

ENERGY-INT E

Sharky-Pulse

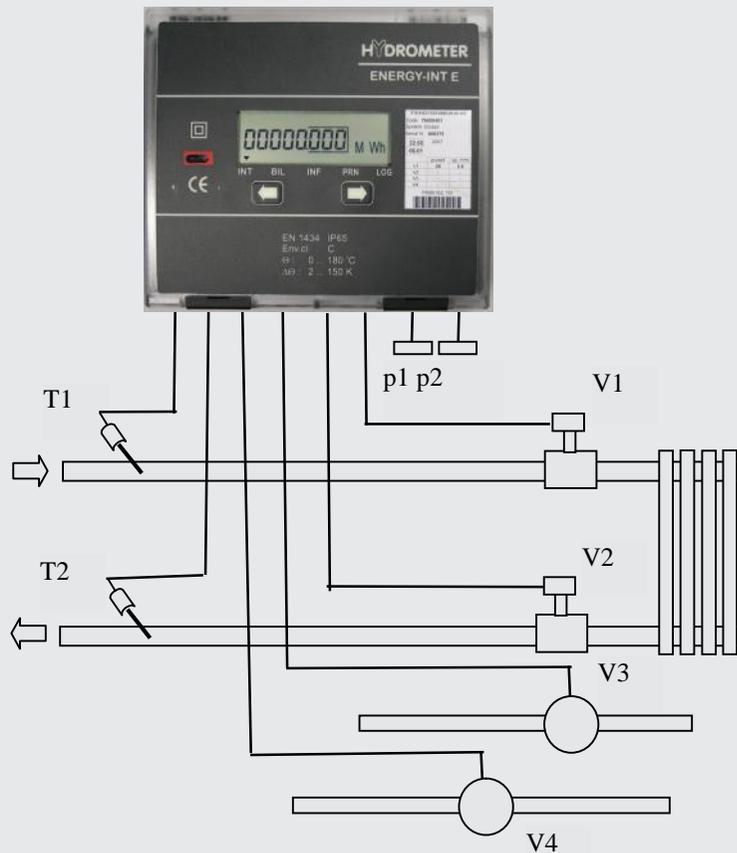
HYDROMETER



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Нижний Новгород (831)429-08-12 Новосибирск (383)227-86-73 Ростов-на-Дону (863)308-18-15
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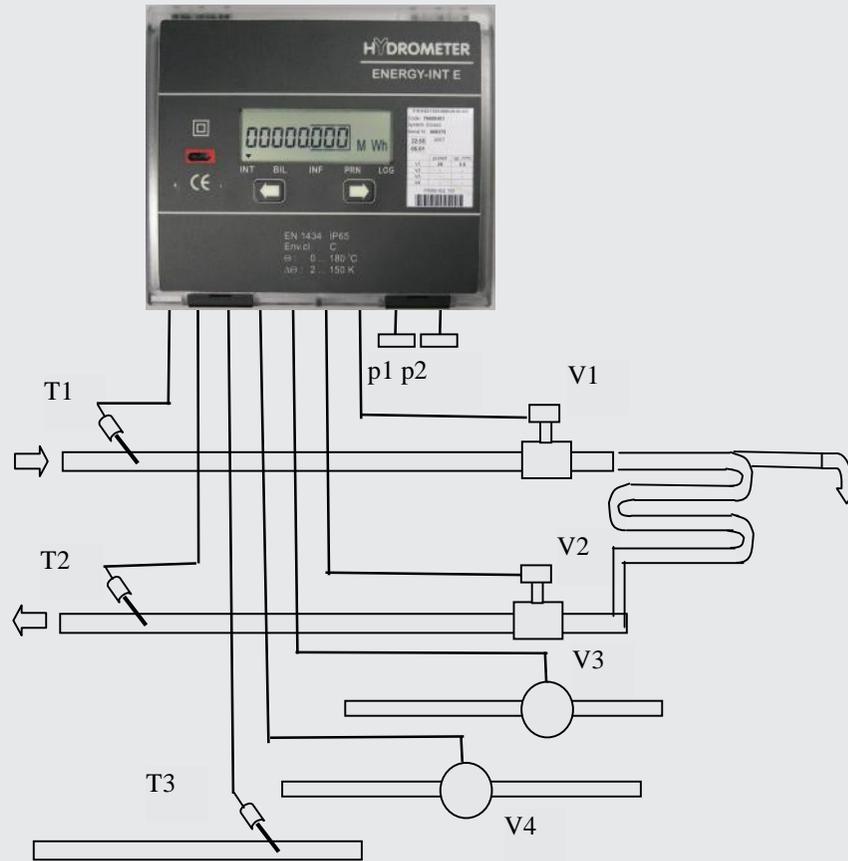
V2, V3, V4

p1, p2

$$Q = V1 \cdot \rho \cdot h_1 - h_2$$

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- -
- -
- -
- V4
- V3,
- p1, p2

$$Q = V1 \quad 1 \quad h_1 - h_3 - V2 \quad 2 \quad h_2 - h_3$$

Основные функции в режиме работы:

Измерения и вычисления применимых параметров расхода для:
4 VMC , 3 температур, 2 каналов давления в одном OS контуре

Отображение всех измеряемых данных на дисплее.

Записи и хранимые данные во внутреннем архиве.

Индикация подлинного временного календаря.

Отображение, коммуникации и архив данных конфигурируемы.

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EN1434

2

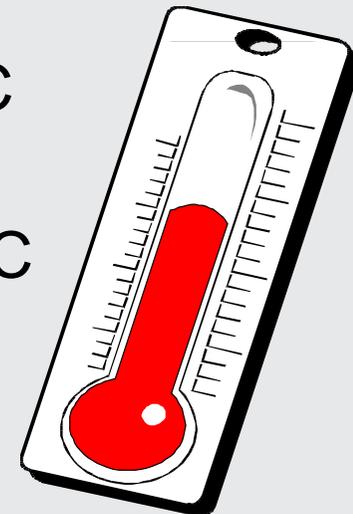
: +5 ... +55°C

: -20 ... +70°C

: 93%

C EN1434

: IP65



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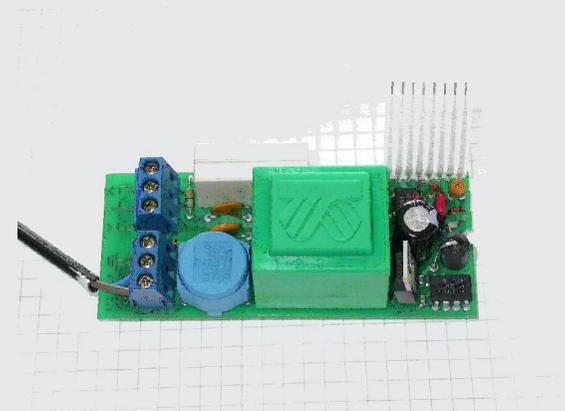
:

- 3,6 D-
,

10

- 230 / 50 / 2,5

- 24 / 50 / 2,5



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:

- : T1, T2, Tc
- : 2 – 5m
4 – **100m**
- T : 0 ... 180°C
- T_{delta} : **2** ... 150K
- : PT500, PT1000

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:

• : V1, V2, V3, V4

• : 10 ,
- 200
- 2,5

100 ,
- 5
- 100

• . : 3

• : 5000 3/

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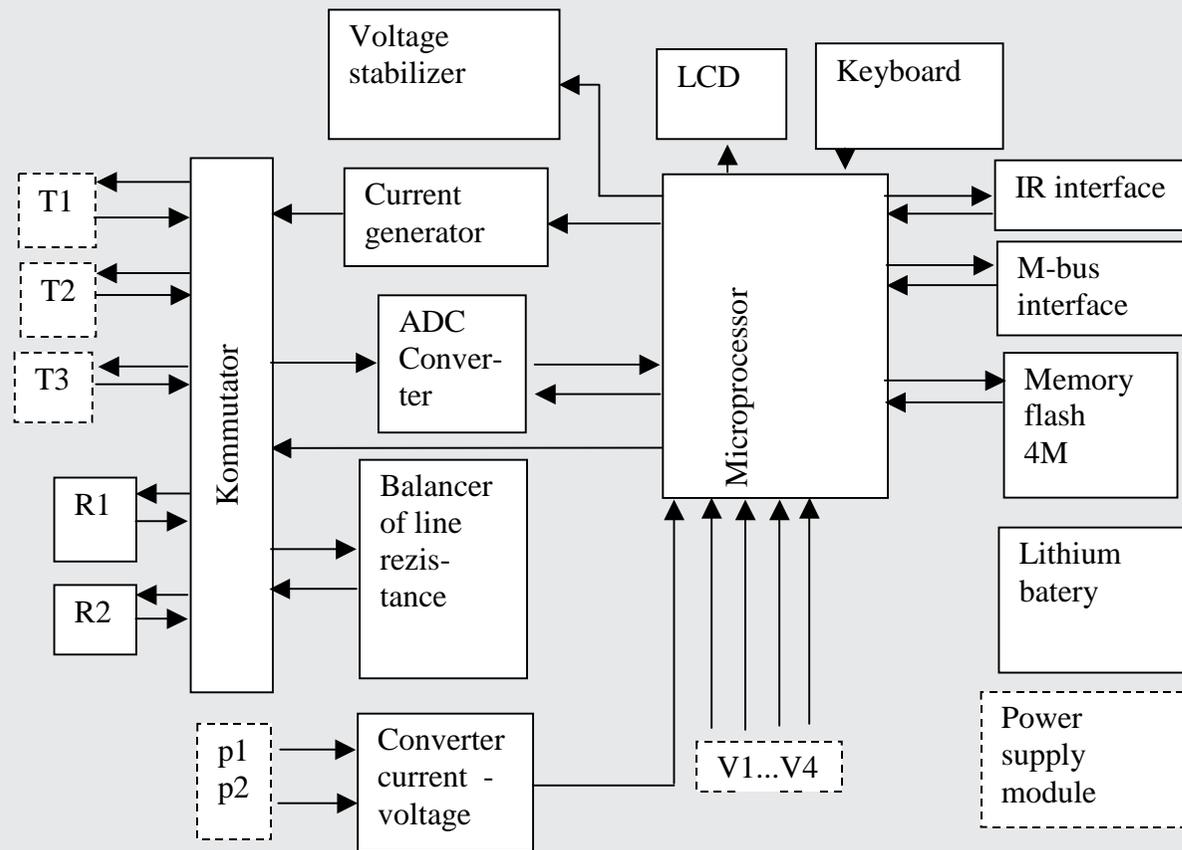
:

- : P1, P2
- - : 0
- : 100 ... 2500
- : 0-5 A
0-20 A
4-20 A
- : **10**

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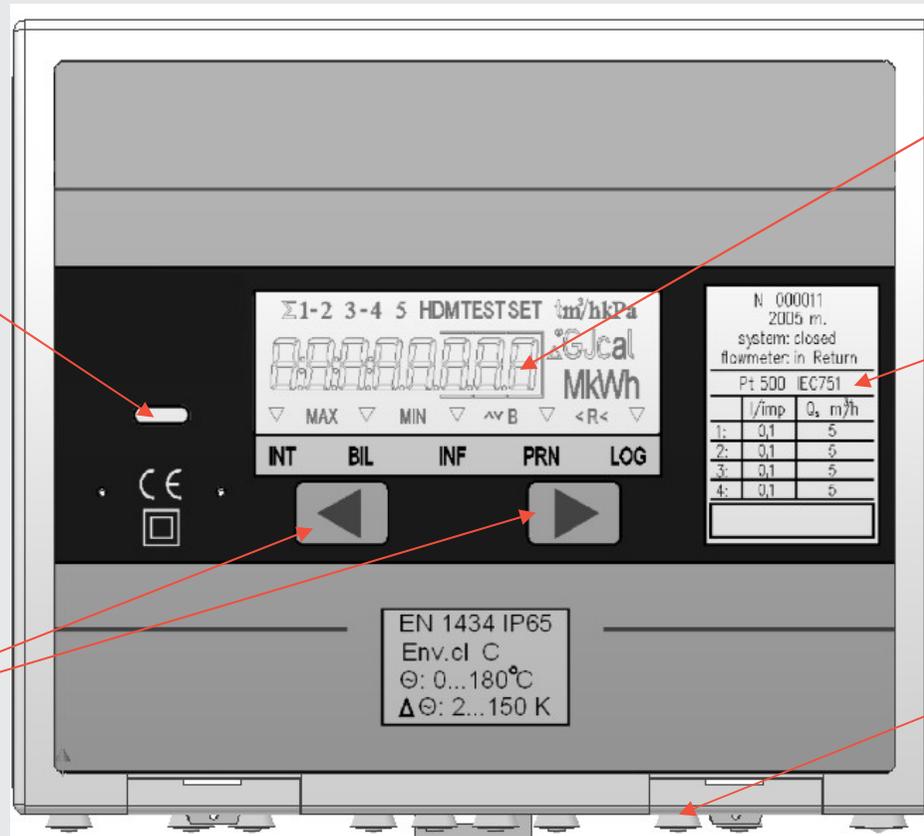
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LC-

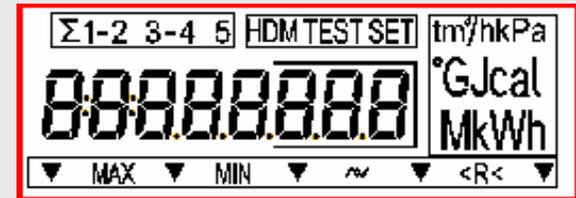
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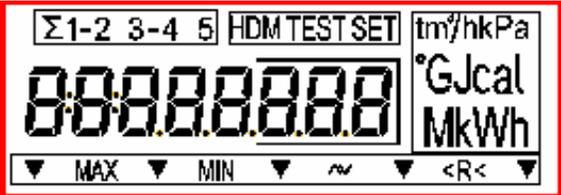
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Единицы измерений

³ t)	
3/	
°C	,
, , M ,	



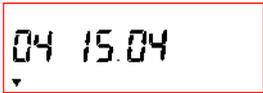
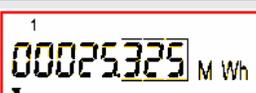
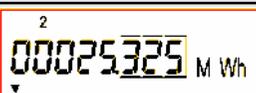
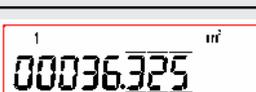
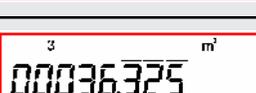
Обзор цикла:

1	:	INT
2	:	BIL
3	:	INF
4	:	PRN
5	:	LOG
6	:	INT BIL INF PRN LOG
7	:	“SET” INT BIL INF PRN LOG
8	:	“TEST” INT BIL INF PRN LOG

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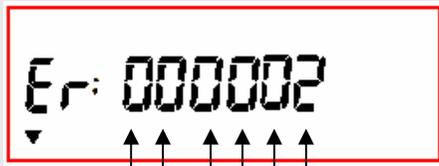
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Измерение единиц Цикл 1

		
		E
		1- E1
		2- E2
	M1	V1
	M2	V2
		V3
		V4

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T1
T2
T3
V1
V2
V3 V4

Er:000000	.
Er:000011	T1 T2 T1 < T2
Er:000002	„T1 < T2“
Er:000004	T1 T1 < 0 °C
Er:000020	
Er:000040	T1 > 180 °C T1
...	...

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Цикл 2 – “BIL”

00025.325 MWh ← 2 s → 2004.0 1.0 1

1	1	M , ,
2	2	M , ,
1	1	3t
2	2	3t
1 – 2	1-2	3t
3	3	3
4	4	3

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Цикл 3 – “INF”

1	36.325	m³/h
2	36.325	m³/h
3	20.325	m³/h
4	20.325	m³/h
1	135.6	°C
1-2	103.11	°C
3	325	°C
2	325	°C
1	11256	kPa

2	11256	kPa
b	2008.12	
	2005.05.12	
	21-30-45	
	01.01	
	0000 01	
1	P: 100E-2	m²

2	P: 100E-2	m²
3	P: 100E-2	m²
4	P: 100E-2	m²
	00026325	h
b	000263	h
	SOft 104	
	m0505263	

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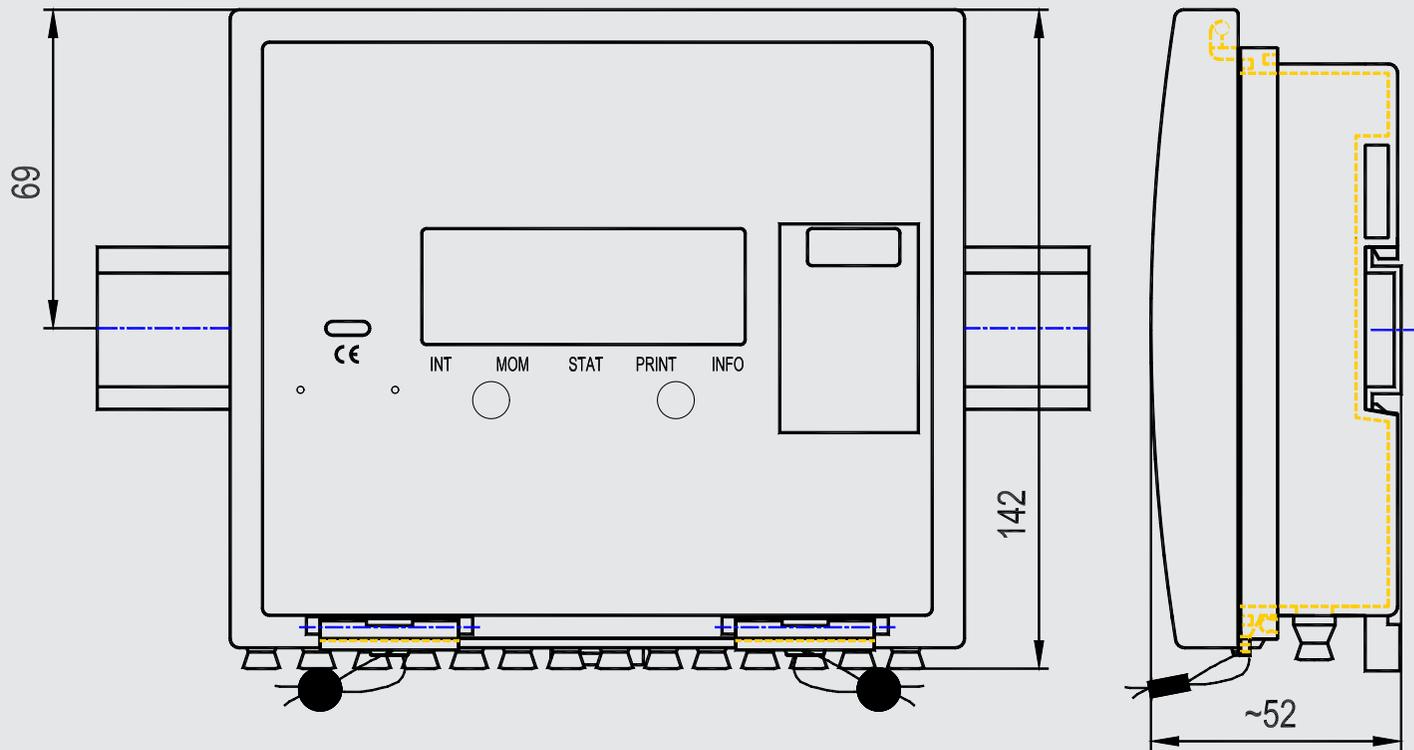
HYDROMETER

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- /

ENERGY-INT E

HYDROMETER

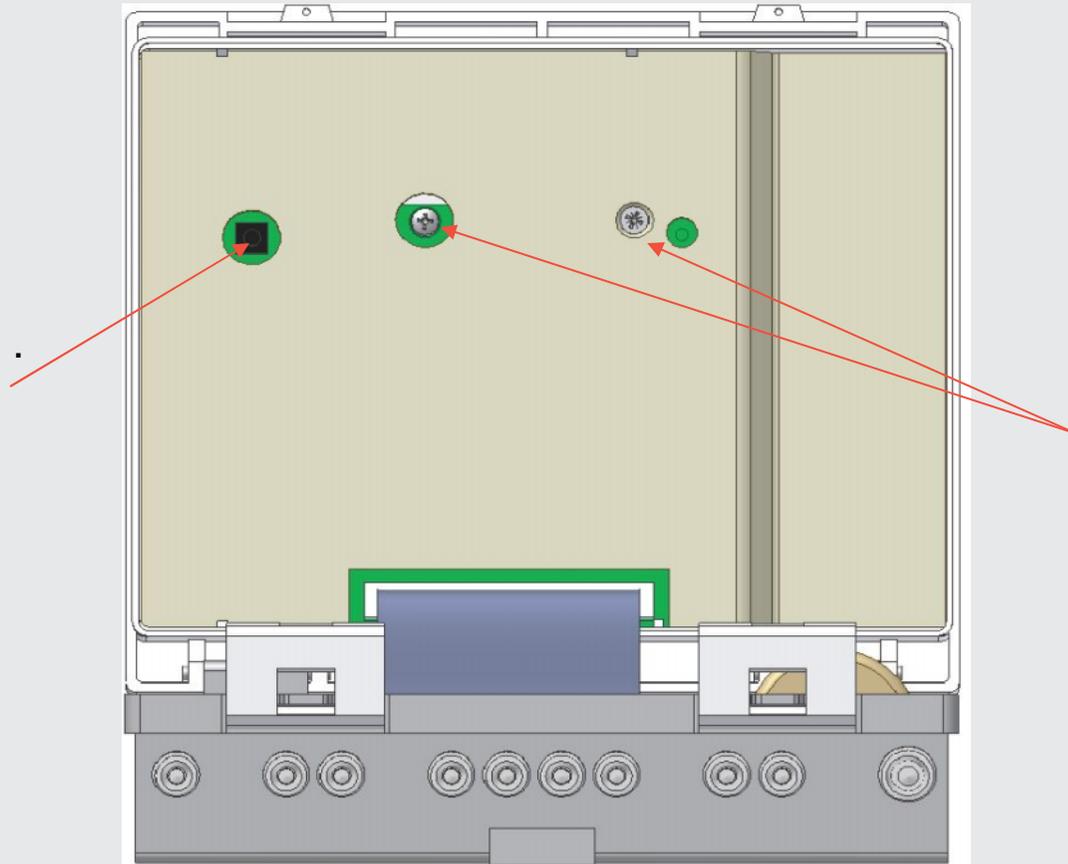
/ :



ENERGY-INT E

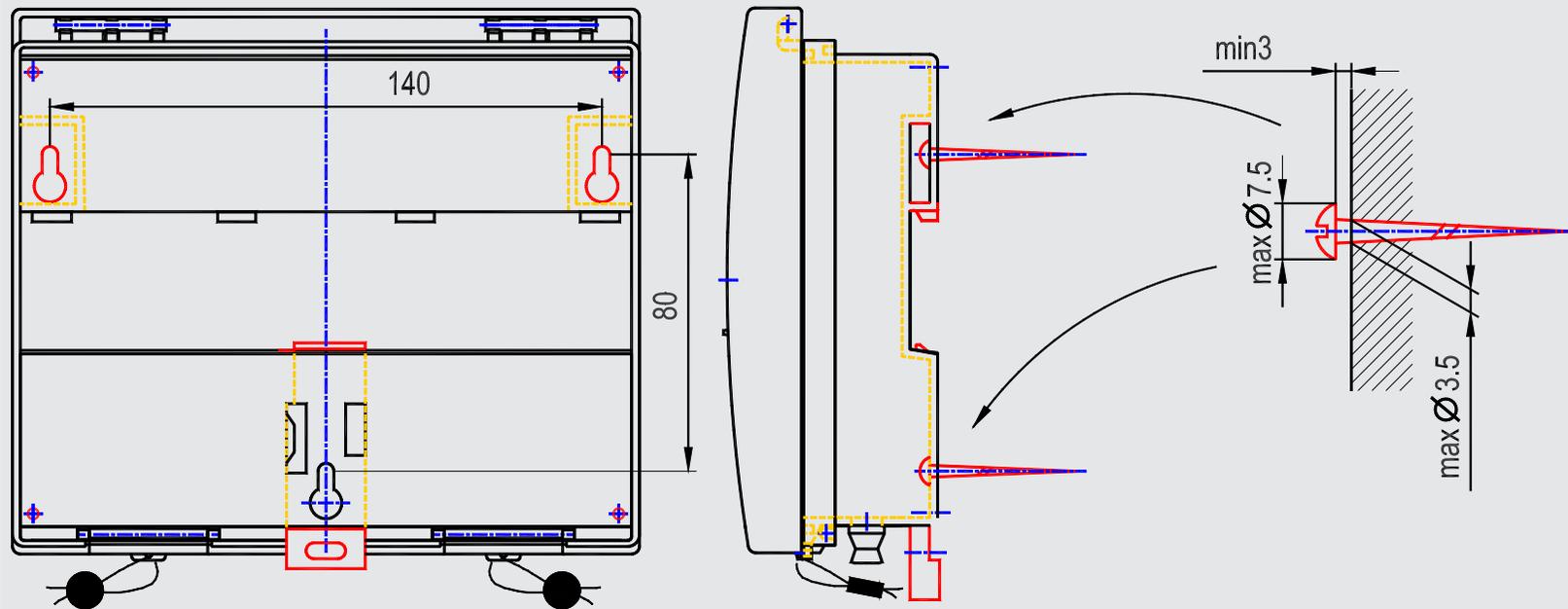
HYDROMETER

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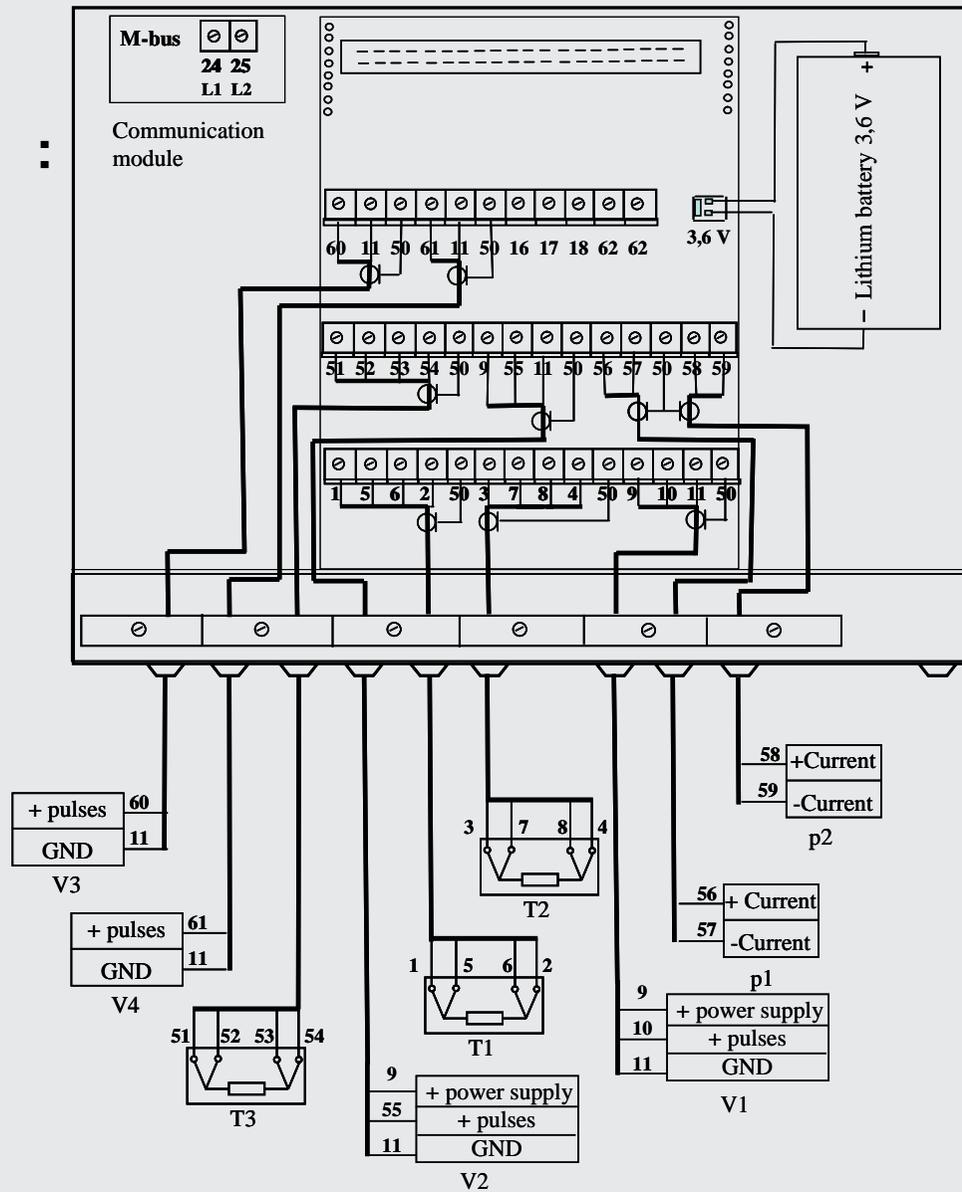
ENERGY-INT E

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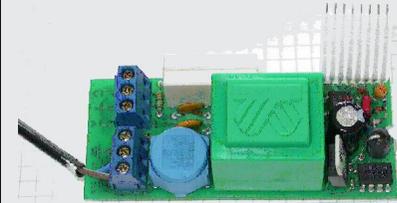
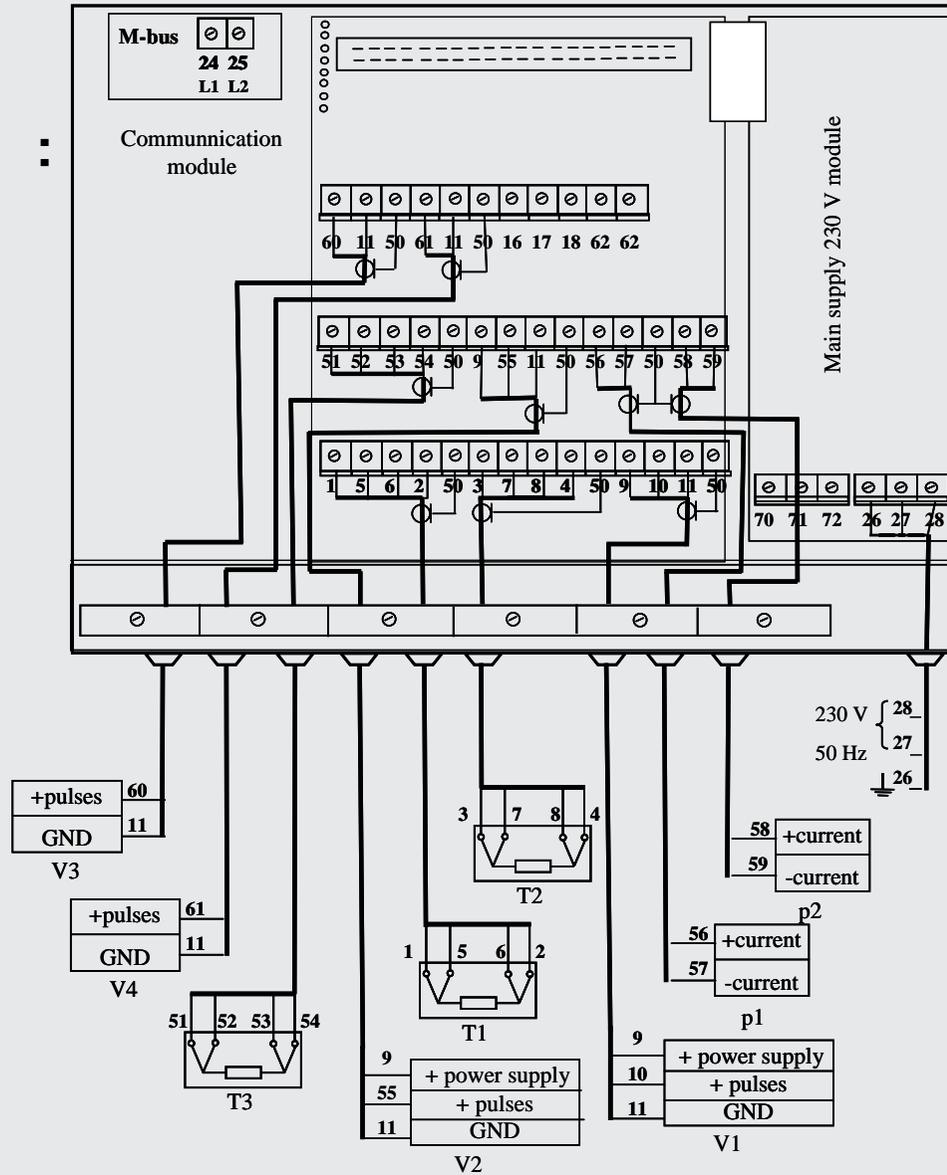
ENERGY-INT E

HYDROMETER



ENERGY-INT E

HYDROMETER



ENERGY-INT E

HYDROMETER

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- Norcorsin 10
- :
- Norcorsin 20
- Norcorsin 30
- Norcorsin 40
- Norcorsin 50
- Norcorsin 60
- Antifrogen L16
- Antifrogen L25
- Antifrogen L38
- Antifrogen L47
- Antifrogen N20
- Antifrogen N34
- Antifrogen N44
- Antifrogen N52
- PKL 90
- PKL 300

H: AF L25
▼ ▼ ▼ ▼ ▼

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:

←Kas →
2 s

^H
13 01-19

¹ ^H
0.128 M Wh

: 6 4320

: 12 365

: 3 36

: 15

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HYDROMETER

: 



2

: - ,

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- Max.

1 A

-

/ 1

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: ¹
LP 25325 kW

:

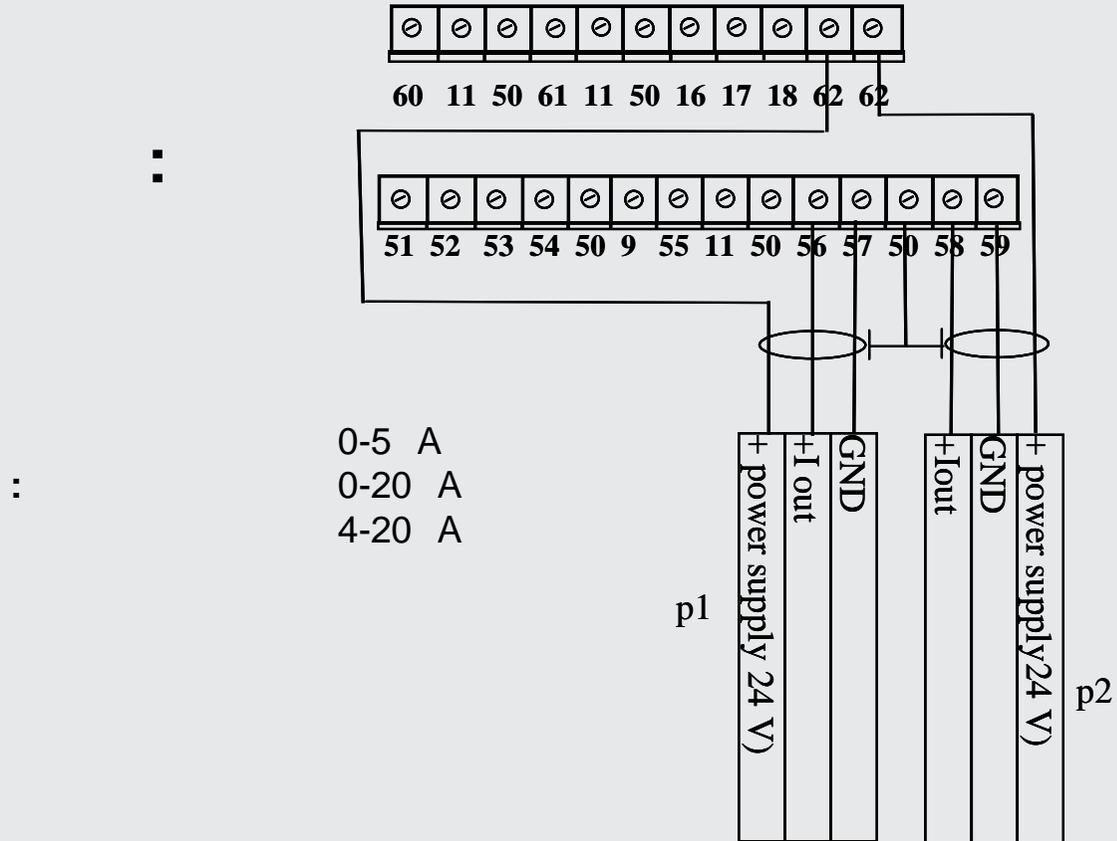
- 2A

- /

- q1...q4)
- T1...T3
- T T1 -T2
- p1 p2
- P p1-p2
- >0

ENERGY-INT E

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0-5 A
0-20 A
4-20 A

ENERGY-INT E

HYDROMETER



:

: EN61107 ASC II

- 9600

-

-

-

-

ENERGY-INT E

HYDROMETER



:

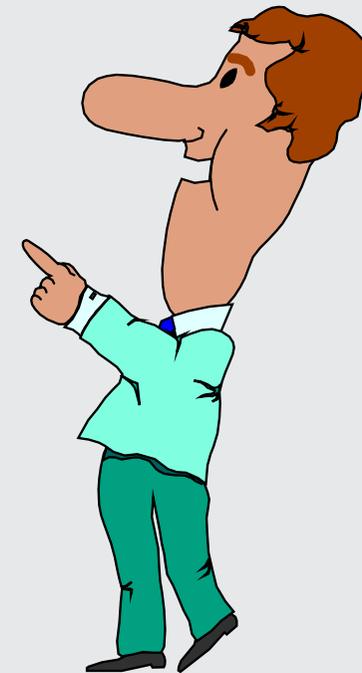
M-Bus

:

- M-Bus EN1434
- 300 ... 9600
-
-
-

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ENERGY-INT E

HYDROMETER

:

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-
-

RS232-



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HYDROMETER

:

Тип отчета	
Ac	Печать “основного” отчета
rP	Печать ежемесячная дневных значений параметров
In	Печать текущих значений основной регистр
CF	Печать устройства параметризации параметров
RL	Печать текущих значений параметров
Временной интервал	
H	Печать часовая средних значений параметра
D	Печать по дням средних значений параметра
M	Печать по месяцам средних значений параметра
Системное число	
1	Печать отчета для нагревательной системы
2	Печать для добавочных счетчиков воды

ENERGY-INT E

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PC –

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ENERGY-INT E

IC5 configurator v.1.0.1

File Operations Help

Parameter	Value	Parameter	Value
Date, time	2006.11.11, 02:39:04	Serial number	0000040
Pulse counter V1	0	Customer number	0000000
Pulse counter V2	0	Battery change date	2017.11
Pulse counter V3	0	Year review day	01.01
Pulse counter V4	0	Year review parameters zero	No
Flow q1, m³/h	0,0000	Month review hour, day	00:00, 01
Flow q2, m³/h	0,0000	Month review parameters zero	No
Flow q3, m³/h	0,0000	V1 pulse value, pulse/m³	1,00E-4
Flow q4, m³/h	0,0000	V2 pulse value, pulse/m³	1,00E-4
Flow M1, t/h	0,0000	V3 pulse value, pulse/m³	1,00E-4
Flow M2, t/h	0,0000	V4 pulse value, pulse/m³	1,00E-4
Temperature T1, °C	180,00	M-bus address	1
Temperature T2, °C	180,00	UART baudrate	9600
Temperature T3, °C	8,00	Temperature sensor type	Pt500-ø
Pressure p1, kPa	0,00	V1 flow sensor type	S
Pressure p2, kPa	0,00	V2 flow sensor type	S
Power kW	0,0000	V3 flow sensor type	OFF
Error code	000044	V4 flow sensor type	OFF
Error date/time	2006.11.11, 02:27:04	Max frequency V1	64
Energy, MWh	0,0000	Max frequency V2	64
Energy, 1st tariff, MWh	0,0000	Max frequency V3	64
Energy, 2st tariff, MWh	0,0000	Max frequency V4	64
Amount V1, m³	0,002	T3 measure	Constant
Amount V2, m³	0,000	Cold water constant	8,00
Amount V3, m³	0,000	Heating liquid type	Water
Amount V4, m³	0,000	1st pressure sensor type	OFF
Mass M1, t	0,002	2nd pressure sensor type	OFF
Mass M2, t	0,000	Max pressure p1	1600,0
Normal working time, h	0,006	Max pressure p2	1600,0
Power on time, h	8507,453	Energy dimension	MWh
		1st tariff parameter	OFF
		1st tariff type	<
		1st tariff limit value	0,000
		1st tariff time value from	00
		1st tariff time value till	00
		2nd tariff parametras	OFF
		2nd tariff type	<
		2nd tariff limit value	0,000
		2nd tariff time value from	00
		2nd tariff time value till	00
		Printing language	English
		Relay output state	On
		Relay output parameter	T1
		Relay output param. max value, °C	55,0000
		Relay output param. min value, °C	45,0000

Finished

ENERGY-INT E

The screenshot displays the 'IC5 configurator v.1.0.1' software interface. At the top, there is a menu bar with 'File', 'Operations', and 'Help'. Below the menu bar is a toolbar with various icons. A table shows the current configuration:

Parameter	Value	Parameter	Value
Date_time	2006.11.11, 02:20:19	Serial number	0000040

The main window is titled 'Reports constructor' and features a tabbed interface with tabs for 'AC-1', 'AC-2', 'RP-1', 'RP-2', 'IN-1', 'IN-2', 'CF', and 'RL'. The 'RL' tab is currently selected. The window contains a list of report parameters, each with a checkbox:

- Date
- Time
- Energy Q
- 1st tariff energy Q1
- 2nd tariff energy Q2
- Power P
- Amount V1
- Amount V2
- Amount difference V1-V2
- Amount V3
- Amount V4
- Mass M1
- Mass M2
- Mass difference M1-M2
- Flow q1
- Flow q2
- Flow q3
- Flow q4
- Temperature T1
- Temperature T2
- Temperature difference T1-T2
- Temperature T3
- Pressure p1
- Pressure p2
- Meter working time A
- Working time
- Error code Er

On the right side of the 'Reports constructor' window, there is a vertical toolbar with icons for file operations (Open, Save, Print) and a 'HEAD FOOT' button. At the bottom of the window, there is a status bar with the text 'Finished'.

ENERGY-INT E

Parameter	Value	Parameter	Value
Date, time	2006.11.11, 02:20:19	Serial number	0000040
Pulse counter V1	0	Customer number	0000000
Pulse counter V2	0	Battery change date	2017.11
Pulse counter V3	0	Year review day	01.01
Pulse counter V4	0	Year review parameters zero	No
Flow q1, m³/h	0.0000	Month review hour, day	00:00, 01
Flow q2, m³/h	0.0000	Month review parameters zero	No
Flow q3, m³/h	0.0000	V1 pulse value, pulse/m²	1,00E-4
Flow q4, m³/h	0.0000	V2 pulse value, pulse/m²	1,00E-4
Flow M1, t/h	0.0000	V3 pulse value, pulse/m²	1,00E-4
Flow M2, t/h	0.0000	V4 pulse value, pulse/m²	1,00E-4

Headers and Footers

Header

English: Customer number: \$a
Serial number: \$n
Temperature sensors type: \$T

German: Verbraucherzahl: \$a
Hitzegegenzahl: \$n
Thermosensor Art: \$T

Regional: Abonento numeris: \$a
Silumos skaiciuotuvo numeris: \$n
Termodavikliu tipas: \$T

Footer

English: Working time: \$W
Error free duration: \$E

German: Arbeitszeit: \$W
Hitzegegenaenderung: \$E

Regional: Darbo laikas: \$W
Darbo be klaidos laikas: \$E

Legend:

- \$n - number
- \$a - customer number
- \$s - clock seconds
- \$m - clock minutes
- \$h - clock hours
- \$d - clock days
- \$M - clock months
- \$Y - clock years
- \$o - modification
- \$p - report step (hour, day)
- \$f - report "from"
- \$t - report "to"
- \$r - report from/to hour
- \$y - report from/to day
- \$k - report from/to month
- \$l - report from/to year
- \$T - temperature sensor type
- \$W - working time (available in footer only!)
- \$E - error free duration (available in footer only!)

OK Cancel

Parameter	Value
us address	1
RT baudrate	9600
temperature sensor type	Pt500-o
low sensor type	S
low sensor type	S
low sensor type	OFF
low sensor type	OFF
frequency V1	64
frequency V2	64
frequency V3	64
frequency V4	64
measure	Constant
water constant	8,00
ring liquid type	Water
pressure sensor type	OFF
pressure sensor type	OFF
pressure p1	1600,0
pressure p2	1600,0
rgy dimension	MWh
tariff parameter	OFF
tariff type	<
tariff limit value	0,000
tariff time value from	00
tariff time value till	00
tariff parametras	OFF
tariff type	<
tariff limit value	0,000
tariff time value from	00
tariff time value till	00
ring language	English
ay output state	On
ay output parameter	T1
ay output param. max value, °C	55,0000
ay output param. min value, °C	45,0000
ay output pulse duration, s	1,5
Relay output pause duration, s	10,0
1st pulse output parameter	E
2nd pulse output parameter	V1

ENERGY-INT E

ICS configurator v.1.0.1

File Operations Help

Parameter	Value	Parameter	Value
Date, time	2006.11.11, 02:20:19	Serial number	0000040
Pulse counter V1	0	Customer number	0000000
Pulse counter V2	0	Battery change date	2017.11
Pulse counter V3	0	Year review day	01.01
Pulse counter V4	0	Year review parameters zero	No
Flow q1, m³/h	0.0000	Month review hour, day	00:00, 01
Flow q2, m³/h	0.0000	Month review parameters zero	No
			1,00E-4

Menu, Mbus and measuring parameters constructor

8-TEST

1-Integral 2

Pos.	Code
1	01
2	3E
3	3F
4	8F
5	09
6	1D
7	00

1-Integral

Pos.

1

2

3

4

5

6

7

8

9

10

11

Menu, Mbus and measuring parameters constructor

8-TEST

Mbus

Measuring parameters

1-Integral 2-Review 3-Moment 4-Printing 5-Archive 6-Information 7-SET

Pos.	Code	Menu item
1	1B	Software version
2	1C	Serial number
3	1D	Customer number
4	22	Month review day and hour
5	23	1st flow input pulse value
6	24	2nd flow input pulse value
7	28	M-bus address
8	2A	Temperature sensors type and modification
9	2B	1st flow input type and max frequency
10	2C	2nd flow input type and max frequency
11	30	Cold water constant
12	46	1st flow input pulse counter
13	47	2nd flow input pulse counter
14	1E	Battery change date
15	1F	Date
16	20	Clock

Close

ENERGY-INT E

M-Bus

IC5 configurator v.1.0.1

File Operations Help

Parameter	Value	Parameter	Value
Date, time	2006.11.11, 02:20:19	Serial number	0000040
Pulse counter V1	0	Customer number	0000000
Pulse counter V2	0	Battery change date	2017.11
Pulse counter V3	0	Year review day	01.01
Pulse counter V4	0	Year review parameters zero	No
Flow q1, m³/h	0,0000	Month review hour, day	00:00, 01
Flow q2, m³/h	0,0000	Month review parameters zero	No

Menu, Mbus and measuring parameters constructor

1-Integral 2-Review 3-Moment 4-Printing 5-Archive 6-Information 7-SET

8-TEST MBus Measuring parameters

- Energy
- 1-o tariff energy
- 2-o tariff energy
- Amount 1, m³
- Amount 2, m³
- Amount 3, m³
- Amount 4, m³
- Mass 1, t
- Mass 2, t
- Power
- Flow q1, m³/h
- Flow q2, m³/h
- Flow q3, m³/h
- Flow q4, m³/h
- Temperature T1, °C
- Temperature T2, °C
- Temperature T3, °C
- Pressure p1, kPa
- Pressure p2, kPa

New menu items

- 00 - Error code
- 01 - Energy
- 02 - 1st tariff energy
- 03 - 2nd tariff energy
- 04 - 1st amount V1, m³
- 05 - 2nd amount V2, m³
- 42 - Amount difference V1-V2, m³
- 06 - 3rd amount V3, m³
- 07 - 4th amount V4, m³
- 3E - 1st mass M1, t
- 3F - 2nd mass M2, t
- 8F - Mass difference M1-M2, t
- 09 - LCD segment test
- 0A - Error free duration
- 0B - Control number
- 0C - 1st flow q1, m³/h
- 0D - 2nd flow q2, m³/h
- 90 - Flow difference q1-q2, m³/h
- 0E - 3rd flow q3, m³/h
- 0F - 4th flow q4, m³/h
- 40 - 1st flow q1, t/h
- 41 - 2nd flow q2, t/h
- 91 - Flow difference q1-q2, t/h
- 11 - 1st temperature T1, °C
- 12 - 2nd temperature T2, °C
- 13 - 3rd temperature T3, °C

Close

Finished

ENERGY-INT E

EXCEL

Microsoft Excel - Mapped

Datei Bearbeiten Ansicht Einfügen Format Extras Daten Fenster ?

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Readings		Configuration	
Parameter	Value	Parameter	Value
Date, time	2006.11.11, 02:39:04	Serial number	40
Pulse counter V1	0	Customer number	0
Pulse counter V2	0	Battery change date	2017,11
Pulse counter V3	0	Year review day	1,01
Pulse counter V4	0	Year review parameters zero	No
Flow q1, m³/h	0	Month review hour, day	00:00, 01
Flow q2, m³/h	0	Month review parameters zero	No
Flow q3, m³/h	0	V1 pulse value, pulse/m³	0,0001
Flow q4, m³/h	0	V2 pulse value, pulse/m³	0,0001
Flow M1, t/h	0	V3 pulse value, pulse/m³	0,0001
Flow M2, t/h	0	V4 pulse value, pulse/m³	0,0001
Temperature T1, °C	180	M-bus address	1
Temperature T2, °C	180	UART baudrate	9600
Temperature T3, °C	8	Temperature sensor type	Pt500-o
Pressure p1, kPa	0	V1 flow sensor type	S
Pressure p2, kPa	0	V2 flow sensor type	S
Power kW	0	V3 flow sensor type	OFF
Error code	44	V4 flow sensor type	OFF
Error date/time	2006.11.11, 02:27:04	Max frequency V1	64
Energy, MWh	0	Max frequency V2	64
Energy, 1st tariff, MWh	0	Max frequency V3	64
Energy, 2st tariff, MWh	0	Max frequency V4	64
Amount V1, m³	0,002	T3 measure	Constant
Amount V2, m³	0	Cold water constant	8
Amount V3, m³	0	Heating liquid type	Water
Amount V4, m³	0	1st pressure sensor type	OFF
Mass M1, t	0,002	2nd pressure sensor type	OFF
Mass M2, t	0	Max pressure p1	1600
Normal working time, h	0,006	Max pressure p2	1600
Power on time, h	8507,453	Energy dimension	MWh
		1st tariff parameter	OFF
		1st tariff type	<
		1st tariff limit value	0
		1st tariff time value from	0
		1st tariff time value till	0
		2nd tariff parametras	OFF
		2nd tariff type	<
		2nd tariff limit value	0
		2nd tariff time value from	0

Zeichnen AutoFormen

Bereit

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Datadownloader - [1.0.0.2] - [MS Data Archyve]

File Options Windows About

Archive data

254 Last days: 31 Port : COM1,9600,8,[None],2

Hide list From : 22.10.2006 To : 22.11.2006 Filter Make report

Object list				Source						
Device Name	Device ID	M-Bus ...	Data type	Time	Energy,J	Flow Tempe	Mass,kg	On Time,h	Return Temp	Volume,m3
ENERGY...	1	1	Days statistic	05.11.2006	3964170000000	21,68	193856100	8310,57	4,52	194290,7
ENERGY...	1	1	Hour statistic	06.11.2006	3964170000000	21,52	193856100	8334,57	5,63	194290,7
				07.11.2006	3971920000000	22,16	194283000	8358,57	5,47	194718,5
				08.11.2006	3988820000000	23,1	195145900	8382,57	4,03	195583,3
				09.11.2006	4005330000000	23,52	196196000	8406,57	7,36	196635,9
				10.11.2006	4016540000000	23,78	197019300	8430,57	9,79	197461
				11.11.2006	4028400000000	23,6	197608100	8454,57	3,63	198051,2
				12.11.2006	4039730000000	23,17	198211600	8478,57	4,41	198656
				13.11.2006	4050140000000	23,13	198815000	8502,57	5,88	199260,8
				14.11.2006	4060020000000	23,16	199418500	8526,57	6,8	199865,6
				15.11.2006	4067790000000	23,81	200021900	8550,57	10,93	200470,4
				16.11.2006	4074960000000	24,16	200569900	8574,57	10,6	201019,7
				17.11.2006	4086170000000	23,9	201258600	8598,57	6,81	201710,1
				18.11.2006	4094480000000	23,3	201898700	8622,57	9,98	202351,5
				19.11.2006	4100850000000	23,4	202329700	8646,57	8,61	202783,5
				20.11.2006	4107450000000	23,23	202760700	8670,57	7,92	203215,5
				21.11.2006	4114690000000	23,16	203191800	8694,57	6,39	203647,6
				22.11.2006	4121630000000	23,47	203622800	8718,57	7,37	204079,6

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Datadownloader - [1.0.0.2] - [MS Data Archyve]

File Options Windows About

Archive data

254 Last days: 31 Port : COM1,9600,8,[None],2

Hide list From : 22.10.2006 To : 22.11.2006 Filter Make report

Object list Parameter list Source

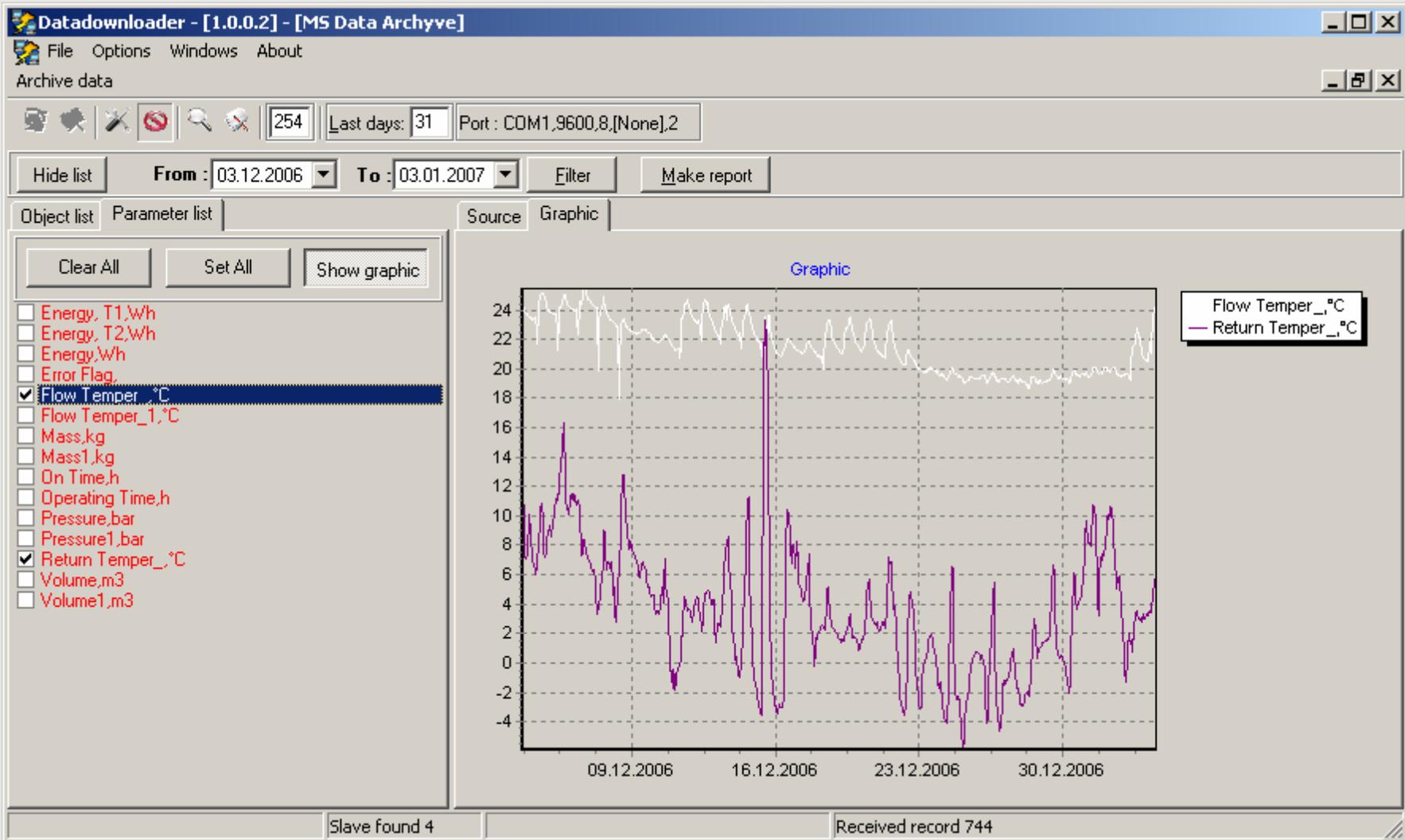
Clear All Set All Show graphic

- Energy, T1,J
- Energy, T2,J
- Energy,J
- Error Flag,
- Flow Temper_°C
- Flow Temper_1,°C
- Mass,kg
- Mass1,kg
- On Time,h
- Operating Time,h
- Pressure,bar
- Pressure1,bar
- Return Temper_°C
- Volume,m3
- Volume1,m3

Time	Energy,J	Flow Temper_°C	Operating Time,h	Return Temper_°C	Volume,m3
18.11.2006 09:00:00	4096880000000	23,23	7989,22	9,33	
18.11.2006 10:00:00	4097100000000	23,28	7990,22	10,53	
18.11.2006 11:00:00	4097310000000	23,34	7991,22	11,84	
18.11.2006 12:00:00	4097490000000	23,52	7992,22	13,32	
18.11.2006 13:00:00	4097690000000	23,65	7993,22	12,89	
18.11.2006 14:00:00	4097870000000	23,71	7994,22	13,52	
18.11.2006 15:00:00	4097990000000	23,74	7995,22	17,04	
18.11.2006 16:00:00	4098090000000	23,82	7996,22	18,05	
18.11.2006 17:00:00	4098360000000	23,76	7997,22	9,15	
18.11.2006 18:00:00	4098670000000	23,7	7998,22	6,06	
18.11.2006 19:00:00	4099010000000	23,58	7999,22	4,64	
18.11.2006 20:00:00	4099370000000	23,44	8000,22	3,61	
18.11.2006 21:00:00	4099730000000	23,39	8001,22	3,28	
18.11.2006 22:00:00	4100100000000	23,3	8002,22	2,87	
18.11.2006 23:00:00	4100470000000	23,22	8003,22	2,26	
19.11.2006	4100850000000	23,21	8004,22	2,21	
19.11.2006 01:00:00	4101220000000	23,12	8005,22	2,57	

Slave found 2 Received record 95

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