

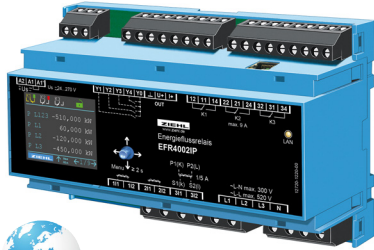
Relay for Energy Flow EFR4002IP

Certified monitoring of $P_{av,e}$ with standard VDE-AR-N 4105:2018-11

Optimization of self-consumption of self-generated energy

Zero Export Device

EFR4002IP



UK
CA

Part numbers:

EFR4002IP **S227260**

ER8 **T224388**



Relays for energy flow EFR4002IP monitor the current flow between public power grid and generating plant / consumer. Operation is made comfortably via integrated webserver or directly at the device. Measured values are displayed neatly arranged at device on monitor.

When the own power plant generates more power than actually is consumed it often is more economical to consume the excess energy self. This is especially reasonable when the difference is high between the price you pay to the grid provider and the price the provider pays for fed in energy.

Many areas suitable for photovoltaics could not be used so far, since only a limited amount of power can be fed in at the grid connection point.

Functions

- Switching of up to 3 consumers: the largest consumer, ranked 1-2-3 or combination of 3 consumers (7 levels))
- Switch on and off points. At which energy flow consumers are switched on and off again
- Switch on and off delay of consumers, minimum on time.
- Control of heat pumps (SG-ready), battery chargers, inverters

In Germany new standards VDE-AR-N 4105:2018-11 allow exceeding this value by up to 66.6% or more installed capacity. The prerequisite for this is that the overbuilt power is consumed and not fed into the grid. In order to still ensure the stability of the system, this can be monitored with EFR4002IP.

The same applies to zero export, when no energy at all may be fed into the grid. In this case, the device can be used as an energy flow direction sensor (EnFluRi). The EFR4002IP has been optimized for these functions.

Zero-Export-Device or limiter:

- Switching off the power generation system or parts of it if the permissible feed-in power is exceeded with relay K3
- Switching on consumers or reducing generators before it comes to that by means of regulating with an analogue output or switching loads with relays K1 and K2
- Energy flow direction sensor (EnFluRi sensor) and feed-in limitation < 0.1s

Features:

- Can be used for medium-voltage applications
- Connection of earthed medium-voltage transformers and series connected measuring devices
- Measuring of active power 1- or 3-phase $\pm 99,99$ MW
- $P_{av,e}$ monitoring predefined and with any values
- $P_{av,e}$ monitoring in compliance with the entire limit curve
- 3 inputs for customary current transformers with secondary 1 or 5 A.
- Current transformer connectable, proportion adjustable
- Counters for power (feed in and consumption)
- 3 relay outputs
- 4 digital inputs Y1-Y4 for control signals, e.g. relay on or off
- IP-connection, integrated webserver
- Values available via Modbus TCP, SunSpec (Energy Meter)
- Analog outputs as measuring transducer and for stepless regulation of a consumer

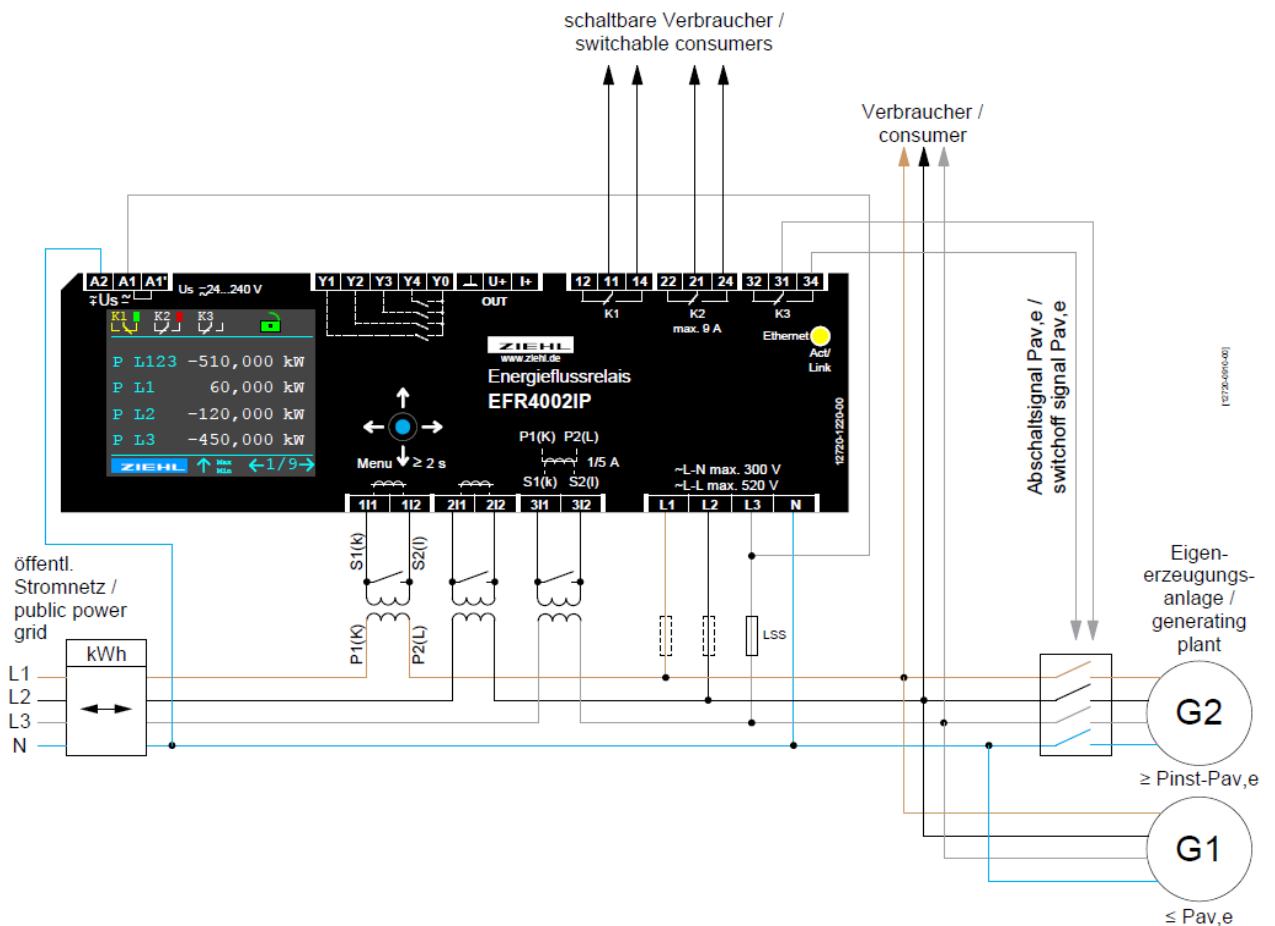
Accessory:

- [Installation frame ER8 for panel mount](#)
- Current transformers scaleable up to 2.400 A, secondary 1 A or 5 A (for $P_{av,e}$ min. class 1) for example ZIEHL Type [AS](#) oder [WS](#)
- Type [CTM7](#) 61/1A, class 1 0,5 VA

Technical Data

Rated supply voltage	DC/AC 24 – 270 V 0/40...70 Hz, <3 W, <9 VA
Tolerance	DC 20,4 - 297 V AC 20 - 297 V
Relay outputs K1, K2, K3	3 x 1 change-over contact
Switching voltage	max. AC 300 V, DC 300 V
Conventional thermal current I _{th}	max. 9 A
Switching power max cos φ=1	2000 VA
Contact service life, electr. cos φ=1	10 ⁵ operations at 300 V / 9 A
Rated operational current	AC-15 I _e = 6 A U _e = 250 V
Measurement of voltage (RMS)	L1 / L2 / L3 towards N
Current transformer	adjustable 1:1 ... 1:250
Voltage phase-N	AC 10,0 ... 330,0 V / 50 Hz
Resolution	0,1 V
Max. error of measurement	± 0,5% of fullscale, ±1 digit
Measurement of current	with transformers (scaleable up to 2.400 A)
Nominal currents / resolution	AC 1/5 A / 1 mA
Max. error of measurement	± 0,5% of fullscale ±1 digit
Overload capacity	6 A continuously, 12,5 A max. 1 s
Resistance of input	30 mΩ
Measurement of active power	with voltage transformers from - 99,99 up to 99,99 MW
Max. error of measurement	± 1 % of fullscale ±1 digit
Analog outputs	DC 0/4/1-10...20 mA, DC 0/2/0-5...10 V
Load	≤ 500 Ω
Test conditions	see "general technical information"
Operating temperature	-20 °C ... +55 °C
Housing / Installation Frame	Design V8 / Front mounting kit ER8, 8 TE
Dimensions (B x H x T)	140 x 90 x 58 mm, mounting height 55 mm
Protection housing/terminals	IP 30 / IP20
Attachment	on 35 mm DIN rail or with screws M4
Weight	app. 300 g

Connection Example:



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