USER'S MANUAL

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Contents

1. General Information

Induction flow meter T-500 is designed for measuring both clean and waste water in water management applications.

The instrument is characterized by high accuracy and stability of flow rate measurement in whole range of flow rates from 0.1 to 10 m/s in both directions.

Measured values are displayed on a large graphical display, which is standard component of the instrument as well as a keyboard and three programmable isolated outputs for remote transmission of measured values. Two of them can be used as pulse or status outputs and the third one as an active current output. The standard delivery includes also an internal datalogger and RS232 communication port.

A GSM module for remote data reading via SMS text messages can be ordered as an option.

Setting of flow meter parameters is performed using the keyboard and intuitive display menu or using service software via RS232 communication port.

2. Flow Ranges

| DN	m³/h		DN	m³/h	
	Qmin	Qmax		Qmin	Qmax
15	0,065	6,48	200	11,52	1152
20	0,115	11,52	250	18	1800
25	0,18	18	300	25,2	2520
32	0,288	28,8	350	34,56	3456
40	0,45	45	400	45	4500
50	0,72	72	500	72	7200
65	1,152	115,2	600	100,8	10080
80	1,8	180	700	138,6	13860
100	2,88	288	800	180	18000
125	4,32	432	900	228,6	22860
150	6,48	648	1000	282,6	28260

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3. Technical Data

Nominal diameter	DN 10 to DN 1200
Nominal pressure	PN 10 to PN 16
Tubing connection	Flanges DIN 2633
Measuring tube internal coating	Rubber, PTFE
Sensing electrodes	Stainless steel AISI 316L, Hasteloy 2 x measuring / 1 x indication of empty tube /1 x ground
Flow range	0,1 to 10 m/s
Measurement error	0,5% of measured value in range from 0,5 to 10 m/s 1% of measured value in range 0,1 to 0,5 m/s
Ambient temperature	-20 to 60°C
Voltage	230V AC (optionally 15-24V AC/12-34V DC)
Input power	10 VA max.
Outputs	1 x programmable multifunctional (pulse, status), isolated (relay, load 125 V ~ /1A or 30V/2A) 1 x programmable multifunctional (pulse, status), isolated (transistor NPN, load 30 V/50 mA max.) 1 x programmable active current (0-20 mA/ 4-20 mA, load ≤ 500Ω) 1 x RS232
Communication	RS232, keyboard, permanently backlit graphical display, SMS via internal GSM module
Datalogger	Capable of recording up to 100 samples
Protection	IP67: sensor / IP65: converter (compact version) IP67/68: sensor / IP65: converter (remote version)

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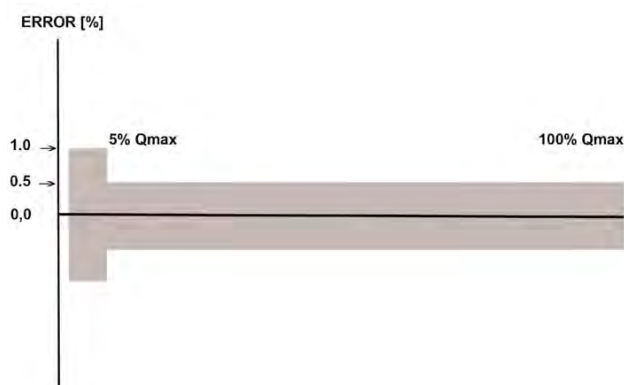
In the table below, the dimensions of the remote sensor version are shown. For the compact version, add to the "A" dimension, rather than 35 mm the connection box, the height of the electronic unit.

DIN version flanges comply with regulations of standard EN1092. Flanges in ANSI version meet the requirements of ANSI B 16.5 standard.
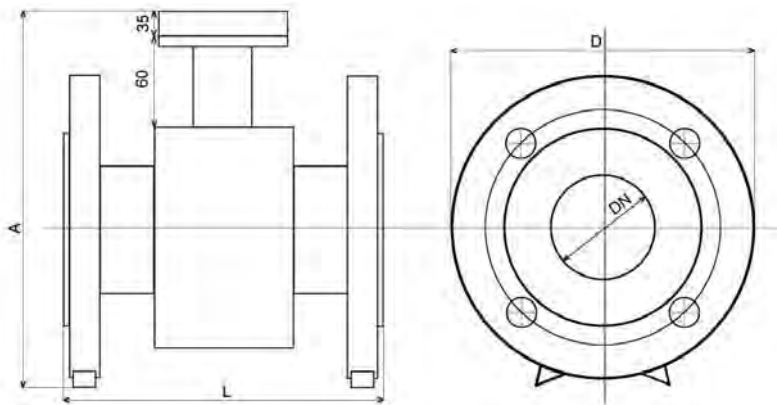
Dimensions of the sensor (remote version, DIN flanges)

DN	L (mm)	A (mm)	D (mm)	Weight (Kg)
10	150	140	90	2
15	150	145	95	2
20	150	150	105	2
25	150	155	115	2.5
32	150	220	140	3.5
40	150	230	150	5
50	200	240	165	6
65	200	260	185	9
80	200	275	200	11
100	250	300	220	13.5
125	250	335	250	20
150	300	360	285	25
200	350	430	340	35
250	400	480	405	41
300	500	488	460	55
350	500	595	520	65
400	600	645	580	110
500	600	750	715	120
600	600	855	840	155
700	700	960	910	230
800	800	1080	1025	325
900	900	1145	1125	420
1000	1000	1245	1255	510

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4. Important

If the instrument has been disconnected from power supply for period longer than 6 months, the internal clock battery can be empty. It is recommended to check time and date when putting the instrument in operation after longer downtime.

The battery will be automatically charged after the instrument has been connected to power supply.

5. Location

To ensure the proper function of the instrument, the measuring section of the induction flow meter sensor – measuring tube – has to be completely flooded with the measured liquid and the measuring section cannot be influenced by any disturbing elements as valves, pumps, bends or sharp deviations in the tubing section.

Therefore, observe the following instructions when installing the flow meter into the tubing:

1. If the system includes pumps, never place the flow meter sensor into the pump intake (A)!

2. Place the flow meter sensor into the lowest point of the horizontal part of the tubing or into the ascendant tubing (B); never place the sensor into the tubing in the flow top-down direction (C)!

3. Ensure that steady (straight) parts of tubing are min. 5 x DN before the instrument and 3 x DN behind the instrument (D).

4. Tubing reductions with slope up to 8° are considered as straight (E).

5. Prevent the instrument from being exposed to vibrations or direct sunlight (F).
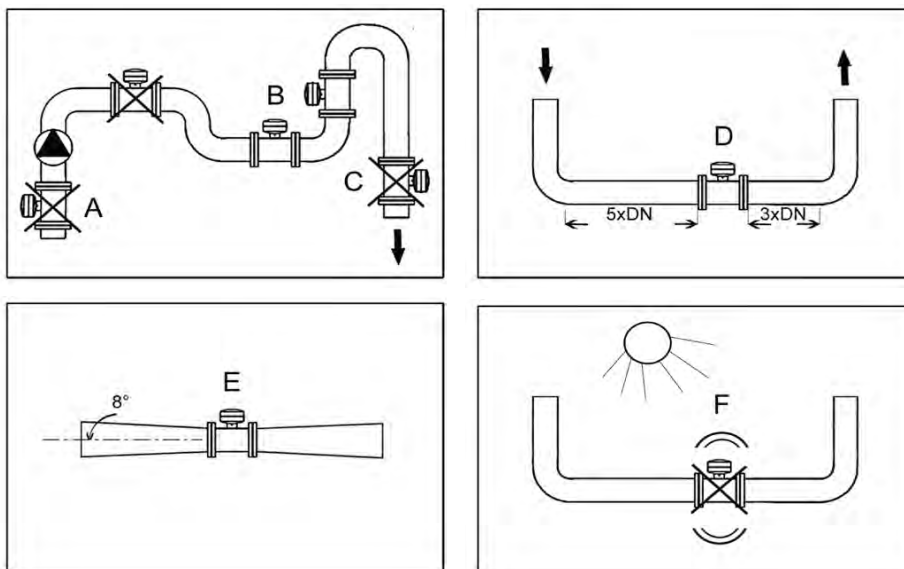
6. Electric connections

1. . Ensure that the flow sensor frame is connected to ground. Use the ground terminal at the outside of the sensor for that purpose. This will prevent from undesirable interference, especially for detached versions when shielding of the link cable between sensor and electronic unit is connected to the frame.

Remove upper cover of the instrument to get access to terminals for power cable and for signal cables.

CAUTION!

Keep on mind that induction flow meter is an electric device; so next steps can be performed only by a qualified person!

BLOQUE DE TERMINALES

FLOW	C	tube flooding indication electrode
FLOW	A	measuring electrode
FLOW	B	measuring electrode
FLOW	⊥	ground terminal of the sensor
PWR	D	solenoid
PWR	E	solenoid
BIN1		programmable multifunctional output
BIN2		programmable multifunctional output
ANAL		programmable analogue output
FREQ		frequency output
		(for calibration only)
230 V	L	phase conductor 230 V/50 Hz
230 V	PE	protective conductor
230 V	N	neutral conductor 230 V/50 Hz
AC/DC	L	supply conductor +/-
AC/DC	PE	protective conductor
AC/DC	L	supply conductor +/-
PO1		protective fuse 100 mA
		design with 230 V/50 Hz supply
		protective fuse 1 A
		design with AC/DC supply

Compact version
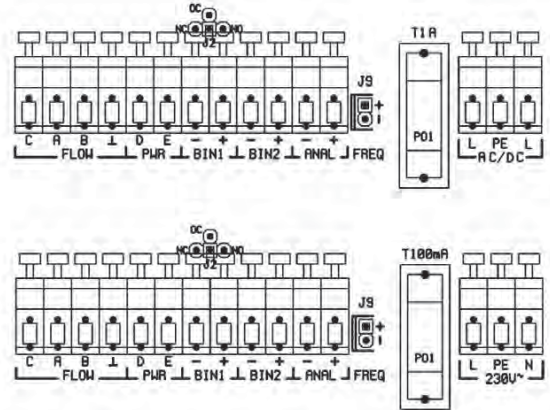
Remote version
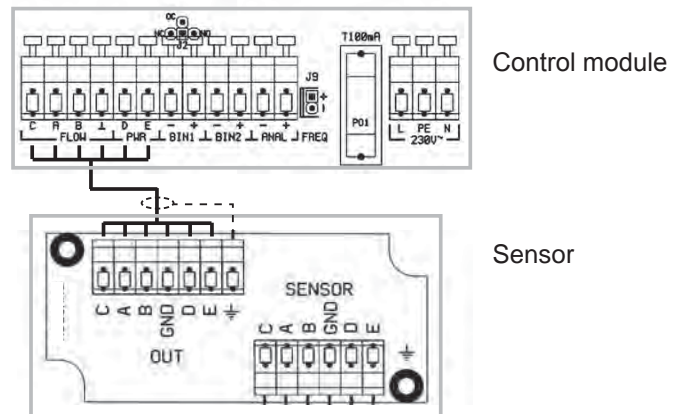
Control module

Sensor

2. Connect the flow sensor link cable to ABCDE ⊥. terminals. (Not applicable for compact version, where the sensor was connected in factory) .

Terminal blocks on the sensor and on the electronic unit are labelled identically, so terminals A - A , B -B , C - C , D - D , E – E, ⊥ - GND have to be interconnected. Connect the shielding of the link cable only on the side of the sensor to the ground terminal on the terminal block of the sensor. Standard length of the link cable between the sensor and the electronic unit is 6 meters. The link cable is included in delivery. La longitud estándar del cable de interconexión entre el sensor y la unidad electrónica es de 6 metros. El cable de interconexión está incluido en el envío.

Maximum length of the link cable is 25 meters (optional). The link cable should be always connected before power supply is connected to the transducer.

If the power cable has been already connected to the transducer, connecting and disconnecting of the link cable when the transducer is under voltage is prohibited.

3. The induction flow meter is powered by mains voltage 230V/50Hz connected to power supply terminal block labelled as L - PE - N, or by low voltage 12 V DC or 24 V AC connected to terminals labelled L – PE – L.

The polarity of supply conductors makes no difference in case of using the 12 V DC power supply.

Connect the power cable to terminals.

The induction flow meter does not have its own On-Off switch so it must be fused and switched on/off in other device (e.g. switchboard).

The protection of electric circuits is ensured by protective fuse T100mA, or 1A for the 12 – 24 V version, located next to power terminals.

Switch power supply on only after the sensor link cable and external device signal cables are connected!

4. Connect external devices that utilize current output or pulse outputs to terminals BIN1, BIN2 and ANAL. All outputs are isolated.

7. Instrument start

1. When power supply is switched on, the instrument display shows step by step messages POWER ON and **TEST INT CL 1** to **TEST INT CL 30**.

2. After completing internal tests, the instrument enters to measuring mode. Basic data are immediate flow rate and total volume in positive and negative flow directions.

Press button $\triangleright$ to display the next page showing difference between total volumes **DELTA V**, total operating hours from initial start of the instrument and value of the maximum flow rate **100%FLOW**. Next page displays the highest and the lowest immediate flow rate reached at particular measuring point.

3. Press **EXE** button shortly to display the last line of the datalogger. The line number is displayed in upper right corner and its value can be max. 100. Press button $\triangle$ or $\triangledown$ to scroll the display by one line up or down.

Datalogger line (one screen of display) shows time data (date, hour, minute) and total volumes in particular time.

Besides these data, it can show one of following optional values (see Chapter 8.G):

Immediate flow rate	**Q**
Maximum flow rate reached during particular period	**MAX**
Minimum flow rate reached during particular period	**MIN**
Average flow rate reached during particular period	**AVR** (Average)

Press **EXE** button shortly once again to return the instrument to basic mode. The instrument will return to basic mode automatically if it has not been operated for approx. 60 seconds.

8. Instrument configuration

This manual describes configuration of only those parameters that are useful to be changed when the instrument is used in normal way.

We do not recommend changing of parameters other than mentioned here.

Detailed description of software is included in technical documentation for service engineers.

Press **EXE** button and hold it for approx. 3 seconds to switch the instrument from measuring mode to main menu mode.

WARNING!

If the instrument is password protected, you will have to enter the password to open the main menu. Message PASSWORD is displayed and the password consisting of up to 8 characters has to be entered.

A. Menu options, commands

Main menu options are displayed in sixteen lines.

You may select the English, Italian, Spanish and/or German language for communication. English is pre-set as standard.

Use following keys to select an option:

$\triangledown$	scroll down by one line
$\triangle$	scroll down by one line
$\triangleleft$	move to the left by one position; it returns to the beginning of the menu in the main menu
$\triangleright$	move to the right by one position; it shifts to the end of the menu in the main menu
EXE	confirm selection

Cursor is blinking in the position of the option selected.

Main menu options

RETURN	Return to previous	**LANGUAGE**	Language selection (English, Italian, Spanish, German)
ANALOG OUTPUT	Configuration of analogue output	**PULSE OUTPUTS**	Configuration of multifunctional (pulse) outputs
COMPARATOR	Selection of logical functions for multifunctional (pulse) outputs	**FREQUENCY OUT.**	Configuration of frequency output
DAMPING	Instrument damping	**COMMUNICATION**	Configuration of communication ports (RS232, GSM modem)
DATALOGGER	Configuration of internal datalogger	**SIMULATION**	Flow simulation
SENSOR	Downloading of sensor calibration parameters, setting of the flow range measured	**MEASUREMENT**	Permit to measure the flow in negative direction, setting of the zero flow zone, configuration of the empty tubing detection function
TIME	Configuration of internal real-time clock	**PASSWORD**	Password setting
DISPLAY	Selection of immediate flow rate units and displayed decimal places of counters	**SERVICE**	Counter reset, check of the AD transducer function, information on software version

B. Multifunctional outputs

The flow meter is equipped with two multifunctional outputs. Relay or optotransistor contacts are connected to BIN1 terminals, BIN2 terminals are used only for optotransistor. Use jumper NC-OC-NO above BIN1 terminals to set their function.
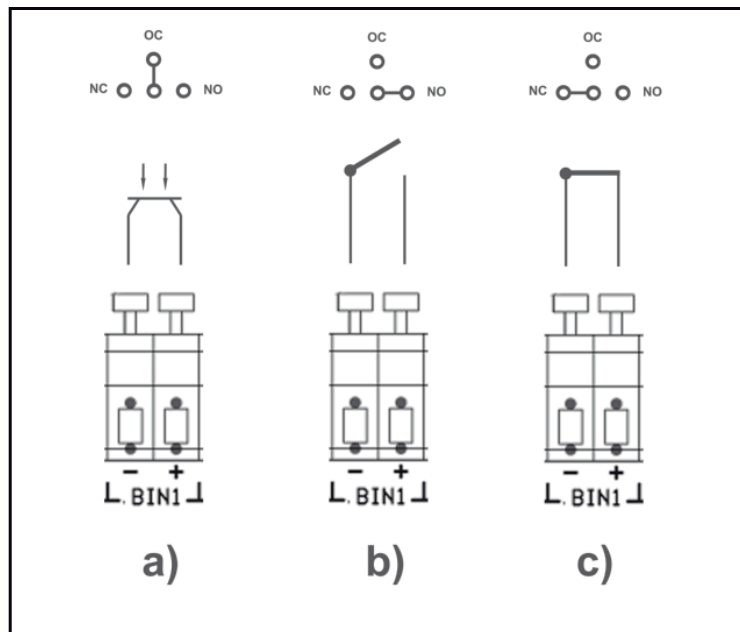
a)   Output works as optotransistor.

b)   Relay contacts are normally open.

c)   Relay contacts are normally closed.

Outputs can function as

a)   Pulse transmitter

- of total volume in positive direction imp V+

- of total volume in negative direction imp V-

- of total volume in both directions imp V

b)   Status output

B1. Pulse setting

Volumes 0.1 l, 1 l, 10 l, 100 l, 1 m3, 10 m3, 100 m3 and widths 10 ms, 20 ms, 40 ms, 80 ms, 160 ms, 320 ms can be assigned to transmitted pulses.

WARNING!

The flow meter transmits number of pulses corresponding to liquid quantity flowed during measuring cycle of 640 ms. Pulse can be assigned only such volume and width so that number of transmitted pulses during time unit is real! Incorrect setting is indicated by error message. Display shows the code E5.

1. Use cursor keys to select option PULSE OUTPUTS from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select pulse width under option ms/imp1(2) and assign required volume to the pulse under option l/imp1(2).

3. Select option OUT1 (output to terminals 1 - 2) or OUT2 (output to terminals 3 - 4) and confirm your selection by EXE key.

4. Select V+ from menu (output transmits pulses only for flow in positive direction), V- (output transmits pulses only for flow in negative direction) or V (output transmits pulses for both directions) and confirm by EXE key.

5. Select option RETURN to finish setting.

The instrument will ask if you want to save new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it works with original parameters.

B2. Status report setting

1. Use cursor keys to select option PULSE OUTPUTS from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select option OUT1 (output to terminals 1 - 2) or OUT2 (output to terminals 3 - 4) and confirm your selection by EXE key.

3. Select option COMP1(2) from menu (to assign status function to output) and confirm by EXE key.If status function COMP1(2) is assigned to outputs, further setting of this function will be performed under option COMPARATOR in main menu.

4. Select and confirm this option to display submenu with direct setting of flow levels for changing of output status (submenu options Qa, Qb), mode indicating active status of the output COMP1(2) (e.g.. Q<Qa) and hystheresis.

HYST. Complete setting in the same way as described in paragraph B.1.4.

C. Analogue output

The flow meter is equipped with programmable active current output on terminals ANAL. The output can be configured for 4 - 20 mA or 0 - 20 mA.

1. Use cursor keys to select the option ANALOG OUTPUT from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select option Ia and confirm your selection by EXE key.

3. In submenu, select the mode of current output 4 - 20 mA or 0 - 20 mA or OFF (if the output is to be disabled) and confirm by EXE key.

4. Use option OUTPUT to select if the current output is to be enabled only for positive flow direction Q+, only for negative flow direction Q- or for both flow directions Q and confirm by EXE key.

5. In submenu option MAX, use command EDIT and press EXE key to enable editing of flow rate value corresponding to current value 20 mA. Use cursor keys to set flow rate value in l/s and confirm by EXE key.

6. Select option RETURN to finish setting.

The instrument will ask if you want to save new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it works with original parameters.

D. Display

Measuring units and decimal point position are set by default in factory and correspond to size of the flow meter.

If this default setting does not conform to your requirements, you can change it in main menu using option DISPLAY and in submenu using options UNIT (units of immediate flow rate) and DECIMAL POINT (selection of places after the decimal point for flowed quantity).

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E. Damping

Adverse effect of sudden changes of flow rate or laminar flow disturbances in measuring section of the instrument (e.g. due to fittings, bends or pumps) sensed by the instrument and causing sudden changes of displayed values or oscillations of current output can be eliminated by setting of instrument damping.

1. Use cursor keys to select the option DAMPING from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select option TIME and confirm your selection by EXE key.

3. Select time constant from submenu and confirm it by EXE key. Generally, the longer the time constant is, the more stable is the value on display and on outputs; however the slower is response to flow changes, i.e. with time constant of 5 s, the instrument responds to immediate drop of flow and displays zero flow rate only after 5 seconds.

4. Select option MODE and confirm by EXE key. Select LINEAR if damping is to be linear or AVERAGE if it should be calculated from several samples depending on selected time constant. Confirm your selection by EXE key.

5. In option ZONE select command EDIT and press EXE key to enable editing of bandwidth above and under steady flow mean value in which damping should occur. Use cursor keys to set numeric value in l/s and confirm it by EXE key.

6. Select option RETURN to finish setting.

The instrument will ask if you want to save new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it works with original parameters.

F. Dead band setting

Basic dead band of the instrument near the zero flow rate is 0.1 l/s. This dead band can be changed so that it would be possible to suppress undesirable flow rate values occurring due to liquid surges and vibrations in tubing at the zero flow rate.

WARNING!

Extension of the dead band increases measurement error at low flow rates. Hence parasitic movements of liquid should be eliminated first.

1. Use cursor keys to select the option MEASUREMENT from main menu and confirm your selection by EXE key.

2. Under the ZERO option, select command EDIT and press EXE key to edit the band size in l/s, in which no flow rate is to be registered. Use cursor keys to set the numeric value in v l/s and confirm by EXE key.

3. Select option RETURN to finish setting.

The instrument will ask if you want to save new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it works with original parameters.

G. Datalogger

Internal datalogger enables recording of measured values in chosen intervals either periodically or once at a time and their storing in instrument memory.

Stored values can be subsequently read on the display or on a PC via RS232 communication link.

The datalogger records following parameters by default: total volume in positive direction V+, total volume in negative direction V-, instrument status at the moment of reading Exx and real time at the moment of reading t.

Alternatively you can choose recording of one of additional values: immediate flow rate Q, maximum flow rate during chosen interval MAX, minimum flow rate during chosen interval MIN or average flow rate during chosen interval AVR.

All samples containing above mentioned data are stored in memory as a single record.

Capacity of the sample memory is 100 records. Samples are recorded step by step and they are assigned addresses from 1 to 100. After recording of 100 samples, the oldest sample with address 1 is deleted, memory is readdressed and the new sample is inserted to address 100. The memory content is not corrupted if power failure occurs.

Sample recording can be set with fixed interval from 15 to 107 minutes (e.g. every 15 minutes after datalogger start) regardless to real time or using a time mask (e.g. datalogger starts each Friday at 15:00 and measurement interval takes 2 hours).

G1. Datalogger setting without time mask

1. Use cursor keys to select the option DATALOGGER from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select option MASK and confirm your selection by EXE key.

3. A time mask is displayed. The time mask is disabled if it is in format xx - xx - xx   xx : xx (day – month – year   hrs : min). If any position shows character different from x, select command EDIT and use cursor keys to correct it to x. Use command RETURN to return to submenu.

4. Select option VAR and confirm your selection by EXE key. Select in menu one of optional values to be recorded (immediate flow rate Q, maximum flow rate during chosen interval MAX, minimum flow rate during chosen interval MIN or average flow rate during chosen interval AVERAGE). Selected option will be marked with asterisk *. Use command RETURN to return to submenu.

5. Select option PER and confirm your selection by EXE key. Use command EDIT to enable interval editing in minutes. Enter interval length and use command RETURN to return to submenu.

6. Select START. Option RUN should be marked with asterisk *; this means that datalogger is operating.

7. Select option RETURN to finish setting.

The instrument will ask if you want to save the new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save the new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it works with original parameters.

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G2. Datalogger setting with time mask (using real time)

1. 1. Use cursor keys to select the option DATALOGGER from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. 2. Select option MASK and confirm your selection by EXE key.

3. 3. A time mask is displayed. The time mask is disabled if it is in format xx - xx - xx   xx : xx (day – month – year   hrs : min). Select command EDIT and use cursor keys to set the required time mask format. Use command RETURN to return to submenu.

4. Select option VAR and confirm your selection by EXE key. Select in menu one of optional values to be recorded (immediate flow rate Q, maximum flow rate during chosen interval MAX, minimum flow rate during chosen interval MIN or average flow rate during chosen interval AVERAGE). Selected option will be marked with asterisk *. Use command RETURN to return to submenu.

5. Select option PER and confirm your selection by EXE key. Use command EDIT to enable interval editing in minutes. Enter interval length and use command RETURN to return to submenu.

6. Select START. Option RUN should be marked with asterisk *; this means that datalogger is operating.

7. Select option RETURN to finish setting.

The instrument will ask if you want to save the new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save the new parameters and switch to normal display mode. If datalogger is set in this way, it will start recording in accordance with the time mask and records measured values during interval PER; time intervals between individual records correspond to time mask setting.

G3. Examples of time mask setting

- xx - xx – xx   xx : 00   recording starts every round hour
- 15 - xx – xx   11 : 30   recording starts every 15th day in month at 11.30
- 15 - 11 – xx   11 : 30   recording starts every 15th November at 11.30
- 15 - 11 – 07   11 : 30   recording starts only on 15.11.2007 at 11.30
- x1 - xx – xx   11 : 30   recording starts each Monday at 11.30
- x2 - xx – xx   11 : 30   recording starts each Tuesday at 11.30
- x3 - xx – xx   11 : 30   recording starts each Wednesday at 11.30
- x4 - xx – xx   11 : 30   recording starts each Thursday at 11.30
- x5 - xx – xx   11 : 30   recording starts each Friday at 11.30
- x6 - xx – xx   11 : 30   recording starts each Saturday at 11.30
- x0 - xx – xx   11 : 30   recording starts each Sunday at 11.30 AM

G4. Datalogger submenu

RETURN	Return to previous menu	RUN*	Datalogger operating
STOP	Datalogger stop	START	Datalogger start with deleting previous samples
PER	Time interval setting	MASK	Time mask configuration
VAR	Selecting of optional values		

H. Function of the third electrode

The instrument is equipped with sensing electrode as a standard. It is located in upper part of the measuring tube section and indicates flooding of the measuring tube section by liquid.

This third electrode can work in three modes.

a) If the measuring tube section is empty or incompletely flooded, i.e. the electrode is not in contact with liquid, measurement is locked and instrument displays zero flow rate. At the same time, character Z is displayed in lower left corner of the display indicating that lock function has been enabled.

1. Select the option MEASUREMENT from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select command LOCK under the option EMPTY PIPE to activate the above described function.

Note: The above described function is set by default in factory and need not to be set in most cases.

b) If the measuring tube section is empty or incompletely flooded, i.e. the electrode is not in contact with liquid, measurement is not locked and this situation is only indicated. The instrument displays flow rate and, at the same time, character Z is displayed in lower left corner of the display to indicate that this function has been enabled.

1. Select the option MEASUREMENT from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select command ALARM under the option EMPTY PIPE to activate the above described function.

c) Function of the third electrode can be completely disabled.

1. Select the option MEASUREMENT from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select command OFF under the option EMPTY PIPE to activate the above described function.

I. Password setting

You can set a password to prevent unauthorized persons from access to configuration menu.

1. Use cursor keys to select the option PASSWORD from main menu and confirm your selection by EXE key. A submenu will be displayed.

2. Select command NEW and press EXE key to enable password editing. The password can consist of up to eight characters. Use cursor keys to set your password and confirm it by EXE key.

3. Select option RETURN to finish setting.

The instrument will ask if you want to save the new parameters SAVE SETUP?. Select YES if they are OK. The flow meter will save the new parameters and switch to normal display mode. If NO is selected, parameters will not be saved.

The instrument will switch to display mode and works with new parameters until it is switched off. When the instrument is switched on again, it will work with original parameters.

J. GSM module activation

The instrument can be equipped with optional GSM module allowing remote data reading using SMS messages in cellular phone networks.

Prior to activation of this function, switch off the instrument and insert a SIM card in it. Use a cellular phone to cancel function of PIN request for this SIM card. Then install an external antenna, which is included in delivery.

1. After power supply is switched on, the instrument displays message POWER ON and then GSM INIT... indicating that the instrument recognized the internal GSM module. After that, starting procedure is performed with standard messages from INTERNAL TEST INT CL 1 to INTERNAL TEST INT CL 30.

2. Use cursor keys to select the option COMMUNICATION from main menu and confirm your selection by EXE key. A submenu will be displayed.

3. Select command GSM and press EXE key to display next submenu. Select option INIT and confirm it by EXE key. The message GSM INIT…OK will be shown on the display of the instrument.

4. Select option RETURN to finish setting.

The instrument is ready for sending SMS messages. Send SMS message in format F3(space)DATA from your cellular phone to the number of the SIM card installed in the flow meter to enable reading of data. The instrument will respond by sending SMS message to the number of the cellular phone it received the enabling SMS from.

The first indication in SMS message gives total volume in positive flow direction, the second indication gives total volume in negative flow direction, the next value is the information on the immediate flow rate at the moment of reading followed by the information on total operating time and possible error.