



Data Sheet

696.D.901.02

Digital Energy Counter with LCD Display and Communication Interface for DIN Rails

WEZ 80-4
WEZ 1/5-4



Application

The gauged digital dual - tariff WEIGEL **WEZ** energy counters have been designed for registration and accounting of active power in industry and trading.

WEZ is equipped with 2 pulse outputs and an infrared communication port at the side of the housing. Additional communication modules can be attached to the infrared port. At the moment, communication modules for Modbus, M-Bus, and Ethernet are available. Further communication modules like EIB/KNX or LON are in preparation.

The **WEZ** shows the energies and actual powers on its display. In addition to the energies, the counter measures all the essential parameters of the power network and provides them on the infrared port. They can be used for recording, accounting, and optimizing systems, as well as systems for building automation and process control.

Features

- 4 - quadrant dual - tariff import and export energy counter, up to 30 real - time measuring values
- for 3 - phase 4 - wire systems for use with current transformers N/1 A, N/5 A, or directly connected 80 A
- dual - tariff measurement with tariff switching input
- cost saving by factory gauging according to MID
- phase sequence indication and error detection on measuring range transgression of voltage, current, frequency
- 2 programmable pulse outputs for energy values
- flexible communication via infrared port and optional communication modules for Modbus, M-Bus, and Ethernet

Functional Principle

WEZ is a microprocessor-controlled digital measuring device for measuring, calculating, and indicating electrical ratings.

General Technical Data

Case	projecting case clamping to TH35 mounting rail according to DIN EN 60 715
material of case	plastics, gray
flame persistence	according to UL 94 class V0
class of protection	II
pollution level	2
pulse voltage test	1,2/50 μ s, 6kV
enclosure code	IP 50 case IP 20 terminals
dimensions	WxHxL
basic unit	72 mm x 90 mm x 71 mm
comm. module	18/36 mm x 90 mm x 71 mm
weight	basic unit 0.32 kg approx. comm. module 0.05 kg approx.
Terminals	screw-terminal barrier strips
wire-cross section	measuring inputs 6 mm ² max. (torque 1.5 Nm max.) others 2.5 mm ² max. (torque 0.5 Nm max.)

Electrical Data

system type	3 - phase 4 - wire system, unbalanced loads
rated voltage	230/400 V ... 240/415 V
current connection	via CTs N/1 A, N/5 A or directly connected 80 A

CT ratio	adjustable 1 to 10000
rated frequency	50/60 Hz
frequency range	35 ... 65 Hz

Display/Measuring Quantities

display LCD display, green, 65 mm x 65 mm with backlight (when pressing a button)

Measured quantities		D	C	S0
voltages	$V_{\Sigma} - V_{L1-N} - V_{L2-N} - V_{L3-N}$ [V]		•	
	$V_{L1-L2} - V_{L2-L3} - V_{L3-L1}$ [V]		•	
currents	$I_{\Sigma} - I_{L1} - I_{L2} - I_{L3} - I_N$ [A]		■	
power factor	$PF_{\Sigma} - PF_{L1} - PF_{L2} - PF_{L3}$		•	
active power	$P_{\Sigma} - P_{L1} - P_{L2} - P_{L3}$ [kW]	■	■	
reactive power	$Q_{\Sigma} - Q_{L1} - Q_{L2} - Q_{L3}$ [kvar]	■	■	
apparent power	$S_{\Sigma} - S_{L1} - S_{L2} - S_{L3}$ [kVA]	■	■	
frequency	f [Hz]		•	
phase sequence	CW/CCW (clockwise/ counter clockwise)	•	•	
power flow	IMP/EXP (import/export)	•	•	

Energy counters					
total active energy	$\Sigma - L1 - L2 - L3$	[kWh]	■	■	■
total reactive energy	$\Sigma - L1 - L2 - L3$ inductive and capacitive	[kvarh]	■	■	■
total apparent energy	$\Sigma - L1 - L2 - L3$ inductive and capacitive	[kVAh]	■	■	■
energy tariff T1/T2	$\Sigma - L1 - L2 - L3$	[kWh] [kvarh] [kVAh]	■	■	
partial energy counters	$\Sigma - L1 - L2 - L3$ resetable		■	■	
energy balance	$\Sigma - L1 - L2 - L3$		■	■	

Settings/other information				
actual tariff	T 1 / 2		•	
counter secondary value	SEC ON/OFF		•	•
CT ratio	CT 1 - 10000		•	•
undervoltage/overvoltage	VOL, VUL ON/OFF		•	
undercurrent/overcurrent	IOL, IUL ON/OFF		•	
underfrequency/overfrequency	fOL, fUL ON/OFF		•	
partial counters	PAR START / STOP		•	•
communication	COM ON/OFF		•	
active S0 pulse	S0-1, S0-2 ON/OFF		•	
error condition	ERR 01 / 02		•	•

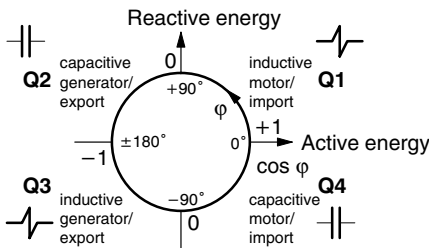
legend:

- D via display
- C via communication port
- S0 accumulated values via S0 pulse outputs
- standard
- bidirectional



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4 Quadrants Measurement



Auxiliary Supply

auxiliary voltage from measuring voltage, rated voltage $\pm 20\%$
 power consumption max. 7.5 VA per phase

Accuracy at Reference Conditions

active energy class B according to EN 50470-3
 reactive energy class 2 according to EN 62053-23

Environmental

operating temperature range $-25 \dots +55 \text{ }^\circ\text{C}$
 storage temperature range $-25 \dots +75 \text{ }^\circ\text{C}$
 relative humidity max. 80% non-condensing

Pulse Outputs

WEZ is equipped with two S0 pulse outputs:
 type passive, optoisolated
 switching voltage max. 250 V_{AC-DC}
 pulse weight adjustable
 0.1 ... 1000 pulses per kWh/kvarh/kVAh
 pulse length $50 \pm 2 \text{ ms}$
 no-pulse period $50 \pm 2 \text{ ms}$
 pulse width max. 200 ms

LED

A metrological LED indicates the total energy.
 pulse weight 1000 imp/kWh

Tariff Input

WEZ is equipped with an input to switch the tariff:
 type passive, optoisolated
 switching voltage max. 276 V_{AC-DC}

Communication Modules

At the moment, the following communication modules are available for coupling with the infrared port:

- WEZ Modbus
- WEZ M-Bus
- WEZ Ethernet (TCP/IP)

Standards

DIN EN 60529 VDE 0470-1	Degrees of protection provided by enclosures (IP Code)
DIN EN 62053-31 VDE 0418-3-31	Pulse output devices for electromechanical and electronic meters
DIN EN 50470-1 VDE 418-0-1	Electricity metering equipment (a.c.) – Part 1: General requirements, tests and test conditions – Metering equipment
DIN EN 50470-3 VDE 418-0-3	Electricity metering equipment (a.c.) – Part 3: Particular requirements – Static meters for active energy (class indexes A, B and C)
DIN EN 62053-23	Electricity metering equipment (a.c.) – Part 23: Static meters for reactive energy (classes 2 and 3)
DIN 43880	Built-in equipment for electrical installations; overall dimensions and related mounting dimensions
DIN EN 60999-1	Connecting devices – Safety requirements for screw-type and screwless-type clamping units for electrical copper conductors

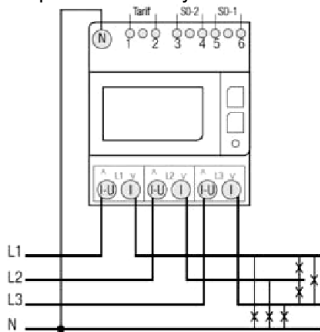
Options (on request)

system type	3-phase 3-wire system, unbalanced loads
rated voltage	for use on VT N/110 V
communication module	Profibus DP-V0, LON Bus or EIB/KNX

Connections

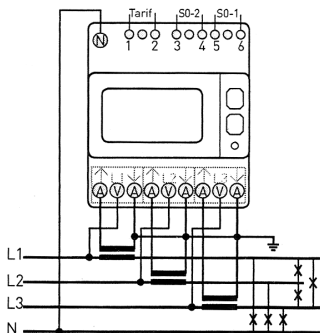
WEZ 80-4 directly connected

3-phase 4-wire system



WEZ 1/5-4 for use with CTs

3-phase 4-wire system

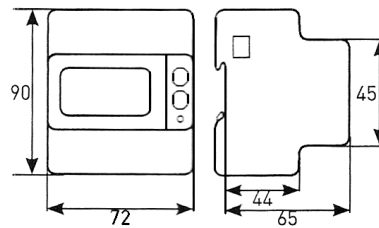


After connecting, the terminals can be protected against manipulations by a sealable cover.

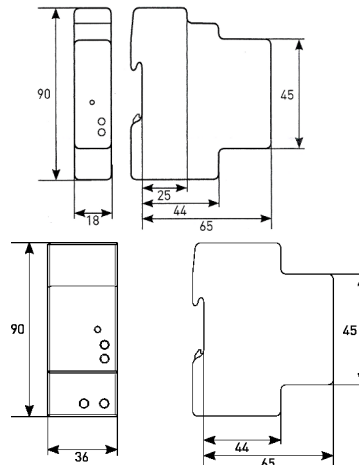
The device also operates with only one phase connected. In this case, the display illumination is switched off.

Dimensions

Basic unit



Communication module



(dimensions in mm)

Ordering Information

Type	Digital energy counter with LCD display and communication port for mounting on DIN rails
WEZ 80-4	for 3-phase 4-wire system, directly connected 80 A
WEZ 1/5-4	for 3-phase 4-wire system, for use with CTs N/1 A or N/5 A
	Communication module
WEZ Modbus	for Modbus
WEZ M-Bus	for M-Bus
WEZ Ethernet	for Ethernet TCP/IP

Ordering Example

WEZ 80-4 Digital energy counter for 3-phase 4-wire system, directly connected 80 A

WEZ Modbus Communication module for Modbus

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– specifications subject to change without notice; date of issue 07/13 –

