Smart Power Monitor Hub

Featuring LoRaWAN®

CTH01

◆ Introduction

The CTH01 Smart Power Monitor Hub is a high-performance, multi-channel device designed for the collection and analysis of electrical parameters. Supporting simultaneous acquisition of 12 current channels and 3 voltage channels, coupled with high-precision computation, the CTH01 delivers a comprehensive set of electrical parameters including power, energy, power factor, harmonic distortion, and voltage three-phase unbalance.

Featuring LoRaWAN® wireless communication and Bluetooth for local configuration, CTH01 integrates seamlessly into energy management systems, providing reliable data to support energy savings, preventative maintenance, and cost allocation.

CTH01 is engineered for commercial buildings, industrial plants, data centers, and multi-tenant apartments to enable precise energy consumption measurement, power quality monitoring, and equipment operational analysis for critical circuits within electrical distribution systems.

◆ Features

Comprehensive & Accurate Monitoring

- Provides high-precision measurement of active, reactive, and apparent power and energy, integrated with power quality analysis functions such as Voltage/Current THD and voltage three-phase unbalance.
- Compliant with IEC 62053-21/23 standards to ensure professional measurement.
- Support external wire temperature sensor for cable temperature measurement.

Flexible Configuration & Deployment

- 12 current channels can be independently configured for single-phase use, grouped into 4 three-phase circuits or mixed usage.
- Supports mixed use of split-core Current Transformers (100A/300A/500A/1000A) and 4000A Rogowski coils (coils must be consistent within a group).
- Provides convenient voltage measurement through direct connection via voltage measurement terminals or an optional non-invasive magnetic attachment, enabling flexible installation.
- Complete parameter setup, data reading, and current direction calibration can be performed remotely via the Bluetooth-connected Toolbox APP, eliminating the need for physical access.

Industrial-Grade Reliability & Storage

- 6-8kHz sampling frequency ensures data measuring accuracy.
- Stores periodic data records, event logs, and up to 12 months of monthly maximum/minimum values and energy totals.
- Supports user-defined threshold alarms and device-initiated overload/out-of-range alarms.

Powerful Expansion & Integration

- Built-in LoRaWAN® protocol for seamless integration with Milesight Development Platform and third-party platforms.
- Supports Firmware-Update-Over-The-Air (FUOTA) updates for feature enhancements.

◆ Specifications

Electrical Measurement	
Detection Parameter	RMS Voltage and Current Power Factor Active, Reactive, Apparent Power Active (Imported or Exported), Reactive (Imported or Exported), Apparent Energy

	Voltage Three-Phase Unbalance Voltage Total Harmonic Distortion (THDv) Current Total Harmonic Distortion (THDi)
Sampling Frequency	6 - 8 kHz
Working Frequency	50 - 60 Hz
Accuracy	Active Energy: ±1% (according to IEC 62053-21) Reactive Energy: ±2% (according to IEC 62053-23)
Voltage Interface	
Circuit Configuration	• Three-phase: phases L1 to L3 with or without Neutral • Single-phase: phases L with Neutral • Mixed Three-phase and Single-phase
Measuring Range	100 - 500V AC
Measuring Accuracy	±1 %
Maximum Voltage (N-L)	290 Vrms
Maximum Voltage (L-L)	500 Vrms
Wire Connection	AWG 26 - 12
Current Interface	
Range	Up to 4000A
Interface Type	RJ11
Port	12 × Current Channels
Temperature	
Sensor Type	External NTC Sensor
Measuring range	-20°C ~ 100°C
Measuring Accuracy	±1 °C
Wireless Transmission	
Protocol	LoRaWAN®
Antenna Connector	1 × 50 Ω SMB - Female External Connector
Frequency	CN470/IN865/RU864/EU868/US915/AU915/KR920/AS923-1&2&3&4
Tx Power	16 dBm (868 MHz)/20 dBm (915 MHz)/19 dBm (470 MHz)
Sensitivity	-137dBm

Mode	OTAA/ABP Class C
Others	
LED Indicator	1 × Status/Alarm Indicator
Button	1 × Reset Button
USB	1 × USB Type-C for Cable Temperature Sensor Connection
Software	
Configuration	Mobile App via Bluetooth
Advanced Feature	Data Storage (20, 000 entries, 2,000 alarms), Data Analysis (12 months of energy statistics), Threshold Alarm, Out-of-Range alarm, Power Failure Alarm
Physical Characteristics	
Power Supply	12 V DC (via included AC~DC Power Adapter)
Power Connector	1 × 2-pin 5 mm Terminal Block, with Reverse Polarity Protection
Insulation Voltage	$4kV_{ac}$(r.m.s)(1mA/1min)
Intrinsic Consumption	Max. 5.8 W
Pollution Degree	2
Overvoltage Category	Ⅲ
Maximum Altitude	2000 m
Operating Temperature	-20°C~70°C (-4°F~158°F)
Relative Humidity	≤ 95% (Non-condensing)
Ingress Protection	IP30
Housing&Color	ABS+PC (UL94 V0), Starlight Grey
Dimensions	49.3 × 98 × 90 mm (1.94 × 3.86 × 3.54 in)
Weight	163 g
Installation	DIN 35 Rail Mounting, Magnetic Mounting (Optional)
Approvals	
Regulatory	ETL Listed (UL/CSA 61010-1, UL/CSA 61010-2-030), CE (RED&LVD), FCC, SRRC
Environmental	RoHS

◆ Current Transformer Options

Type	Split-core CT				Rogowski coils
Range*	0 - 100 A	0 - 300 A	0 - 500 A	0 - 1000 A	0 - 4000 A
Measuring Accuracy	Class: 0.5				±2 %
Operating Temperature	-40°C~55°C (-40°F~131°F)				
Insulation Voltage	$3kV_{ac}$(r.m.s)(1mA/1min)				
Flame Retardant	UL94 V0				
Dimensions	35.5 × 30.8 × 45.6 mm	56.5 × 36.5 × 68.5 mm	69 × 42.1 × 86 mm	9631 × 595 × 119 mm	/
Wire Hole	Φ 16 mm (Φ 0.63 in)	Φ 24 mm (Φ 0.94 in)	Φ 36.6 mm (Φ 1.44 in)	Φ 51 mm (Φ 2.01 in)	Φ 150 mm (Φ 5.91 in)
Weight	100 g	195 g	287 g	835 g	115.1 g
Installation	Suspended on the Testing Conductor				

***Note:** Contact us if you need to customize other ranges.

Dimensions (mm)