microsyst

COMPETENCE IN
MEASUREMENT

CE

COUNTER / FLOWMETER / TOTALIZER

MS8222

v 3.10

USER MANUAL

PLOVDIV 2020

Replaces edition 2010-11-03

⚠	**The device is manufactured in two kind of housing according to their protection degree : MS8222 – IP40; MS8222W-IP65**

I. TECHNICAL DATA

Digital inputs -optoisolated	5
Counter	NPN и PNP 1000Hz
- input divisor / multiplier	0.001 ... 1000
Start, Stop, Reset, Revers	NPN
Outputs	2
K1	Relay 250 V / 5A or OC for TTL
K2	Relay 250 V / 5A or OC for TTL
Options - only for MS8222 IP40	>>> Triak 250 V / 2 A; Relay 250 V / 10 A
Output voltages	1
+ V isoation	+11÷14V_150mA or +24_ 80mA stab. or +5V_150mA stab
Display and keyboard	
Display	1 x 6 digits LED 14mm
Display range	0 … 999999
Decimal point	user selectable
Keyboard	semi-sensor
Power supply	
Voltage	220V / max 20mA /50 Hz (± 1 Hz)
Operating conditions	
Temperature	-20 … 70 °C
Relative humidity	10 … 80 % RH
Dimensions	
Overall dimensions (WxHxL)	96 x 48 x 128 mm
Montage	Panel Cutout 90 x 44 mm
Weight	max 300 g
Protection	MS8222 – IP40; MS8222W - IP65

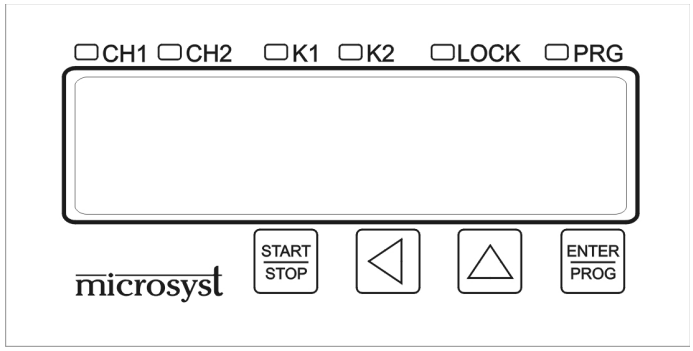
Model Until XI.2010, the MS8222 is manufactured under the name MS8202CAB.

* When exit parameters menu model 8222 is displayed.

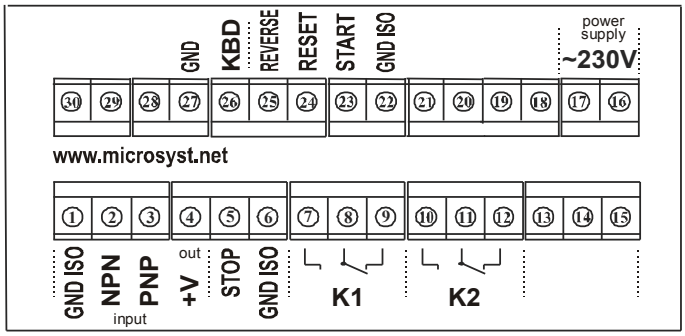
II. DESIGNATION

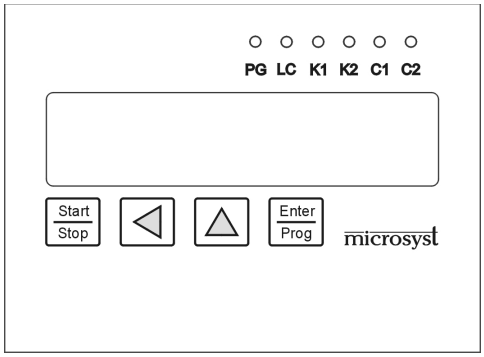
The MS8222 is designed to count the number of input pulses received and to generate output when 2 preset values are reached. The counter has a six-digit display and a software divisor / multiplier to ensure its operation with sensors with different gear ratios. The unit is equipped with a non-volatile memory, which stores the setting and readings before turning off the power.

III. FRONT AND REAR PANEL

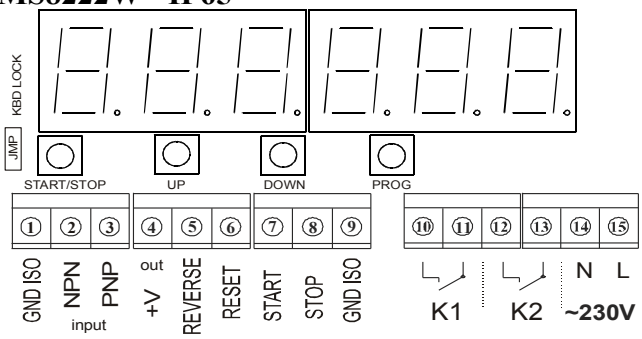


MS8222 - IP40



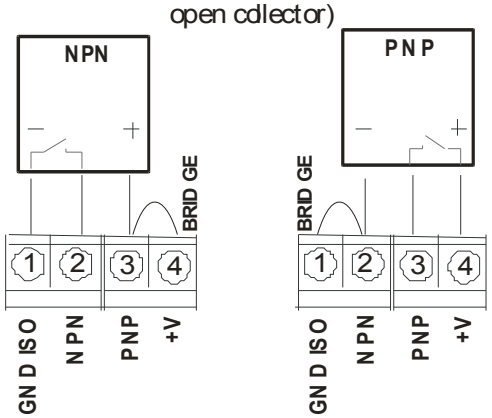


MS8222W - IP65

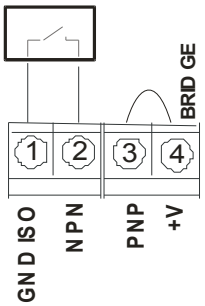


● WIRING INSTRUCTIONS (INPUTS)

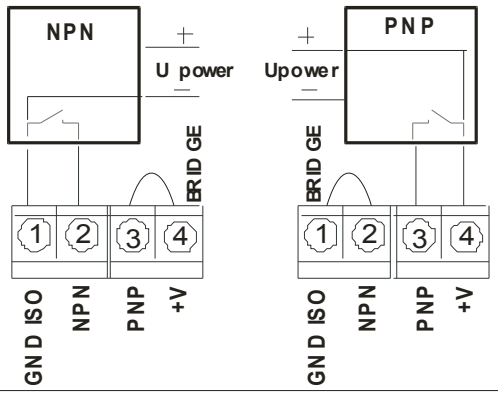
1. Sensor powered by the device (most often output open collector)



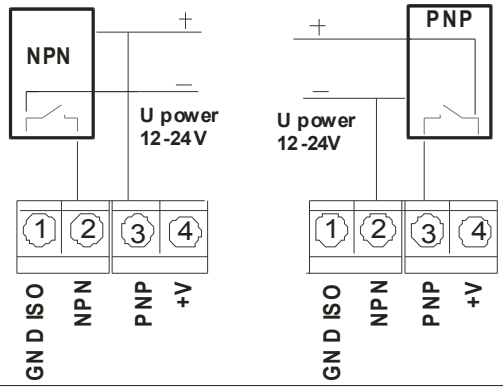
2. Sensor with mechanical contact



3. Sensor with its own power supply with passive output (most often output open collector)

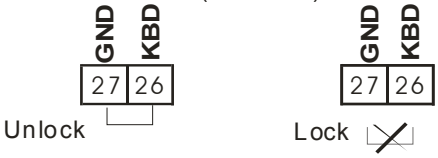


4. Sensor with its own power supply with active output

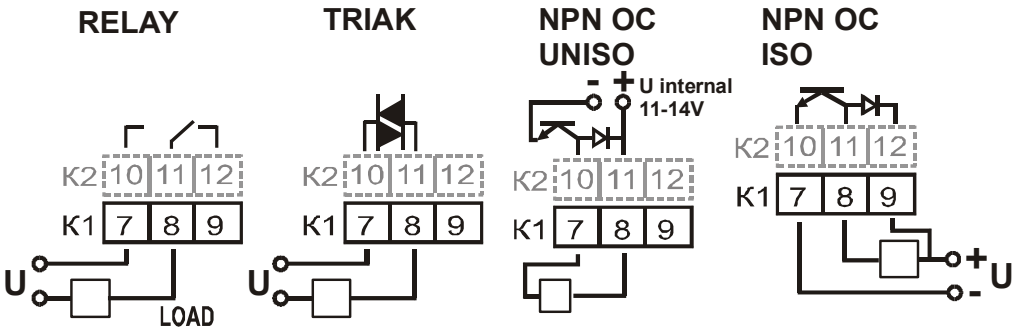


CONTROL INPUTS

LOCK KEYBOARD INPUT (OPTION)



- **WIRING INSTRUCTIONS (OUTPUTS) / only MS8222 – IP40 /**



IV. OPERATING PRINCIPLE

The MS8222 counter has two modes - ACTIVE and INACTIVE, differing in output behavior. In both modes, the unit registers the input pulses, adding or subtracting them from the accumulated value according to the status of the **Reverse** input.

In ACTIVE mode, when the accumulated value reaches a preset level, the outputs K1 and K2 are changed according to the states defined by the parameters "Zone 1" and "Zone 2". The outputs correspond to the states set by “Zone 1” for an accumulated value between 0 and (SP1-SP2) and the outputs specified by “Zone 2” for an accumulated value between (SP1-SP2) and SP1. The status of the outputs is indicated by the LEDs K1 and K2.

In INACTIVE mode, the outputs are always off, and the counter continues to count. In either mode, when the value 0 is reached (when subtracted) or the value determined by the parameter "HLEvEL" (when summed), the counter goes to "inactive" mode, alternating between 0 and "nnnnnn" or "HLEvEL" and "uuuuuu " until a reset.

In the event of a power failure, the counter remembers the accumulated value and after restoration enters it with INACTIVE mode.

4.1 Switching to the ACTIVE MODE

Switching from INACTIVE to ACTIVE mode is via the digital input **Start** or by a button START/STOP, when the Start / Stop function is selected from the parameter **“r bit1”**, hold it for 5 seconds . Activation of the mode is indicated by the message “StArt” and LED LOCK.

The behavior of the counter at start is determined by the value of the parameter **"rbit2"**, **two options are possible** - reset at start if the value **SP1** is reached or possible start only if the accumulated value is in the range **0** to **SP1**.

4.2 Switching to INACTIVE MODE

Switching from ACTIVE to INACTIVE is done by the digital Stop input or by holding down for 5 seconds per button START/STOP (when the Start / Stop function is selected from the parameter **“r bit1”**). Activation of the mode is indicated by the message “Stop”.

4.3 Reset accumulated value.

The **RESET** input resets the accumulated value. While active (connected to GND_ISO), a message "- - - - - -" is displayed and no input pulses are counted.

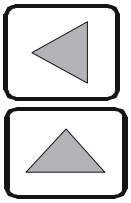
Resetting is also possible with a button 

, hold it for 5 seconds if the Reset function of parameter **"r bit1"** is selected. While the button is pressed, "RESEt" is displayed.

According to the parameter **"r bit3"**, the reset mode does not change or goes to INACTIVE mode.

4.4 View and modify set points SP1 and SP2.

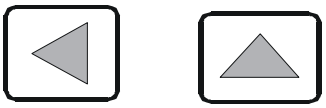
A cumulative value is displayed by LED CH1 and a set points by LED CH2.



- Display SP1 for 5 seconds, after which it returns to the accumulated value
- Display SP2 for 5 seconds, after which it returns to the accumulated value

Change set points

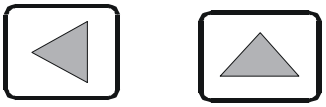
Changing set points is only possible in INACTIVE mode.



- Display SP1 or SP2

or

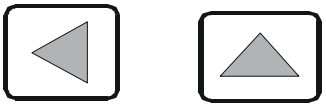
- The button is held for 3 seconds until a permanent sign "SP1" is displayed. On release, the value of SP1 is displayed. If no button is pressed within 5 seconds, the counter returns to normal operation.



- Edit set point (1 ÷ "HLEvEL")

- Switching to editing SP2, "SP2" is displayed until the button is pressed again
  If the button is not pressed within 5 seconds after changing the value of SP1, it is rejected and the counter returns to the display of the accumulated value.

- Switching to editing SP2, the value of SP2 is displayed = 10% of SP1



- Edit set point (0 ÷ SP1)

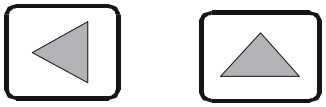
- Exit SP change
- Exit automatically 5 seconds after the last key pressed, with a value of SP2 assuming 10% of SP1!

V. SYSTEM PARAMETERS

Access to the system parameters is only possible in INACTIVE mode.

- Press and hold for 5s when the accumulated value is displayed until **"tune"** appears. Entering this menu is indicated by the PROG LED.

- Press to edit a parameter



- The value of the selected parameter changes

- Confirmation of change made

- To exit the SYSTEM PARAMETERS menu, the last parameter **End** must be reached and confirmed with the **Enter / Prog** button

Parameter	Description	Values	Factory value
PrSclr	Input impulse divider	1...1000	
rASter	Input impulse multiplier	1...1000	
dPnt t	Position of decimal point	**0–XXXXXX 1–XXXXXX.** **2–XXXXX.X 3–XXXX.XX** **4–XXX.XXX 5–XX.XXXX** **6–X.XXXXX**	
HLEuEL	Upper limit on accumulated value	1...999999	
ZonE 1	State of outputs K1 and K2 in the range between 0 and (SP1-SP2)	**0 – K1- OFF, K2- OFF,** **1 – K1 - ON., K2 - OFF** **2 – K1- OFF, K2 - ON** **3 – K1 - ON, K2 - ON**	
ZonE 2	State of outputs K1 and K2 in the range between (SP1-SP2) and SP1	**0 – K1- OFF, K2- OFF,** **1 – K1 - ON., K2 - OFF** **2 – K1- OFF, K2 - ON** **3 – K1 - ON, K2 - ON**	
r bit1	System parameter defining the function of the **Start / Stop** button	0 – Start/Stop 1 – Reset	
r bit2	A system parameter that determines whether the counter will self-reset at a new start if setpoint SP1 is reached.	0 – Yes 1 – No	
r bit3	A system parameter that determines the action of the reset function	**0 – Reset without changing operating mode** **1 – Reset by switching to INACTIVE mode**	
End	Exit the System Parameters menu. The model of the appliance [-8222-] is briefly visible.		

VI. ORDER CODE

MS8222 - x.x.x.x.x

Power supply voltage
PA - 230 VAC +10%-15%/50Hz
PB - 24 VDC ±30% ISO
PX - OTHER

Sensor Power Output
T0- NA
T1- 12 VDC±15% 150 mA
T2- 24 VDC 80 mA
T3- 5 VDC 150 mA

Counter input - filter
Q2 - fmax=50Hz
Q6 - fmax=1kHz

Digital output K2
BA - NA
BB- Relay 5A/250V (NO/NC)
BD- Triak 2A/250V
BF- OC NPN iso,
U_{CEmax}=35V, I_{Cmax}=50 mA

Digital output K1
AA - NA
AB- Relay 5A/250V (NO/NC)
AD- Triak 2A/250V
AF- OC NPN iso.,
U_{CEmax}=35V, I_{Cmax}=50 mA

MS8222 W - x.x.x.x.x

Power supply voltage*
PA - 230 VAC +10%-15%/50Hz

Sensor Power Output
T0- NA
T1- 12 VDC±15% 150 mA
T3- 5 VDC 150 mA

Counter input - filter
Q2 - fmax=50Hz
Q6 - fmax=1kHz

Digital output K2
BA - NA
BC- Relay 5A/250V (NO)
BF- OC NPN iso.,
U_{CEmax}=35V, I_{Cmax}=50 mA

Digital output K1
AA - NA
AC- Relay 5A/250V (NO)
AF- OC NPN iso.,
U_{CEmax}=35V, I_{Cmax}=50 mA

WARRANTY CARD

Warranty card №:.....

Warranty term:..... months

Factory number:.....

The items were purchased from :.....

Invoice number:...../..... 20..... year .

GUARANTEE CONDITIONS

The guaranty consists in free repairs of all the factory defects which can occur during the guarantee period. **The repair is performed as in the repair base is being presented the current guarantee card with which the device is bought.** The warranty does notrefer to issue caused by a bad transport, bad conservation, wrong exploitation, naturedisasters, not following the instructions and the cases when there is an attempt to fix anydefects by other people. In those cases the issue is being fixed only against payment.

The maintenance during the guarantee period and doing the claims happens according to the valid legislation.

PERFORMED REPAIRS IN THE SERVICE

Service	Date of receipt	Order number	Type of repairs done	Date of transmission	Carried out the repair

Seller:..... **Buyer:.....**

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