

ALTA INDUSTRIAL WIRELESS THREE-PHASE CURRENT METER

GENERAL DESCRIPTION

The [ALTA Industrial Wireless Three Phase Current Meter](#) measures the RMS current of an alternating current (AC) system using 3 current transducers (CTs) that wrap around the wires of a three phase power system.

- Measures amp hours, max RMS current, min RMS current, average RMS current, and duty cycle for each phase and combined amp hours from all three phases
- 3x current transducers
- Capable of generating watt hour or kilowatt hour readings using iMonnit
- Data logging for accumulated amp hour readings
- Can notify based on amperage/power levels
- Simple and safe installation of amperage/power measurement hardware, no rewiring required

PRINCIPLE OF OPERATION

To measure current, clip the CT around a single wire of a powered system (clipping around a hot and neutral wire at the same time will result in 0 amp current readings). After the sensor powers on and connects to the gateway it will begin taking measurements based on the averaging interval (5 seconds default). It will report data to iMonnit every heartbeat or within one averaging interval if a threshold is crossed. The sensor reports average current, max RMS current, min RMS current, and duty cycle for each phase and amp hours for all three phases combined. These readings are based on all measurements taken between heartbeats. iMonnit can also generate watt hour or kilowatt hour readings if a default RMS voltage is set in iMonnit.

Example Applications

- Heavy Machinery
- Breaker Panels
- Conveyor System Motors
- Factory / Manufacturing Management

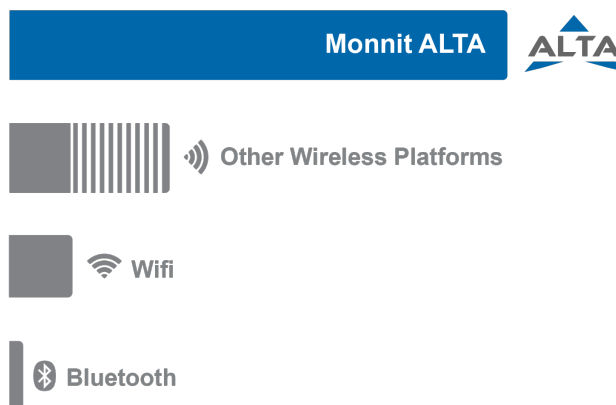
Features of Monnit ALTA Sensors




- Wireless range of 1,200+ feet through 12+ walls¹
- Frequency-Hopping Spread Spectrum (FHSS)
- Best-in-class interference immunity
- Best-in-class power management for longer battery life²
- Encrypt-RF[®] Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Data logs 2000 to 4000 readings if the gateway connection is lost (non-volatile flash, persists through the power cycle):
 - 10-minute heartbeats = ~ 22 days
 - 2-hour heartbeats = ~ 266 days
- Over-the-air updates (future-proof)
- Free iMonnit Basic Online Wireless Sensor Monitoring and Notification System to configure sensors, view data, and set alerts to be sent via SMS text, email or call.

1 Actual range may vary depending on the environment.

2 Battery life is determined by the sensor reporting frequency and other variables. Other power options are also available.

WIRELESS RANGE COMPARISON



ALTA Industrial Wireless Three Phase Current Meter Technical Specifications	
Supply Voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) ¹
Current Consumption	0.2 μ A (sleep mode), 0.7 μ A (RTC sleep), 570 μ A (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating Temperature Range (board circuitry and battery)	-40°C to +85°C (-40°F to +185°F) ²
Included Battery	Max temperature range
	Capacity
Integrated Memory	Up to 3200 sensor messages (Non-Volatile)
Wireless Range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	20 Amp Sensor: 13.20 oz. (374 g) 150 Amp Sensor: 28.90 oz. (819 g) 500 Amp Sensor: 51.60 oz. (1462 g)
Enclosure Rating	NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof
UL Rating	UL Listed to UL508-4x specifications (File E194432)
Certifications	   Industry Canada 900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

¹ Hardware cannot withstand negative voltage. Please take care when connecting a power device.

² At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

0-20 AMP CT SPECIFICATIONS	
Absolute max CT current	50 Amps RMS (A rms)
Maximum accurate CT current	20 A rms
Frequency range	50–100 Hz
Accuracy	+/- 2% @ 2 to 20 A rms, +/- .07 A rms @ < 2 A rms
Measurement resolution	~.01 A rms
Response Time (90% Actual)	~3 Seconds
Typical Deadband	~.07 A rms ¹
Current transducer dimensions	See table on page 3
Weight	2.10 oz (60 g) (CT only)
Lead Length	3 feet (91.4 cm)

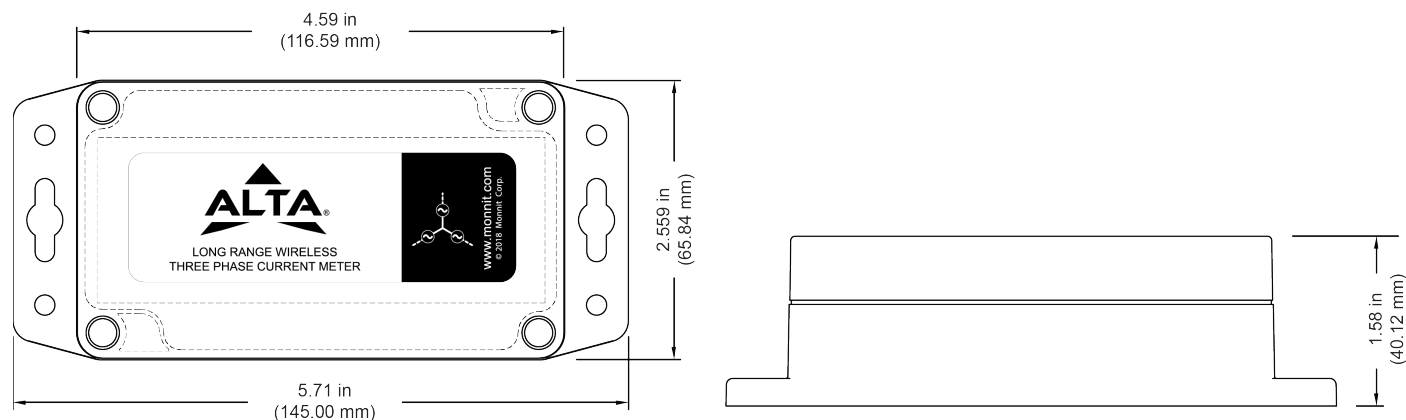
0-150 AMP CT SPECIFICATIONS	
Absolute max CT current	200 Amps RMS (A rms)
Maximum accurate CT current	150 A rms
Frequency range	50–100 Hz
Accuracy	+/- 2% @ 2 to 150 A rms, +/- 0.4 A rms @ < 15 A rms
Measurement resolution	~0.1 A rms
Response Time (90% Actual)	~3 Seconds
Typical Deadband	~0.15 A rms ¹
Current transducer dimensions	See table on page 3
Weight	7.27 oz (206 g) (CT only)
Lead Length	3 feet (91.4 cm)

0-500 AMP CT SPECIFICATIONS

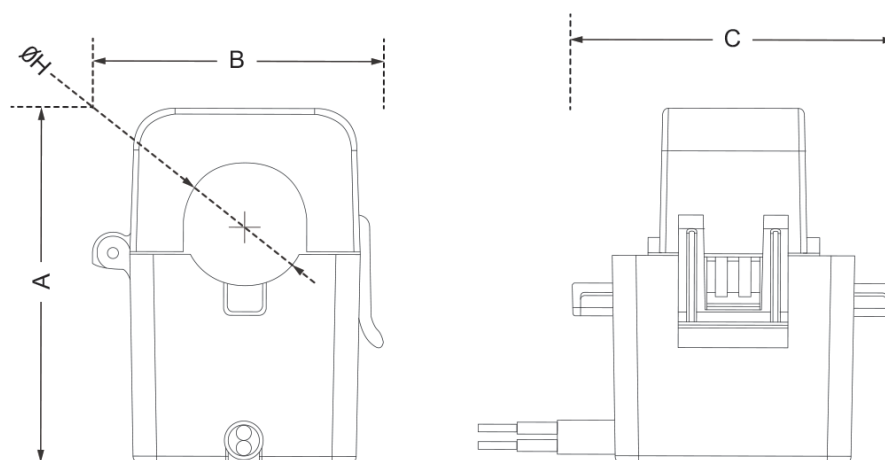
Absolute max CT current	600 Amps RMS (A rms)
Maximum accurate CT current	500 A rms
Frequency range	50–100 Hz
Accuracy	+/- (2% + 1.4 A rms)
Measurement resolution	~0.3A rms
Response Time (90% Actual)	~3 Seconds
Typical Deadband	~0.64 A rms ¹
Current transducer dimensions	See table below
Weight	14.55 oz (412 g) (CT only)
Lead Length	3 feet (91.4 cm)

¹ Because of a diode inherent to the hardware, the sensor is incapable of reading between 0 and the deadband amperage for the specific CT. This diode also creates an offset, to account for this offset and deadband, the sensor adds an offset amperage to all readings above 0 A rms. So the sensor will go from 0 to ~deadband amperage on the lowest end of the sensor measurement range.

THREE PHASE CURRENT METER ENCLOSURE DIMENSIONS



CURRENT TRANSDUCER DIMENSIONS



Dimensions	A	B	C	ØH
20 Amp CT	1.594" (40.5 mm)	1.059" (26.9 mm)	1.413" (35.9 mm)	0.393" (10 mm)
150 Amp CT	2.952" (75 mm)	2.169" (55.1 mm)	1.779" (45.2 mm)	0.944" (24 mm)
500 Amp CT	3.606" (91.6 mm)	2.685" (68.2 mm)	2.043" (51.9 mm)	1.417" (36 mm)

INDUSTRIAL GRADE SENSORS | TYPE 1, 2, 4, 4X, 12 AND 13 NEMA RATED ENCLOSURE

Monnit's Industrial sensors are enclosed in reliable, weatherproof NEMA-rated enclosures. Our NEMA-rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose-directed water).

- Safe from falling dirt
- Protects against wind-blown dust
- Protects against rain, sleet, snow, splashing water, and hose-directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure

