Eltime Controls Tel: +44 (0) 1621 859500 Fax: +44 (0) 1621 855335

Energy (kWh) Transducers

Models Available

EK12B Single Phase
EK33B 3 Phase 3 Wire Balanced
EK33U 3 Phase 3 Wire Unbalanced
EK34B 3 Phase 4 Wire Balanced
EK34U 3 Phase 4 Wire Unbalanced
EKDC DC System

Product Features

- Voltage free pulsed output
- Accuracy class 1
- DIN rail mounting enclosure
- 2kV rms 50Hz 1 minute isolation between input / output / case / (auxiliary)
- Screw type terminals
- Fingerproof terminal cover included

Energy transducers measure active energy (kWh) either directly or through a voltage and/or current transformers or DC shunt. The transducer converts the energy signal to a voltage free pulse output which is directly proportional to the input signal value.

Models are available for single phase and three phase, balanced and unbalanced systems as well as DC systems. AC models have a user selectable CT ratio through a rotary switch accessible from a removable cover on the transducer. All AC energy transducers are self powered whilst DC energy transducers are powered from a large choice of AC or DC auxiliary power options. The 2kV isolated output signal can then be fed to remote counters, data loggers, PLC's or building management systems.

For converting energy (KWh) to a proportional voltage free pulsed output

Specification

Reference Standard:
- IEC 688, BS 6253, VDE/VDI 2191

Accuracy:
- Class 1 (±1% of reading max. error)

Input Voltage, *Un*:
- 50V to 440V direct connected (specify)
- or VT operated

Input Current, *In*:
- 0-0.7A to 0-5A direct connected
- 0-1A or 0-5A CT operated

Overload:
- 1.2 x *Un*, 2 x *In* continuous
- 1.5 x *Un*, 30 x *In* for 1 second

Working Range:
- 80 - 120%*Un*
- 0 - 120%*In*

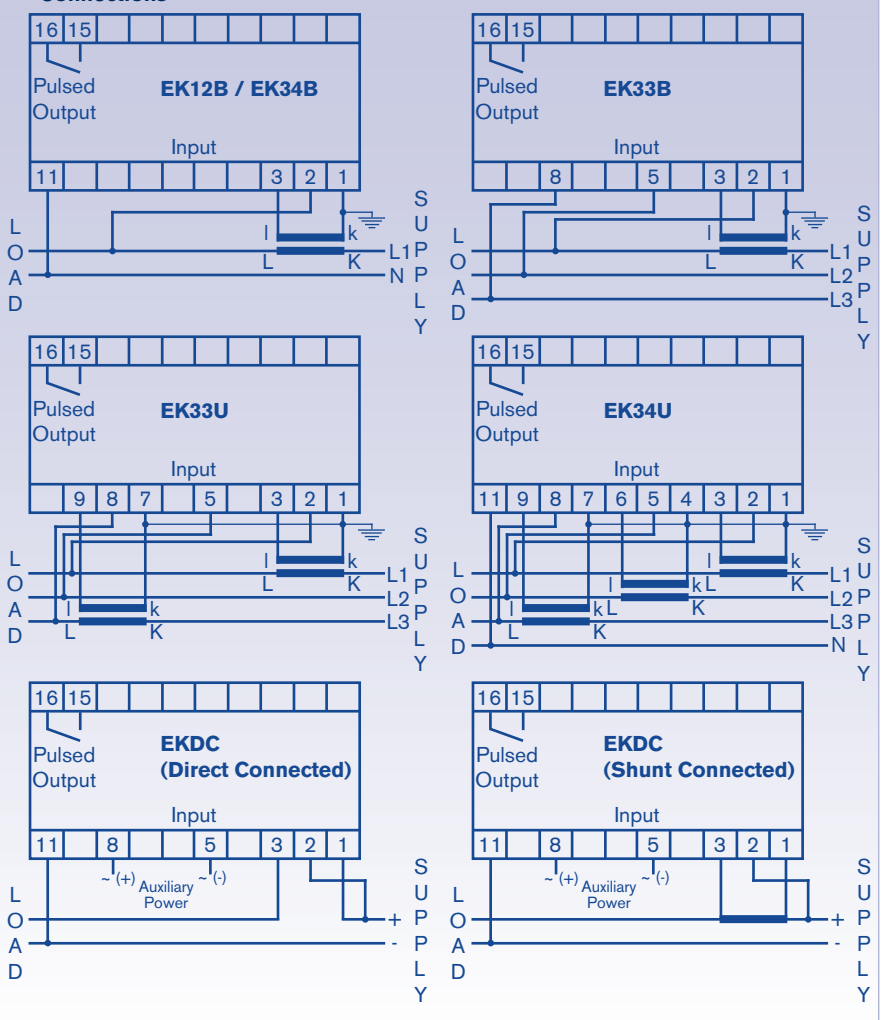
Frequency:
- 50, 60Hz or DC

Burden:
- Current circuit < 0.1VA per phase
- Voltage circuit < 3VA per phase

Pulsed Output:
- Voltage free isolated relay
- 5A contacts at 250Vac, 200msec

Weight:
- EK12B, EK33B, EK34B 600g
- EK33U 700g
- EK34U 800g

Connections



Ordering information

Model	Code	Description
	EK12B	Single Phase
	EK33B	3 Phase 3 Wire Balanced
	EK33U	3 Phase 3 Wire Unbalanced
	EK34B	3 Phase 4 Wire Balanced
	EK34U	3 Phase 4 Wire Unbalanced
	EKDC	DC System

Input Voltage	Code	Description
	P1	110Vac
	P2	230Vac
	P3	415Vac
	PX	50 to 440Vac (specify)
EKDC		12, 24, 48Vdc or upto 600Vdc upon request

Input Current	Code	Description
	C1L	25/1 to 800/1A (selectable) - see table below*
	C1H	200/1 to 6000/1A (selectable) - see table below**
	C5L	25/5 to 800/5A (selectable) - see table below*
	C5H	200/5 to 6000/5A (selectable) - see table below**
	C5X	Other CT ratio (specify)
	CX	0.7 to 7.5 Amps direct (specify)
EKDC		10 to 5000 Amps DC from 50, 60, 75mV shunt (specify)***

Auxiliary Power	Code	Description
	-	N/A (EK12B, EK33B, EK33U, EK34B, EK34U)
EKDC	E1	110Vac (±20%)
EKDC	E2	230Vac (±20%)
EKDC	E3	415Vac (±20%)
EKDC	E5	24Vdc (-10% to +20%)
EKDC	E6	48Vdc (-10% to +20%)
EKDC	E9	12Vdc (-10% to +20%)

Input Frequency	Code	Description
	F50	50Hz
	F60	60Hz
EKDC	FDC	DC

Example	EK34U - P2 - C5L - F50

Current Transformer Primary Currents (Selectable)

* L 25, 40, 50, 60, 75, 80, 100, 120, 150, 200, 250, 300, 400, 500, 600, 800A

**H 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1600, 2000, 2500, 3000, 4000, 6000A

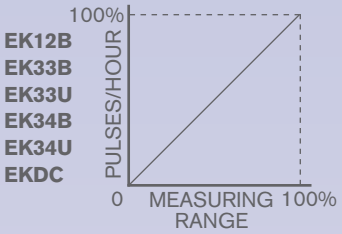
*** Standard Shunt Values

10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 120, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 2000, 2500, 3000, 4000, 5000A

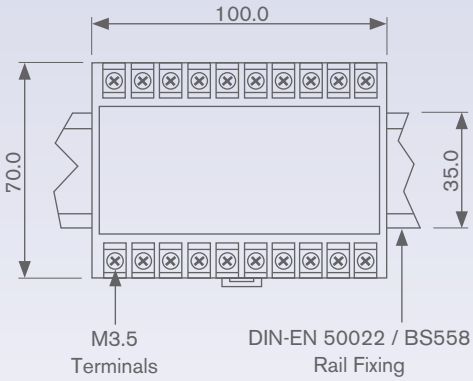
Notes:

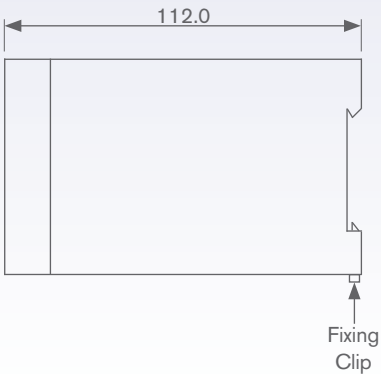
1. Models with (L)ow CT ratios will have a pulse rate of 1pulse/kWh and models with (H)igh CT ratios will have a pulse rate of 1pulse/10kWh (unless a VT ratio is applicable). Other pulse rates are available to suit direct connected units or VT ratios etc.
2. Ensure that current transformers are mounted such that K faces the supply and L faces the load.
3. Secondary windings of the current transformers should be earthed.

Function Graph



Dimensions





All dimensions in mm

General Specification

Output

Response Time:	< 400ms for 0-90% of input value
Warm Up Time:	< 15 minutes
Residual Output Ripple:	< 1% peak full scale
Long Term Drift:	±0.25% per year non-cumulative
Maximum Load:	1mA < 10kohm 2.5mA < 6kohm 5mA < 3kohm 10mA < 1.5kohm 20mA < 750ohm Voltage output >1kohm
	Self powered voltage and current transducers have an adjustable span while all other units have an adjustable zero and span accessible from the front panel.

Auxiliary

AC:	110 / 230 / 415V (±20%) (others upon request)
DC:	24 / 48 / 110V (±20%)

Environmental

Operating Temperature:	-20°C to 65°C
Storage Temperature:	-40°C to 75°C
Variation With Temperature:	0.03%/°C (±0.5% maximum)
Relative Humidity:	0 - 95% non-condensing

Burden

Input Circuits:	See individual specifications
Auxiliary Power Supply:	7VA combined Watt/Var transducers (4VA all other transducers)

EMC Compliance

Directive 89/336/EEC:	Electrostatic discharge IEC801.2 (8kV) Electromagnetic fields IEC801.3 level 3 Fast transient bursts IEC801.4 level 4 Surge withstand IEC255-5

Enclosure

Enclosure:	Grey ABS plastic with finger proof terminal covers
Enclosure Code:	Case IP50, terminals IP10 to IEC529 and BS5490
Isolation:	4kV rms 50Hz 1min (to IEC 414) between input / output / case / AC auxiliary (2kV rms 50Hz 1 min for EK energy transducers) 1kVdc / 600Vac between Watt & Var outputs (EPQ units)
Mounting:	35mm DIN rail (DIN-EN 50022)
Markings:	CE marked

Specification subject to change without notice.

Options

Non Standard Calibration

All transducers are supplied calibrated to standard input values as detailed in the individual specifications, however non-standard calibration input values can be specified (subject to technical viability).

Wide Output Adjust Switch on Power Transducers

All power transducers are available with a ten position switch accessible from the front panel which provides coarse adjustment of the output signal between 50% and 200% of the nominal.

Calibration Certificate

Calibration certificates traceable to national standards can be supplied on all transducers.

Conformal Coating

A conformal coating can be applied to the transducer circuitry during manufacture for transducers that will be operating in harsh environmental conditions.