

AIN ALPHA[®] Meter



High Accuracy Metering

Elster Electricity's AIN ALPHA meter is a high function, high accuracy, fully programmable solid state electricity revenue billing meter. It is ideal for energy and demand measurements on large commercial and industrial consumers and is an excellent choice for high-accuracy interchange measurement on high-voltage substations.

Multiple Configurations

- IEC-60687 accuracy Class 0.2S, 0.5S, 1.0
- Energy plus demand for: kWh, kVAh, kVAh
- Multiple tariffs (up to 4 per day)
- Full 4-quadrant metering for export-import
- Transformer and direct-connected ratings
- 3- and 4-wire configurations
- Standard or extended load profile data recording (up to 8 data channels)

Standard Options

- Fully-programmable by utility
- Coincident demand readings with date and time
- Average PF indication
- 3-phase power supply
- Wide voltage and current range operation
- Operates with accuracy from -40 °C to +85 °C
- Nonvolatile memory with supercapacitor and long-life battery
- Easily replaceable battery
- Precision internal clock
- Multiple months of billing data recording
- Automatic self reading and demand reset
- Standard IEC 61107 Mode C and Mode D communications

Advanced Features

- Programmable output and control relays (up to 5 relays)
- External power-up for dead line reading
- RS-232 and RS-485 serial ports

Security Features

- Phase voltage outage recording for total count and time-date stamp of events
- Total power outage recording
- Reverse energy warnings and recording
- Multiple utility-controlled password protection
- Communications record of events for tracking data or program changes
- Demand reset record showing total events and time-date stamp
- Cumulative demand indication
- "Positive count only" optional configuration for total kWh

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AIN ALPHA Meter Specifications and Technical Data

Accuracy	IEC 60687 accuracy Classes 0.2S and 0.5S; IEC 61036 ¹ accuracy Class 1.0	
Maximum current	120 % of I _{max} continuously	
Current ranges	For 12 Amp Max: 1/1.2; 5/6; and 1/10 — without adjustment For 100 Amp Max: 5/100; 15/100; 20/100 — without adjustment	
Starting current	< 1 mA for meters with I _{max} = 10 A	< 40 mA for meters with I _{max} = 100 A
Maximum voltage	Continuous: 305 VAC (line-to-ground), 528 VAC (line-to-line)	
Operating voltage range	3 phase, 3 wire service	3 × 100 V to 3 × 480 V
	3 phase, 4 wire service	3 × 57.7/100 V to 3 × 277/480 V
Frequency	Nominal 50 Hz or 60 Hz (± 5 %)	
Temperature range	-40 °C to +55 °C (ambient)	-40 °C to +85 °C (at electronics)
Humidity range	0 % to 100 % (noncondensing)	
Power supply burden (multiphase)	Less than 2 watts and 5 VA across voltage range	
Surge voltage withstand	Disturbance voltage test (fast transient)	2000 V, 5/50 ns
	Dielectric test	10 kV, 1.2/50 μs (6 kV with option boards)
	Dielectric test (1 minute)	2000 V at 50 Hz
Startup delay	Less than 3 seconds from power application to pulse accumulation	
No current registration (creep)	No more than one pulse measured per quantity, conforming to IEC 60687 accuracy requirements.	
Communications rate	9600 bps (nominal) over the optical port	

¹ The direct connect AIN ALPHA meets all requirements contained in 61036 for Class 1.0 and 2.0. with one exception. See

Standard AIN ALPHA meter configurations

Type	kWh kW	kVARh kVAR	kVAh kVA	Tariffs	LP	Metered quantities
AIND	✓					1
AINT	✓			✓		1
AINR	✓	✓	✓ ¹			2
AINK	✓	✓	✓ ²			2
AINRT	✓	✓	✓ ¹	✓		2
AINKT	✓	✓	✓ ²	✓		2
AINTL	✓			✓	Standard	1
AINRTL	✓	✓	✓ ¹	✓	Standard	2
AINKTL	✓	✓	✓ ²	✓	Standard	2
AINRTA	✓	✓	✓ ¹	✓		4
AINKTA	✓	✓	✓ ²	✓		4
AINRTAL	✓	✓	✓ ¹	✓	Standard	4
AINKTAL	✓	✓	✓ ²	✓	Standard	4
AINRTL-X	✓	✓	✓ ¹	✓	Extended	2
AINKTL-X	✓	✓	✓ ²	✓	Extended	2
AINRTAL-X	✓	✓	✓ ¹	✓	Extended	4
AINKTAL-X	✓	✓	✓ ²	✓	Extended	4

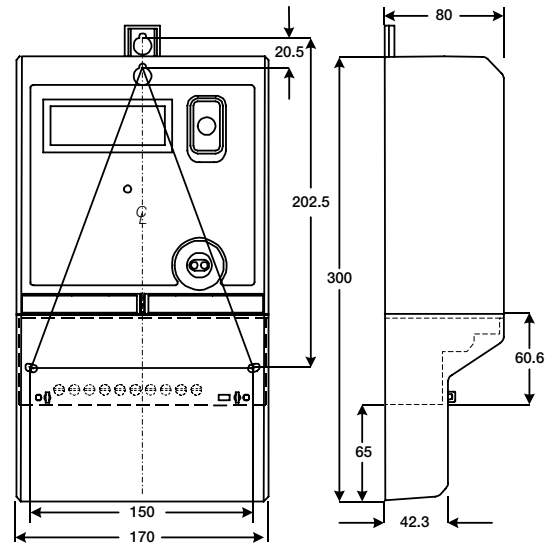
¹kVAh and kVA quantities calculated vectorially from kWh and kVARh

²kVAh and kVA quantities measured and calculated arithmetically

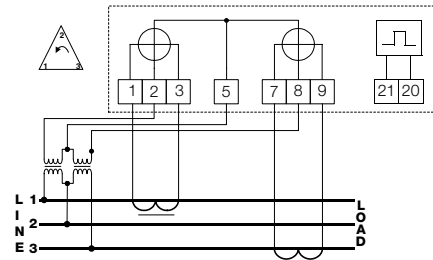
# of channels (15 minute interval)	Standard maximum ¹	Standard minimum ²	Extended memory board
1 channel	141 days	108 days	511 days
2 channels	71 days	54 days	336 days
3 channels	49 days	38 days	225 days
4 channels	36 days	27 days	169 days
8 channels	18 days	13 days	85 days

¹Monthly storage disabled and only 1 event log

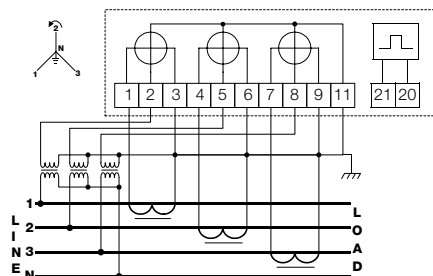
²Monthly storage enabled and 255 event log entries



Dimensions (in mm.) are for reference only. Do not use for construction.



Connection diagram for 3 phase, 3 wire, 2 element (sequential)



Connection diagram for 3 phase, 4 wire, 3 element (sequential)



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