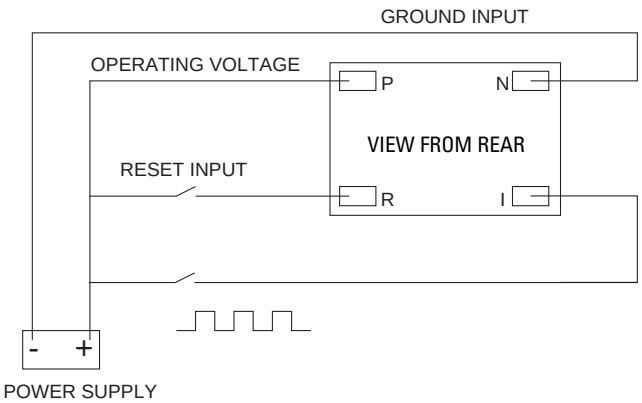
Supply:	4.5 ... 28 V DC
Current consumption:	3 mA maximum at 4.5 V DC 10 mA at 28 V DC
Count and reset input:	4.5 ... 28 V DC
Max. Count frequency:	100 Hz
Display:	6-digit display, figure height 5 mm [0.197“]
Data backup:	EEPROM
Housing:	dimensions 19 x 33 mm [0.748 x 1.299“]
Colour:	black
Operating temperature:	–40 ... +85 °C [–40 ... 185 °F] non-condensing

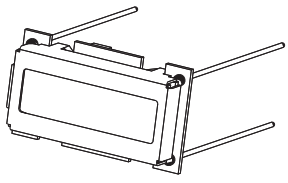
Humidity:	95 % RH +32 C for 2 hours
EMC:	Emitted interference EN55011 Class B Immunity to interference: EN61000-6-2
Weight:	approx. 8 g [0.282 oz]
Memory capacity:	CMOS EEPROM. non-volatile memory has data retention in excess of 10 years without power.
Needs protection from:	inductive stress peaks, high energy noise, fields switching, alternator load dump

Dimensions:



Connecting diagram:





Order code:
LCD Counter Module Type 192:
Order-No.: 6.192.012.300*

Delivery specifications:
– LCD Counter Module Type 192
– Operating instructions

* standard stock model