XD303F

Frequency Output Power Transducer

The **XD303F** is a precision kW transducer with an isolated frequency output proportional to True Power. It allows both Energy and Power to be simply measured:

- Measure Frequency to obtain Power.
- Count the output pulses to measure the Energy used,

Standard calibration provides 100 pulses per Watt-hour, with other Scaling Factors available via 'PIN LINKS' located behind the transducer front panel.

WARNING RISK OF ELECTRIC SHOCK
Isolate ALL inputs to the XD303F Transducer before removing the front panel or carrying out any maintenance or commissioning.

The front panel may be removed by inserting a small flat screwdriver into the slot at it's top edge and gently prising it away from the main part of the enclosure. The display circuit board is then revealed. CON3 on the display PCB contains a number of pin links, labelled A - P that set the scaling factor.

A link is '***IN***' if it is fitted across a pair of pins at any labelled position. A link may be 'Parked' if it is fitted to a single pin only. Parked links have no effect but provide a convenient store for unused links.
The table below may be used to select the correct pin links for a range of scaling factors.
Standard links for both 3 phase and single phase models are:

Three Phase Meter Links **DP** give 100 pulses per Watt-hour (100Hz at 5Amp, 240/415 Volt & PF=1)
Single Phase Meter Links **BDK** give 100 pulses per Watt-hour (33.33Hz at 5Amp,, 240 Volt & PF=1)

By altering the Scaling Links and Binary Dividers, it is possible to set alternative Scaling Factors. Please note however that maximum output frequency is 100Hz, and that any values quoted below for 'Pulses/Watt-hour' refer to the voltages and currents at the input to the XD303F transducer; no account is taken of any external Current or Voltage transformers.

NOTE: *Meters are manufactured in two versions: '**3 phase**' and '**Single Phase**'. Check the rating label on the side of the **XD303F** meter to identify the version.*

Scaling Links

Three Phase Meter	
Effective Calibration Pulses/Watt-hour	Links
100 ①	DP
50	CP
150 ②	CDP
200 ②	BP
250 ②	BCP
300 ②	BDP
350 ②	BCDP
400 ②	AP
450 ②	ACP

Single Phase Meter	
Effective Calibration Pulses/Watt-hour	Links
100 ①	BDK
16.67	CP
33.33	DP
50	CDP
66.67	BP
83.33	BCP
116.67 ②	BCDP
133.33 ②	AP
150 ②	ACP

Binary Dividers

Factor	Link
1	P
÷ 8	K
÷ 16	I
÷ 32	H
÷ 64	J
÷ 128	L
÷ 256	O
÷ 512	N

Only 1 Binary Divider Link may be fitted at any time

NOTES
① Standard default setting
② Maximum output frequency possible is 100Hz.

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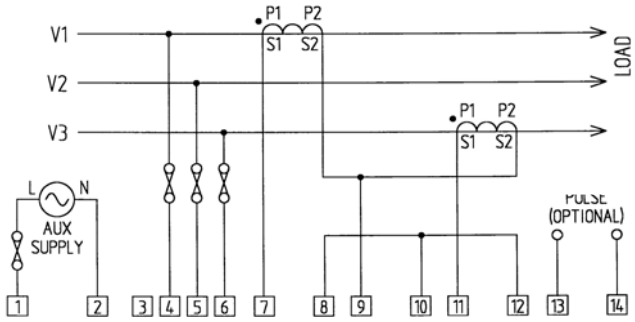

Figure 1 3-Phase 3-Wire (2CTs)

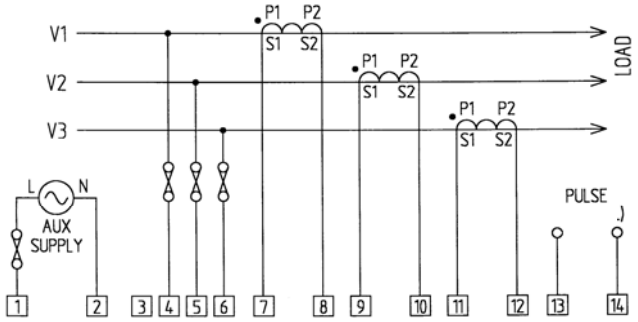

Figure 2 3-Phase 3-Wire (3CTs)

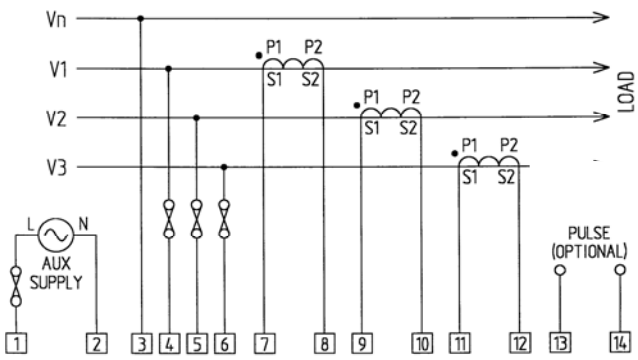

Figure 3 3-Phase 4-Wire

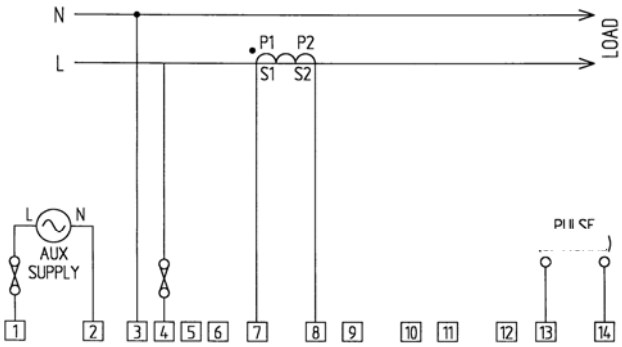

Figure 4 Single Phase
(Single Phase Meter, or 3 phase connected as 1 phase)

This instruction sheet gives details of safe installation and operation of the ***XD303F*** kW to frequency transducer. Safety may be impaired if the instructions are not followed. Labels on each meter give details of equipment ratings for safe operation. Take time to examine all labels before commencing installation. Safety symbols on the meter have specific meanings.

CAUTION REFER TO USER MANUAL
WARNING RISK OF ELECTRIC SHOCK

Cleaning

The front panel of the ***XD303F*** may be cleaned by wiping lightly with a soft, clean cloth. No solvents or cleaning agents should be used.

Mounting the Unit

The ***XD303F*** enclosure conforms to DIN 43880, 6 Modules wide The unit is therefore compatible with a number of standard DIN distribution systems with 45mm cut-outs. The unit may be mounted by itself or alongside other standard units such as timers, circuit breakers etc. The ***XD303F*** should be mounted on a 35mm, symmetric DIN rail of minimum length 106mm.

Current Inputs

Recommended external CTs should conform to Class 1 per IEC 60044-1. The secondary of the CT should be specified to suit the input rating defined on the meter label (5A as standard). Cables used for the current circuit should have a maximum conductor size of 4.0mm^2 and should be kept as short as possible to reduce cable losses loading the CT secondary.

WARNING
NEVER allow the secondary of a current transformer to become open circuit while a primary current flows. Under these conditions dangerous voltages may be produced at the secondary terminals.

Voltage Inputs

Cables used for the voltage measurement circuit should have minimum ratings of 600V, 250mA AC. The maximum conductor size is 4.0mm^2. External protection fuses are recommended for the voltage measurement inputs. These should be rated at 160mA max, Type F, with a voltage rating to suit the maximum inputs to the meter.

Auxiliary Mains Supply (L & N)

The ***XD303F*** is supplied from an auxiliary mains input, isolated from the voltage measurement inputs. This may be connected separately or in parallel with the measurement inputs. Ensure the ratings detailed on the instrument label are not exceeded.
A separate auxiliary mains connection is advantageous when :

- Measurement voltages are expected to vary over a wide range
- Measurement voltages are unsuitable for meter supply
- Voltage inputs are taken from low power PT secondaries.

The auxiliary mains supply is internally fused at 250V, 100mA type T. External fusing is required if the auxiliary supply voltage exceeds 250V. The meter ratings are detailed on the instrument label.

Single Phase operation

Standard 3ϕ units may be used on single phase using the connection shewn above in Figure 4. There also exist alternative single phase connections for 3ϕ Meters; these offer improved turn-down but restrict the maximum current that can be measured. Full details are available on request.

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