



**DATASHEET**

Issue 1.0



Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

## N14

# METER OF NETWORK PARAMETERS

### Features

- Measurement of power network parameters in 3 or 4-wire balanced or unbalanced systems
- Tetraquadrantic measurement of power and energy (P+, P-, QL, QC)
- Indications taking into consideration values of programmed ratios
- Measurement of 15-minutes' mean power
- Digital transmission to the Master system through the RS-485 interface (MODBUS)
- Configurable alarm output and current and voltage ratios
- Programmable parameters using push buttons or through the RS-485 interface using the free LPCon program
- Impulse output of OC type for the retransmission of 3-phase active energy
- Battery support of configuration data and state of watt-hour meters at supply decays
- Detection and signalling of incorrect phase sequence.

**SUBJECT TO CHANGE WITHOUT NOTICE**

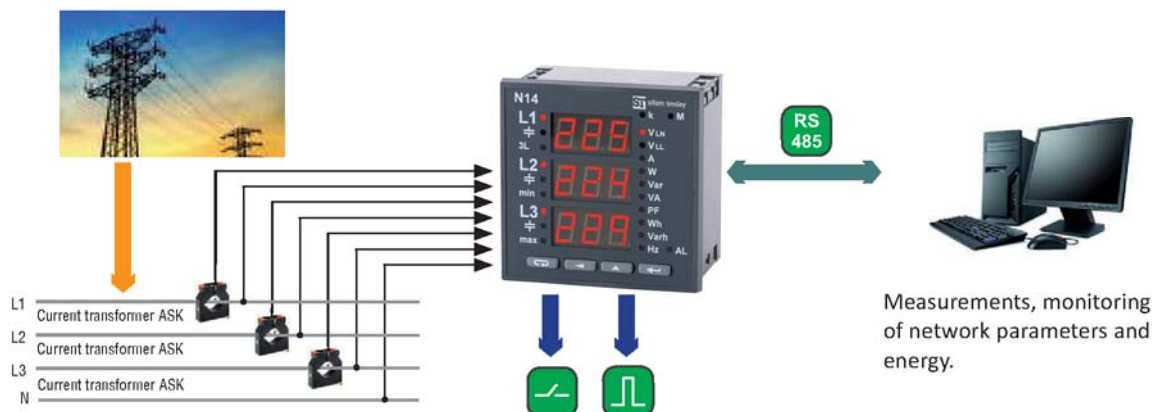
This manual superseded all previous versions – please keep for future reference

**Features**

**Inputs**

**Outputs**

**Galvanic Isolation**

**Example of Application:**

**Measured Quantities & Measuring Ranges**

Measured quantity	Indication range Ki; Ku≠1	Measuring range Ki; Ku = 1	L1	L2	L3	Σ	Intrinsic error
Current 1/5 A L1 .. L3	0.00 .. 9.99 kA	0.02 .. 6 A~	•	•	•		± 0.5%
Voltage L-N	0.0 .. 289 kV	2.9 .. 480 V~	•	•	•		± 0.5%
Voltage L-L	0.0 .. 500 kV	10 .. 830 V~	•	•	•		± 1%
Frequency	45.0 .. 70.0 Hz	45.0 .. 100.0 Hz	•	•	•		± 0.2%
Active power	-999 MW .. 0.00 W .. 999 MW	-2.64 kW .. 1.4 W .. 2.64 kW	•	•	•	•	± 1%
Reactive power	-999 Mvar .. 0.00 var .. 999 Mvar	-2.64 kvar .. 1.4 var .. 2.64 kvar	•	•	•	•	± 1%
Apparent power	0.00 VA .. 999 MVA	1.4 VA .. 1.64 kVA	•	•	•	•	± 1%
PF factor	-1 .. 0 .. 1	-1 .. 0 .. 1	•	•	•	•	± 2%
Tangens φ	-1.2 .. 0 .. 1.2	-1.2 .. 0 .. 1.2	•	•	•	•	± 2%
Angle between U and I	-180 .. 180°	-180 .. 180°	•	•	•		± 0.5%
Input active energy	0 .. 99 999 999.9 kWh					•	± 1%
Output active energy	0 .. 99 999 999.9 kWh					•	± 1%
Inductive reactive energy	0 .. 99 999 999.9 kVarh					•	± 1%
Capacitive reactive energy	0 .. 99 999 999.9 kVarh					•	± 1%

Ku - voltage transformer ratio: 1 .. 4000; Ki - current transformer: 1 .. 10000

Caution! - for a correct measurement, the presence of a voltage value higher than 0.05 Un is required, at least in one of the phase.

**Outputs**

Kind of output	Properties
Relay output	NOC contacts, load capacity: 250 V a.c./0.5 A a.c.
Pulse energy output	<ul style="list-style-type: none"> <li>OC type, passive of class A, acc. to EN 62053-31</li> <li>supply voltage: 18 .. 27 V, current 10 .. 27 mA</li> <li>impulse constant: 5000 imp./ kWh, independent on Ku, Ki ratios</li> </ul>

**Digital Interface**

Interface type	Transmission protocol	Mode	Rate
RS-485	MODBUS RTU	8N2, 8E1, 8O1, 8N1	4.8; 9.6; 19.2 kbit/s

**External Features**

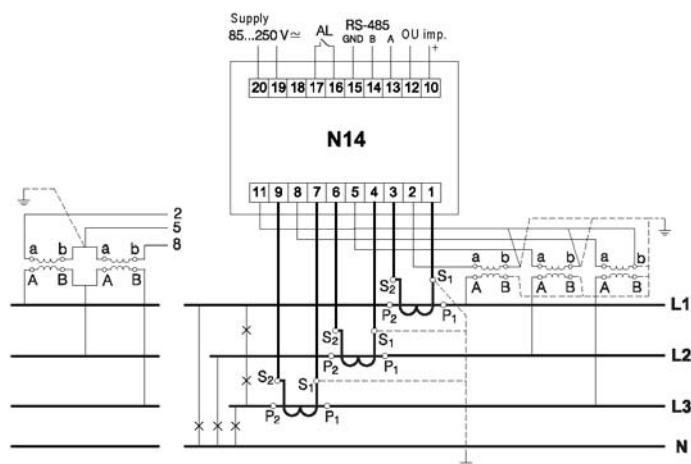
Readout field	3 x 3 LED	digits red colour, 14 mm
Dimensions	96 x 96 x 77 mm	cut-out: 91+0.5 x 91+0.5 mm
Weight	0.3 kg	
Protection grade	from frontal side: IP40	from terminal side: IP10

**Rated operating conditions**

Supply voltage	85...253 V a.c. (40 .. 400 Hz) or d.c.	power input $\leq 6$ VA
Input power	in voltage circuit: 0.05 VA	in current circuit: $\leq 0.05$ VA
Input signal	<ul style="list-style-type: none"> <li>• 0 .. 0.005 .. 1.2 In; 0.05 .. 1.2 Un;</li> <li>for measurement of current and voltage;</li> <li>• frequency: 45 .. 65 Hz</li> </ul>	<ul style="list-style-type: none"> <li>• 0 .. 0.1 .. 1.2 In; 0 .. 0.1 .. 1.2 Un;</li> <li>for measurement of Pf, tgj factors</li> <li>• sinusoidal (THD <math>\leq 8\%</math>)</li> </ul>
Power factor	• 0 .. 0.2 cap. ... 1 .. 0.2 ind. ... 0	
Temperature	ambient: -25...23...70°C	storage: -30...80°C
Relative humidity	25...95%	condensation inadmissible
Operating position	any	
External magnetic field	0 .. 40 .. 400 A/m	
Short duration overload (5 s)	voltage input: 2Un (max. 1000 V)	current input: 10 In
Admissible peak factor	current intensity: 2	voltage: 2
Preheating time	5 minutes	
Additional errors in % of intrinsic error	from frequency of input signals: < 50%	from ambient temperature changes: < 50%/ 10%

**Safety and compatibility requirements**

Electromagnetic compatibility	noise immunity noise emissions	acc. to EN 61000-6-2 acc. to EN 61000-6-4
Isolation between circuits	basic	acc. to EN 61010-1
Pollution level	2	
Installation category	III	acc. to EN 61010-1
Maximal phase-to-earth voltage	600 V	
Altitude a.s.l.	< 2000 m	

**Example of Connection Diagram**


**Ordering**

	N14	X	X	XX	X
<b>Input current:</b>					
1 A (X/1)		1			
5 A (X/5)		2			
<b>Input voltage (phase/ phase-to-phase) Un:</b>					
3 x 57,7/100 V			1		
3 x 230/400 V			2		
3 x 400/690 V*			3		
<b>Version:</b>					
standard				00	
input voltage 3 x 110/ 190 V				01	
custom-made				XX	
<b>Acceptance tests:</b>					
without extra quality requirements					8
with an extra quality inspection certificate					7
according to customers request**					X

\* - version only for direct measurements

\*\* - version code will be established by the manufacturer

**Example of Order**

The code: **N14 - 2 2 00 7** means:

- N14** - meter of N14 type
- 2** - input current: 5 A
- 2** - input voltage: 3 x 230/400 V
- 00** - standard version
- 7** - with an extra quality inspection certificate

**Contact**

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