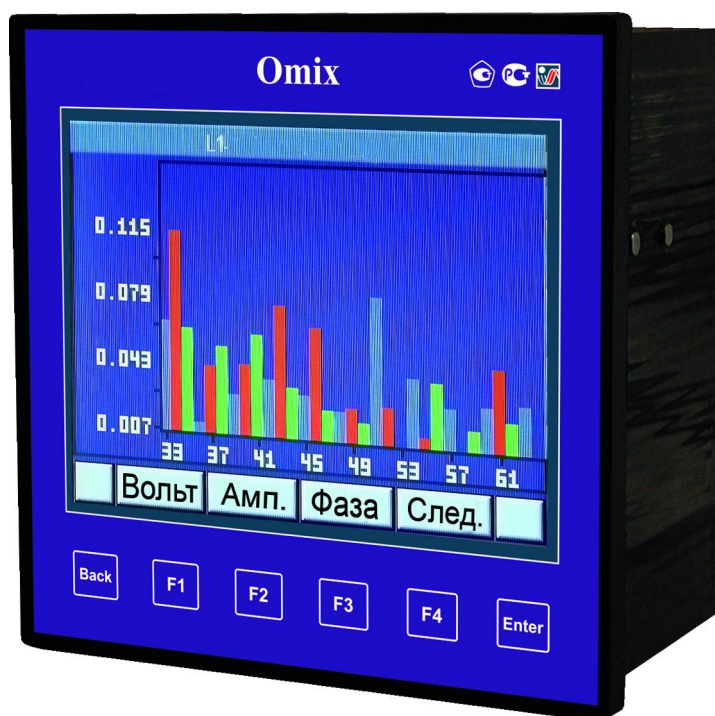


**42 2100**  
**4221-009-79718634-2009**



## **Omix P1414-MA-3R-0.1-K-ACX220-RS232, RS485, Ethernet**



v. 2011-07-12-DVM-ANV-JNT-DSD-DVM

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**1.**

**1.1.**

«Omix P1414-MA-3R-0.1-K-ACX220-RS232, RS485, Ethernet»

( « »).

( ).

«Omix P1414-MA-3R-0.1-K-ACX220-RS232, RS485, Ethernet» -

— 1 2

160 128

**1.2.**

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1.2

2.1

245 190 120 ( ).

1. «Omix P1414-MA-3R-0.1-K-ACX220-RS232, RS485, Ethernet»

2.

3.

4.

(2 .)

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(1 .)

(1 .)

(3 .)

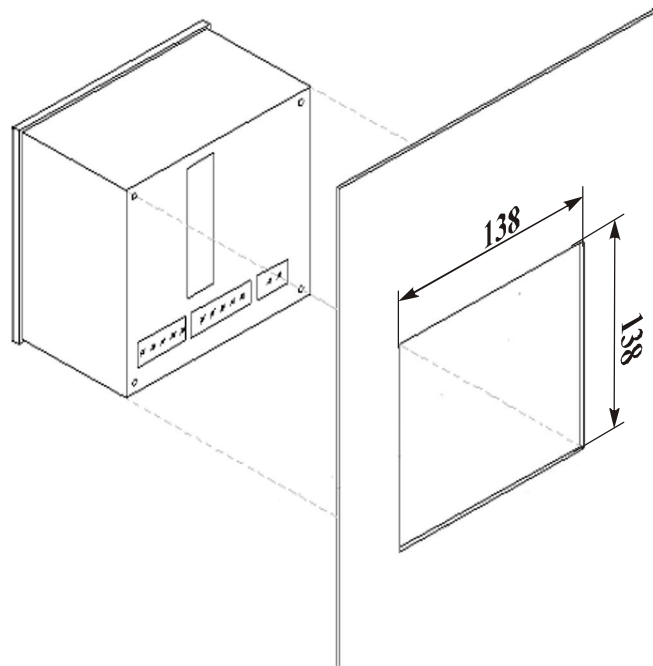
2.2

!

1.

138 138

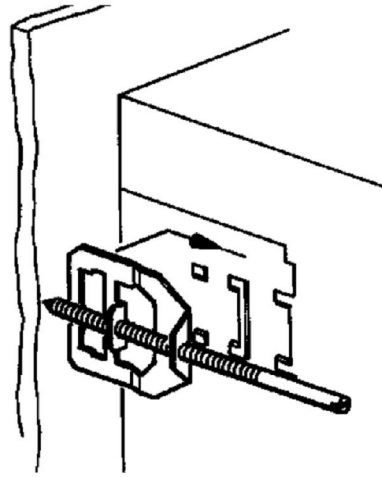
( .2.1).



.2.1

2.

( .2.2).

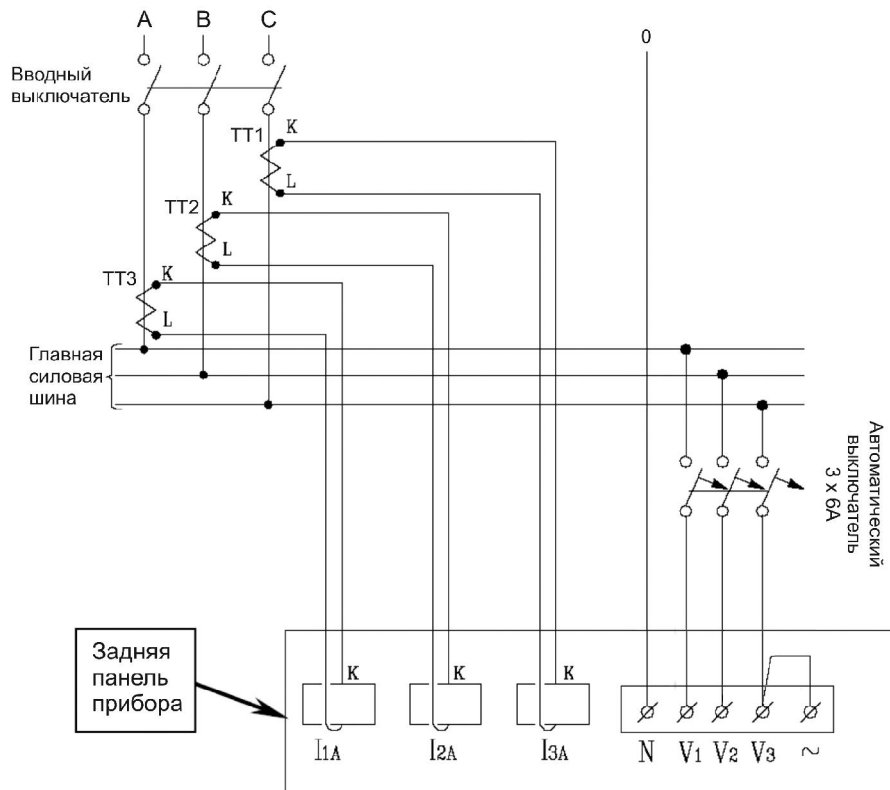


. 2.2

3.

**2.3**

. 2.3



. 2.3

2.4

( , , . . ),

0,5 . .

!

3 ,

3 .

«L»

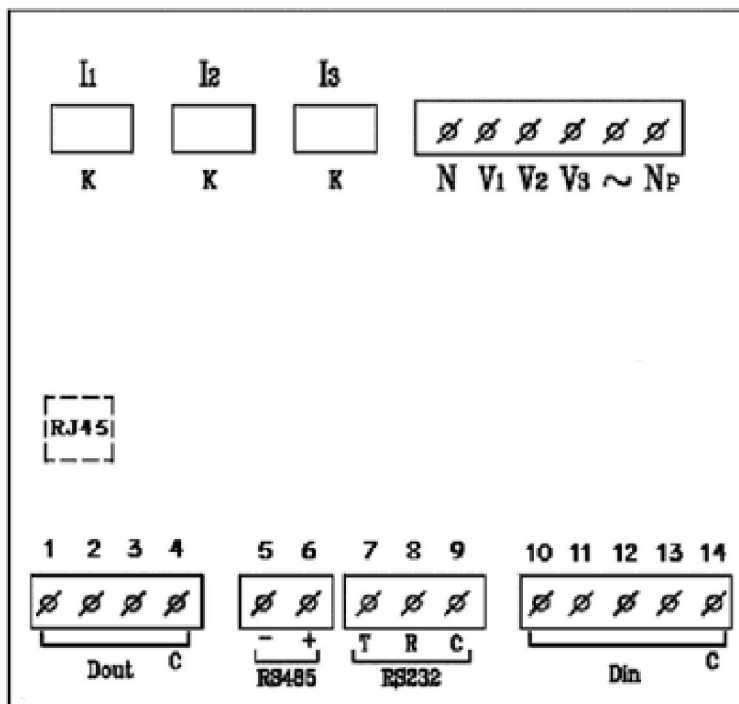
«L».

« ».

!

. 2.4.

2.1.



. 2.4

<b>V<sub>1</sub></b>	( )	6
<b>V<sub>2</sub></b>	( )	
<b>V<sub>3</sub></b>	( )	
<b>V<sub>N</sub></b>		
<b>I<sub>1A</sub></b>		« ( . . 2.4 »)
<b>I<sub>2A</sub></b>		
<b>I<sub>3A</sub></b>		
<b>L</b>	~110/230	
<b>N</b>		<b>V<sub>N</sub></b>
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<b>D<sub>IN</sub></b>		
<b>RS485 (+)</b>	RS485 (+)	
<b>RS485 (-)</b>	RS485 (-)	
<b>RS-232 (TxD)</b>	RS232 ( TxD)	
<b>RS-232 (RxD)</b>	RS232 ( RxD)	
<b>RS-232 (Com)</b>	RS232 ( )	
<b>RJ45</b>	Ethernet 10 BASE-T	RJ45

```

ELNET INFORMATION
Ep.Date:Jun 28 2005
Ep.Time: 14:03:41
Version:0.640 Flash
Comm # : 1
Unit ID: 50511001
IP:192.168. 35. 3
MC:00.02.79.C0.00.4B

Hit any key.. 

```

.2.5

2.2

1	Ep.Date	
2	Ep. Time	
3	Version	
4	Comm #	(Modbus)
5	Unit ID	,
6	IP	IP-
7	MC	MAC-

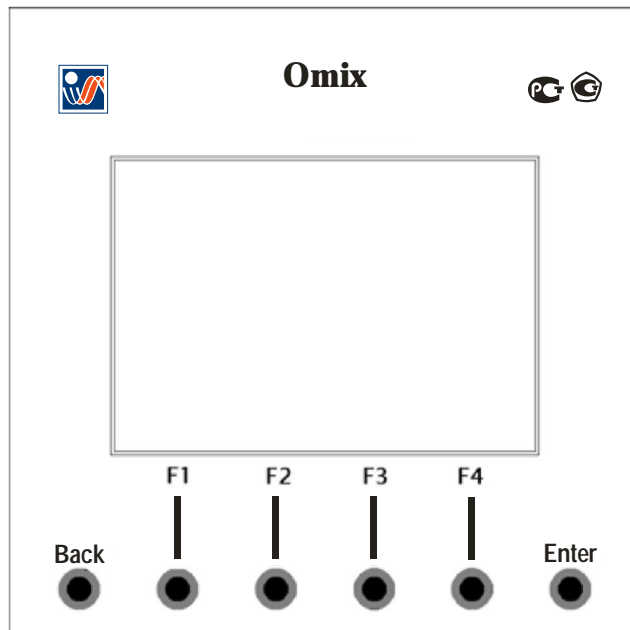
3.

3.1

( . 3.1).

64 128 .

5.



. 3.1

3.2

«F1», «F2», «F3», «F4»  
(F3 F4),

(F1 F2),

( ).

«Enter»

«Back»

3.3

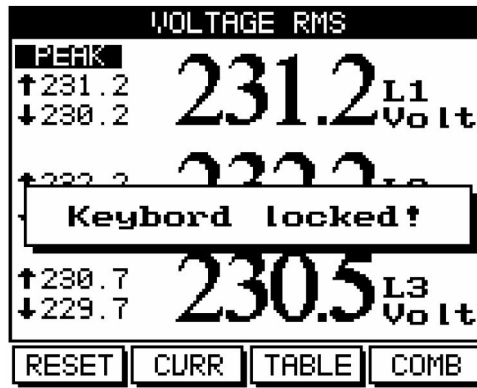
( )

6

«Enter»

«Keyboard locked!».

«Keyboard locked!» ( . 3.2):

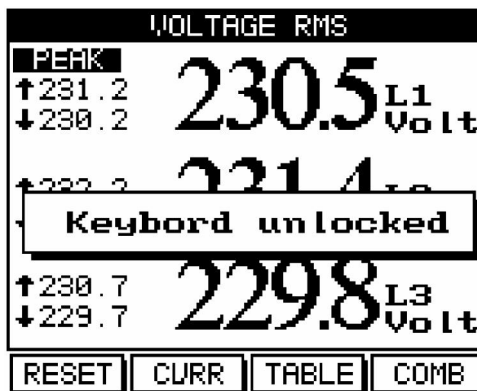


.3.2

«Enter».

«Keyboard unlocked» ( .3.3),

6



.3.3

4.

!

•

•

4.1

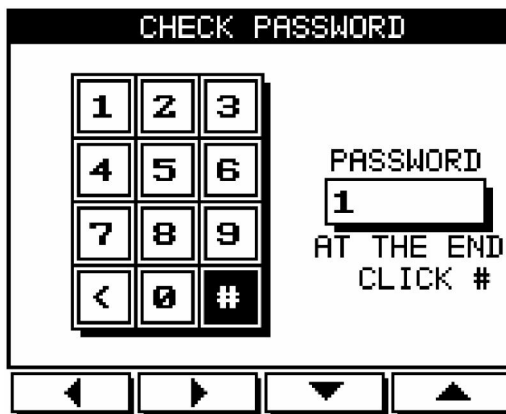
!

1.

Technical menu.

2. «Enter».

( .4.1):



.4.1

3. «F4»

1.

1.

«F1», «F2», «F3»,

4. «Enter».

1 ( .4.2):

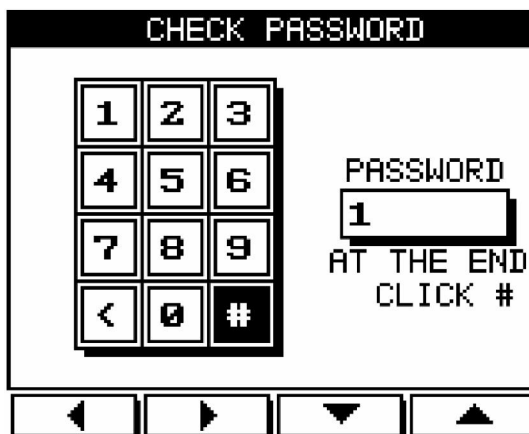


.4.2

5. «F1», «F2», «F3», «F4»

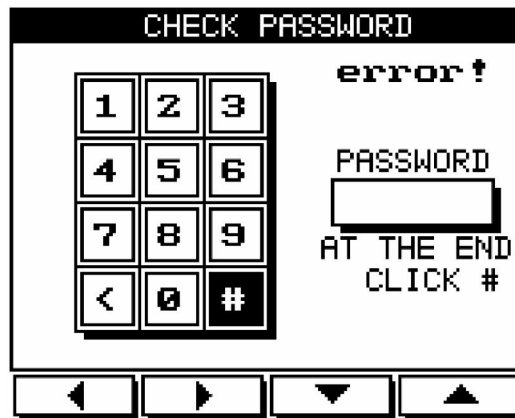
# ( .4.3)

«Enter»:



.4.3

( .4.4):



.4.4

6. «Enter».

Technical menu ( .4.5):



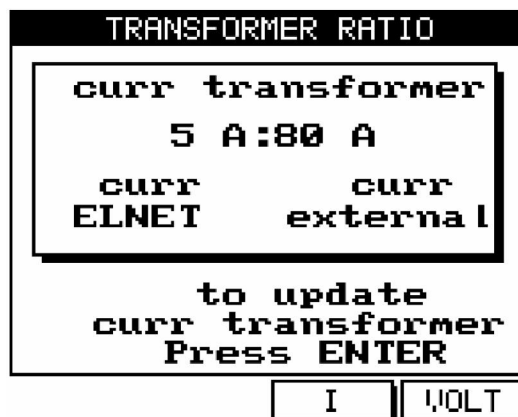
.4.5

7.

Transformer Ratio

«Enter».

( .4.6):



.4.6

urr external 5 .

8. «Enter».  
( .4.7):



.4.7

«F1» «F2», - «F3» «F4».

9. «Enter». «Back».

**4.2**

!

**Technical menu** ( .4.1).

1. **Technical menu** **Connection Check.**

2. «Enter». ( .4.8):

CONNECTION CHECK		
	Voltage	Current
L1	OK	NO
L2	OK	NO
L3	OK	NO
Phase Order= OK		

Hit any key..

.4.8

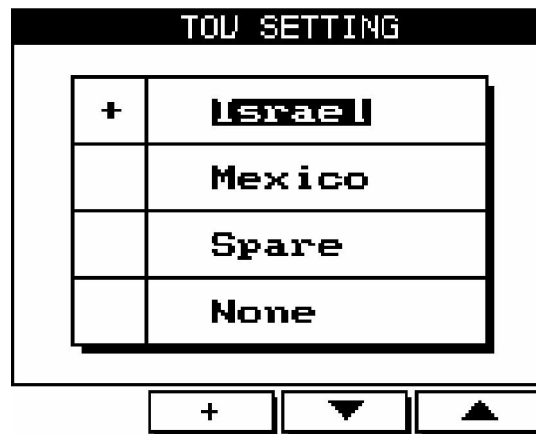
4.1 4.2.

	( )	( )
<b>OK</b>	« », -	«OK» -
<b>OPP</b>		
<b>NO</b>		

	( )
<b>OK</b>	
<b>OPP</b>	

4.3 (TOU)

Technical menu ( . . 4.1). **TOU Settings** «Enter».  
( . 4.9):



. 4.9

«Enter». «F3» «F4» + («F2»).

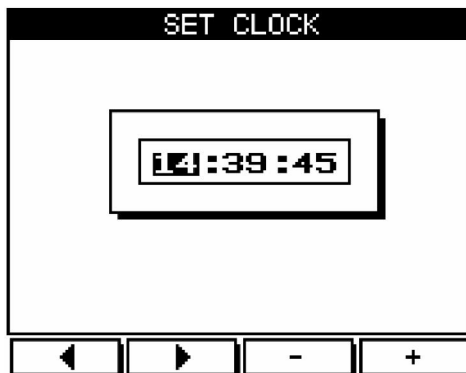
4.4

6 : «F2».

4.5

Set Clock

«Enter». **Technical Data** (. 4.1). **Technical Data** (. 4.10):



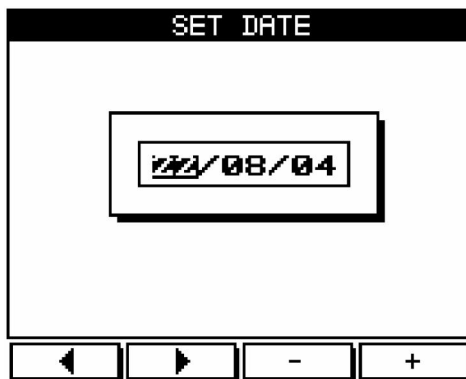
. 4.10

«Back» «F3» «F4», – «F1» «F2». «Back» **Technical menu,**

4.6

Set Date

«Enter». **Technical Data** (. 4.1). **Technical Data** (. 4.11):



. 4.11

«Back» «F3» «F4», – «F1» «F2». «Back» **Technical menu,**

4.7

( / ) :

1. 1 2 4.1.

«F4», – **6425.** «F1» «F2»; «F3»

2. #.

5.

5.1

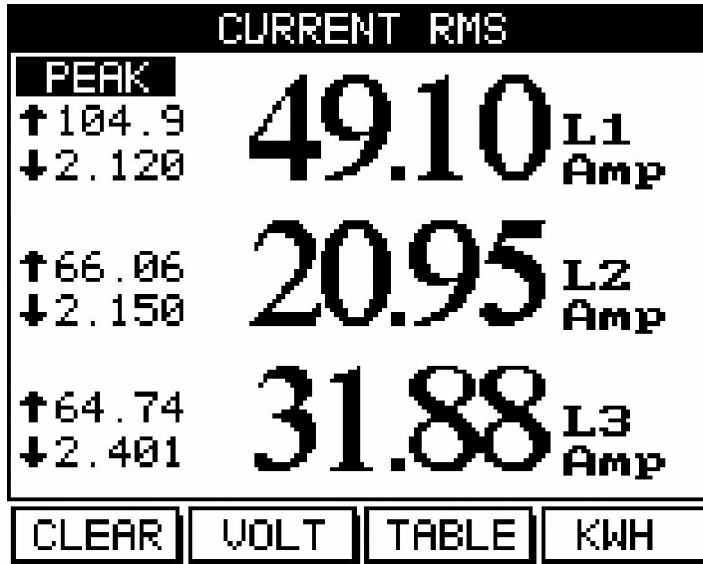
1.

**Current & Voltage.**

2.

«Enter».

( .5.1):



.5.1

3.

L1 (A), L2 (B) L3 (C)

5.2

1.

**Current & Voltage.**

2.

«Enter».

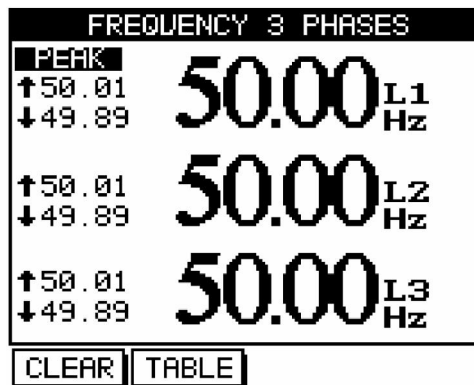
( .5.1).

3.

**TABLE** («F3»).

( .5.2):

**FREQ** («F3»).



.5.2

4. L1 (A), L2 (B) L3 (C).  
 ( )  
 !( )

«Clear» (F1).

5.3

!

1. **Current & Voltage.**
2. «Enter». ( .5.1).
3. **TABLE** («F3»). ( .5.3):

CURRENT & VOLTAGE		
	volt	curr
L1	230.5V	28.28A
L2	231.5V	19.79A
L3	230.1V	32.73A
L12	400.0V	Curr
L23	399.7V	Line 0
L13	398.8V	12.59A

I VOLT FREQ

.5.3

4. 5.1. 5.1

L1	L1 ( )	
L2	L2 ( )	
L3	L3 ( )	
L12	L1 L2 ( - )	
L23	L2 L3 ( - )	
L13	L1 L3 ( - )	

## 5.4

1. **Current & Voltage.**
2. «Enter». ( .5.1).
3. **VOLT** («F2»).
- 4.

## 5.5

1. **Power Display.**
2. «Enter». ( .5.4):

ACTIVE POWER			
PEAK			
↑6.282	<b>6.249</b>	L1	Kwtt
↓0.000			
↑4.548	<b>4.524</b>	L2	Kwtt
↓0.000			
↑7.119	<b>7.092</b>	L3	Kwtt
↓0.000			
CLEAR	S	0	TABLE

.5.4

3. L1 (A), L2 (B) L3 (C).  
( «Clear» (F1).

4. ( .5.5) **TABLE** («F4»):

POWER TABLE			
POWER UNITS WATT/WAR/WA			
L	P	Q	S
1	513.3	150.9	535.0
2	398.7	117.2	415.6
3	601.1	176.7	626.5
Σ	1513	444.8	1577
PF= 0.963			
P	Q	S	PF

.5.5

P		(Watt)
Q		(VAR)
S		(VA)
$\Sigma P$		(Watt)
$\Sigma Q$		(VAR)
$\Sigma S$		(VA)
PF		

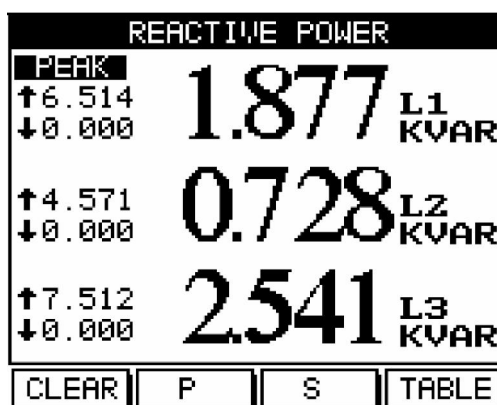
4. **P** («F4»).

### 5.6

1. **Power Display.**

2. «Enter». ( . 5.4).

3. **Q** («F2»). ( . 5.6):



. 5.6

4. L1 (A), L2 (B) L3 (C).  
( . . .)  
«Clear» (F1).

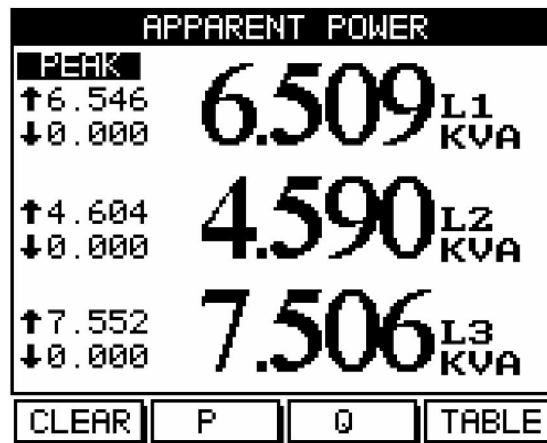
### 5.7

1. **Power Display.**

2. «Enter». ( . 5.4).

3. **S** («F2»).

( .5.7):



.5.7

4. L1 (A), L2 (B) L3 (C).  
(  
«Clear» (F1).

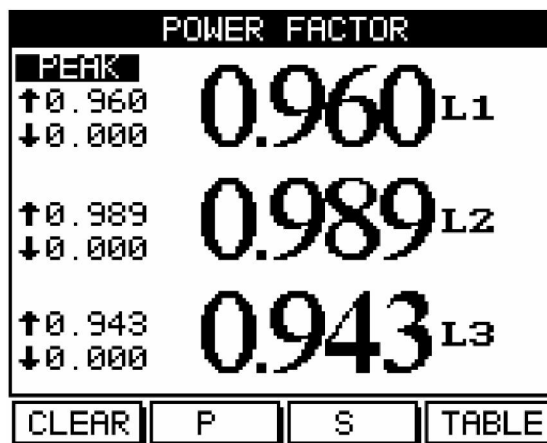
### 5.8

1. **Power Display.**

2. «Enter». ( .5.4).

3. **TABLE** («F4»).  
( .5.5).

4. **PF** («F4»). ( .5.8):



.5.8

5. L1 (A), L2 (B) L3 (C).  
(  
«Clear» (F1).

### 5.9

1. **Power Display.**

2. «Enter». ( .5.4).

3. TABLE («F4»).

( .5.9):

POWER TABLE			
POWER UNITS WATT/VAR/VA			
L	P	Q	S
1	513.3	150.9	535.0
2	398.7	117.2	415.6
3	601.1	176.7	626.5
Σ	1512.1	444.8	1577.1
PF= 0.963			

P      Q      S      PF

Суммарный коэффициент мощности

.5.9

### 5.10

1.

Energy Display.

2.

«Enter»,

Energy Meter ( .5.10):

ENERGY METER	
98459.77	KWh
100007.1	KVAh
17523.83	KVRh

.5.10

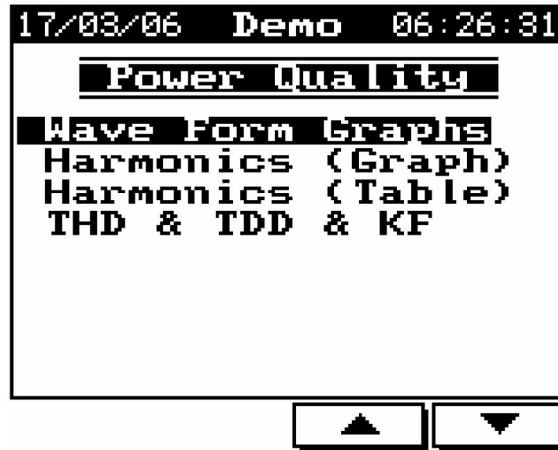
### 5.11

( 60- )

( ).

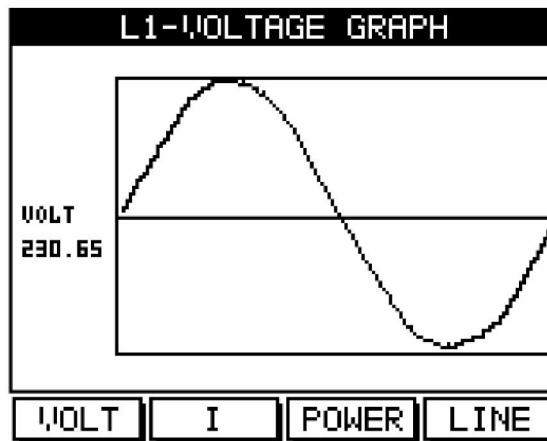
5.11.1

1. Power Quality.
2. «Enter».  
( .5.11):



.5.11

3. Power Quality Wave Form Graphs.
4. «Enter» ( .5.12):



.5.12

5.3.

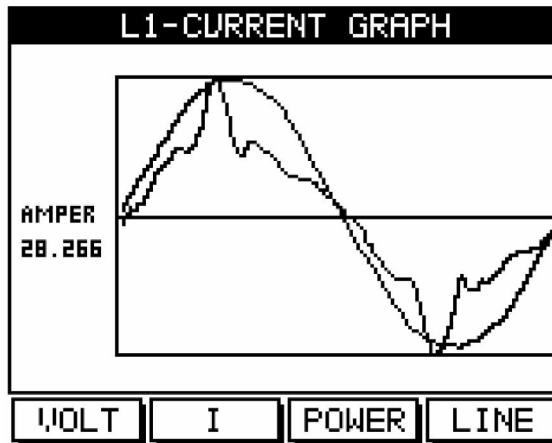
5.3

1		L1 (A), L2 (B) L3 (C)
2		L1 (A), L2 (B) L3 (C)
3		L1 (A), L2 (B) L3 (C)
4		L1 (A), L2 (B) L3 (C)
5		L1 (A), L2 (B) L3 (C)

1. **Volt** («F1»). ( . 5.12).

2. (L1, L2 L3) **Line** («F4»).

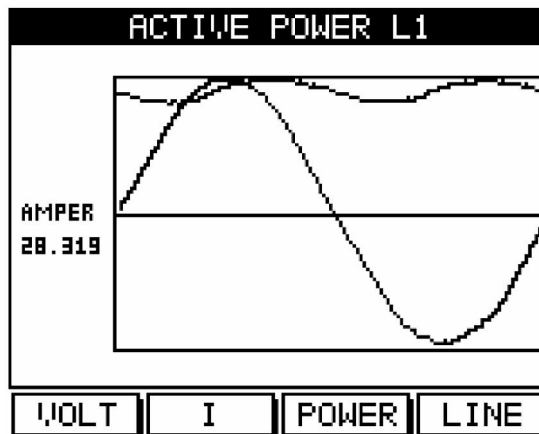
1. **I** («F2»). ( . 5.13):



. 5.13

2. (L1, L2 L3) **Line** («F4»).

1. **Power** («F3»). ( . 5.14):



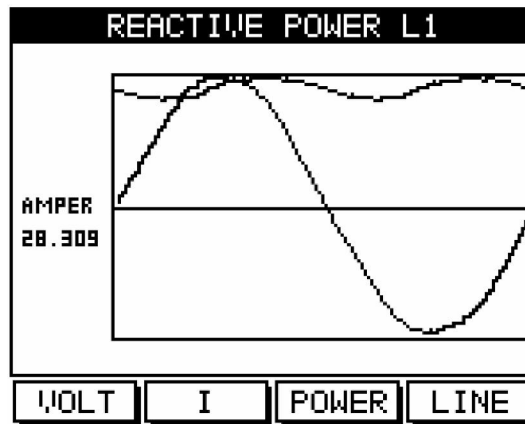
. 5.14

2. (L1, L2 L3) **Line** («F4»).

:

1. **Power** («F3»)

( . 5.15):



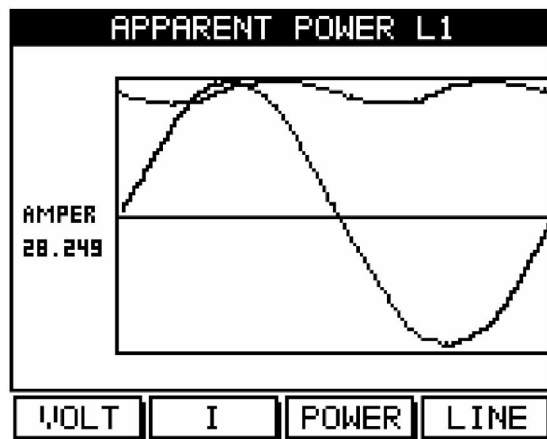
. 5.15

2. (L1, L2 L3) **Line** («F4»).

:

1. **Power** («F3»)

( . 5.16):



. 5.16

2. (L1, L2 L3) **Line** («F4»).

### 5.11.2

:

1. **Power Quality.**

2. «Enter». ( . 5.11).

3. **Harmonics (Graph).**



3. **Harmonic (Table).**

4. «Enter».  
( . 5.19):

L1-VOLTAGE HARMONICS			
##	Value%	##	Value%
1	100.00	9	0.59
2	0.24	10	0.15
3	0.68	11	0.26
4	0.13	12	0.16
5	1.72	13	0.20
6	0.10	14	0.18
7	0.13	15	0.07
8	0.16	16	0.08
THD=2.171 %			
VOLT	I	LINE	NEXT

. 5.19

( **THD**).

5. 60-

**Next** («F4»).

6. (L1, L2 L3) **Line** («F3»).

### 5.11.4

:

1. , **Power Quality.**

2. «Enter».

3. **Harmonic (Table).**

4. «I» (F2).  
( . 5.20):

L1-CURRENT HARMONICS			
##	Value%	##	Value%
1	100.00	9	11.70
2	0.21	10	0.31
3	19.30	11	6.12
4	0.19	12	0.20
5	8.84	13	3.07
6	0.44	14	0.09
7	10.31	15	1.64
8	0.23	16	0.06
THD=27.5% Kf=1.8			
VOLT	I	LINE	NEXT

. 5.20

( **THD**).

5. 60-

**Next** («F4»).

6. (L1, L2 L3) **Line** («F3»).

5.11.5

(K-Factor) (THD), (TDD)

(K-Factor) (THD), (TDD) :

1. , Power Quality «Enter».

2. THD, TDD, KF Current «Enter». (. 5.21)

CURRENT THD, TDD, KF			
L	THD	TDD	KF
1	6.096	0.346	5.151
2	2.552	0.196	7.567
3	6.051	0.130	5.424
0	6.319	0.345	6.106
I. MAX=1000			

I. SET

. 5.21

, I. Set («F4») (TDD)

6.

1000 , 3 , 1 :

1. (L1, L2, L3; )

2. (L1, L2, L3, )

3. (L1, L2, L3, )

4. ( ) (L1, L2, L3)

2 :

**6.1.**

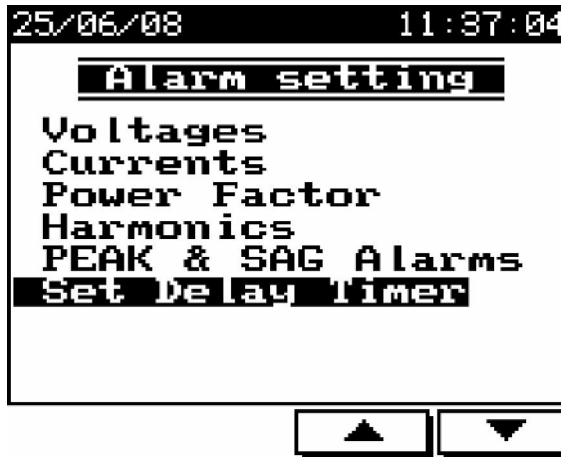
**Technical menu ( . . 4.1).**

1. **Technical menu**

**Alarm setting**

2. «Enter».

( . 6.1):



. 6.1

) 1 16

L1 (A).

L1 (A)

1. **Alarm settings**

**Voltages** («F3», «F4»)

«Enter».

2.

**L1**

«Enter».

( . 6.2).

VOLTAGE L1		
OUT	VALUE	ALARM
3	253.0	High Value
<input checked="" type="checkbox"/>	207.0	Low Value
	T 1	DelayTimer

. 6.2

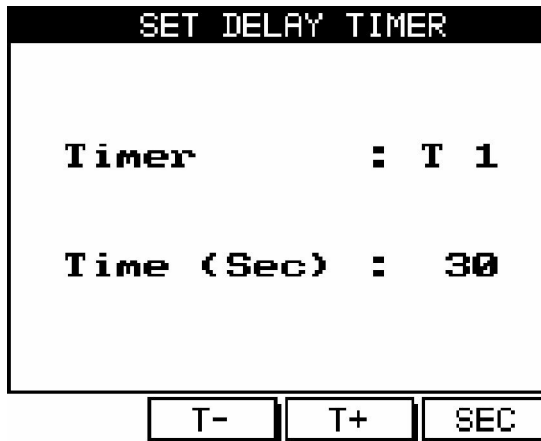
**High Value –**

**Low Value –**

**Delay Timer – 1 16**

**6.2.**

1. **Alarm setting** ( . . 6.1, 1-2) **Set Delay Timer.**
2. «Enter». ( . 6.3):



. 6.3

**T+ T-** («F2», «F3»).

**SEC** («F4»).

**6.3.**

- **Historical report** – ( )
- **Current report** –

1. **Alarm report.**
2. «Enter». **Historical report** **Current report**  
«F3», «F4».
3. «Enter».

4.

INFO («F1»).

( .6.4):

```

ALARM DETAILS
POWER UP
-----
25/06/08 11:32:09 -ALARM
25/06/08 11:32:09 - OFF
-----
ALARM SET POINT      :    0.00
MEASURED VALUE >    :    0.00
NUMBER OF EVENTS     :        1

```

.6.4

7.

1.

**Power demand.**

2.

«Enter».

3.

«F1» (**I / PF**)

4.

«F2» (**P / Q / S**)

5.

«F3» (**DATE**)

6.

«F4»

8.

2

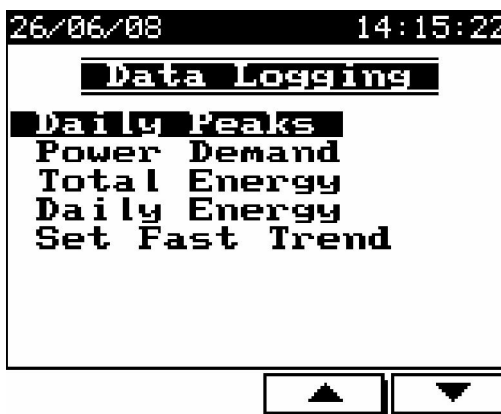
1

1.

**Data Logging.**

2. «Enter».

( .8.1):



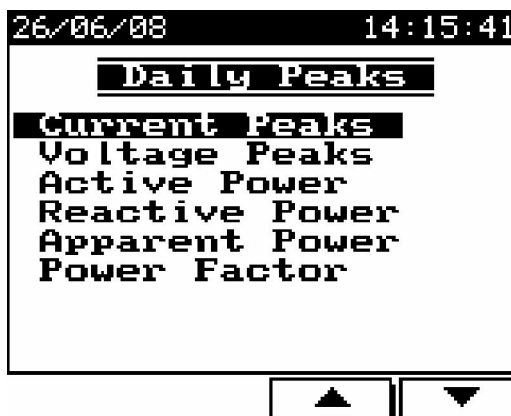
.8.1

3. **Daily Peaks:**

( .8.2):

**Daily Peaks**

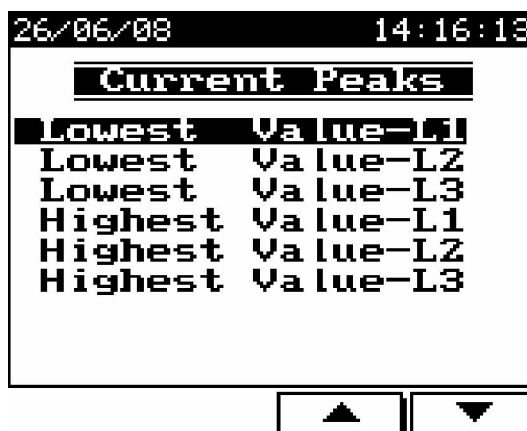
«Enter».



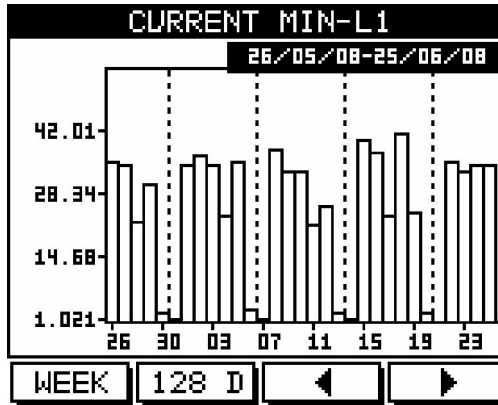
.8.2

( . .8.2)

( 8.3 8.4):



.8.3



.8.4

( / / 128 ).

«F3» / «F4» ( / ) - /

128 ).

«F1» / «F2» (WEEK / MONTH / 128 D) - ( / /

4. Power Demand:

3 («Daily Peaks»).

15

5. Total Energy:

3 («Daily Peaks»).

6. Daily Energy:

3 («Daily Peaks»).

7. Set Fast Trend:

( .8.5):

SET FAST TREND			
MAX TREND RECORDS			
4200			
CURRENT RECORD			
1			
CYCLE TIME-SECONDS			
15			
-	+	STOP	CLEAR

.8.5

- 4200 ).

( , , ,

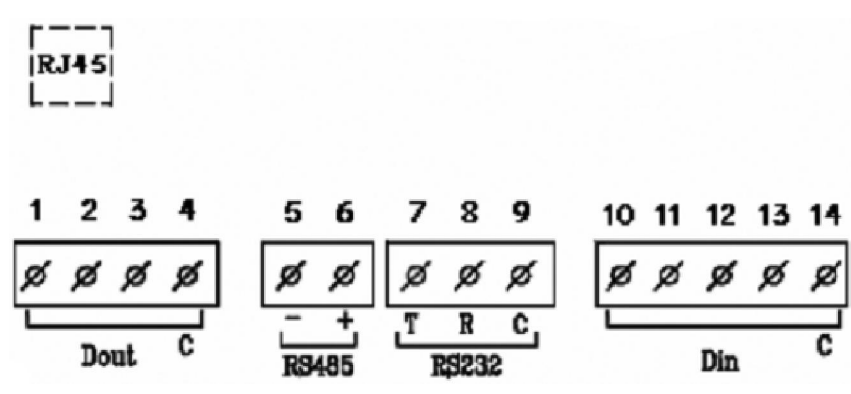
( ) 1 3600 .

9.

9.1

RS232 RS485 ( MODBUS).  
 RJ-45 Ethernet  
 10 BASE-T.

. 9.1 9.1.



. 9.1

9.1

Dout	
Din	
RS485, -	RS485, (-)
RS485, +	RS485, (+)
RS232, TXD	RS232, (Transmit)
RS232, RXD	RS232, (Receive)
RS232, COM	RS232, (Common)
RJ45	Ethernet 10 BASE-T ( RJ45)

9.2

9.2.1

MODBUS

1 - 247.

9.2.2

6

- 600 /
- 1200 /
- 2400 /
- 4800 /
- 9600 /
- 19200 /

9.2.3

«No» ( ) «Even» ( ).

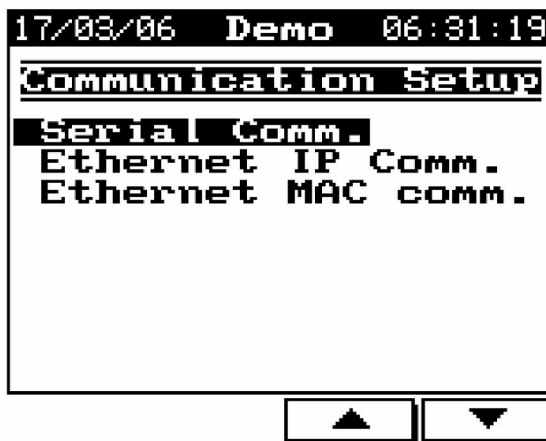
9.2.4

9.2.5

RS232 / RS485

RS232 / RS485

- 1. **Settings**      **Technical menu** ( . . . 4.1).      **Technical menu**      **Communication** ( . 9.2):



2. **Serial Comm**                      «Enter».

( . 9.3).



. 9.3

- «F1»   «F2»                      .
- «F3»   «F4»                      .
- «Back».

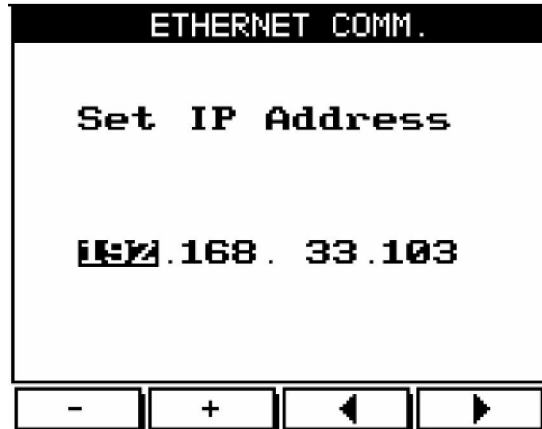
### 9.2.6

### Ethernet

Ethernet

:

1. **Communication Settings** ( . 9.3.1,    1)                      **Ethernet Comm.**
2.                      «Enter»                      IP-                      Ethernet ( . 9.4):



. 9.4

- !
- IP-                      ,                      (                      RS232 / RS485    MODBUS
- IP-                      ),                      ,                      .
- «F1»   «F2»                      .
  - «F3»   «F4»                      .
  - «Back».

### 9.3

(Ethernet, TCP/IP).  
« »  
(. . .)  
:

1. (. . .9.3.2).
2. IP-
- 3.

### 9.4 UniArt

UniArt –  
UniArt ( )  
).

1. UniArt :
- 2.
3. 128 ( ).

6

0	1 – 128
1	129 – 256
2	257 – 384
3	385 – 512

4. :

$$P = N - (F \cdot 128),$$

: P –  
N –  
F –

:

1.  $P = 2 - (0 \cdot 128) = 2$
2.  $P = 330 - (2 \cdot 128) = 74$
3.  $P = 467 - (3 \cdot 128) = 83$

( - 9.2):

9.2

	<b>N</b>		<b>F</b>	<b>P</b>
1	2	, 1	0	2
2	330	31-, 2	2	74
3	467	7-, 3	3	83
4	128		0	128
5	129		1	1
6	256		1	128
7	257		2	1
8	384	20-, 3	2	128
9	385	21-, 3	3	1

: P -  
N -  
F -

**10.**

10.1

	~110/230 , 50/60 , 30
( ) ,	144 144 100
	750
	~700 100
	6 /100000
	1000 /100000
	50
	, , 64 128 .
	-20 ... +50 °
	-20 ... +80 °
	0 ... 90%
	RS232/RS485/Ethernet 10 BASE-T

11.

«Omix \_\_\_\_\_»

\_\_\_\_\_

.

\_\_\_\_\_

\_\_\_\_\_

• •

\_\_\_\_\_

13.

«Omix»

«Omix \_\_\_\_\_»

\_\_\_\_\_

«Omix»

-2203-0178-2009,

« . . . » 2009 .

- 4 .

