Branch Series

Multi-Circuit (Branch) Meter

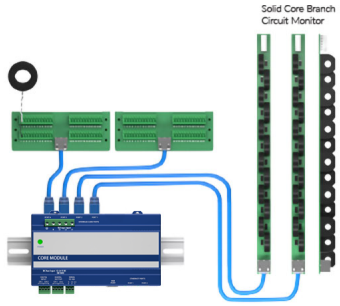
Monitors up to 96 circuits
On board webserver and data logging
Customizable alarming features

DESCRIPTION

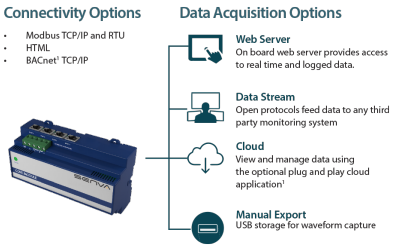
Senva is redefining Branch Circuit Monitoring with a next generation technology that simplifies installation and connectivity while providing instant access to data in a user friendly format. The versatile Core Module TM system is a single monitoring solution with peripherals optimized for Branch Circuit and Multi-Circuit Monitoring applications designed to reduce the cost and complexity associated with legacy multi-circuit monitors.

APPLICATIONS

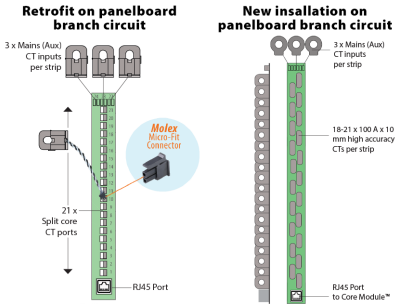
- Ideal for baseline consumption in premises (e.g., store-to-store comparisons for chains)
- Activity-based costing in commercial and industrial facilities
- More informative than an amperage measurement only
- Great for solid core, split core CTs, and analog for data center



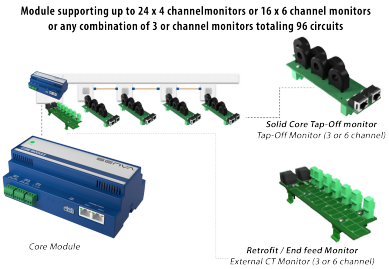
Options for solid core, split core CTs, & discrete inputs



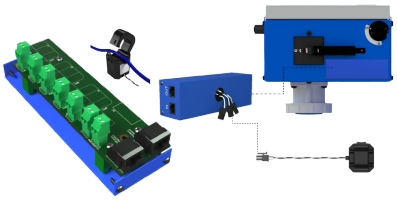
On board webserver for easy setup and data access



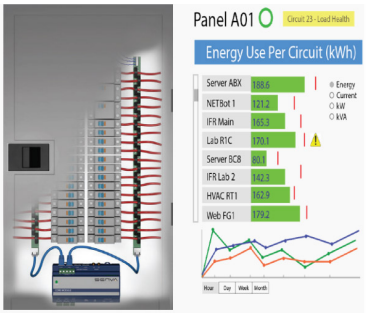
Split Core Strip for Retrofit or Solid Core Strip for New Insallations



Add metering to tap-off boxes or end-feeds in any busway system



Retrofit Monitoring Installation (CTS40x-F)



Presence of Voltage detection accurately indicates breaker status - even under no load

FEATURES

- Optimized for new and retrofit installations with no disruption to critical loads
- Monitors up to 96 circuits
- Options for solid core, split core CTs, and analog, discrete inputs.
- On-board web server provides immediate access to real-time and logged data
- Integrated data logging supports up to 64 GB storage; remotely accessible or manually exportable
- Customizable alarming features
- Select from multiple connectivity options, including Modbus TCP/IP, RTU
- Open protocols allow connection with any third-party monitoring system
- Presence of Voltage detection accurately indicates breaker status even under no load conditions
- True-Circuit Display mapping function presents data according to actual circuit configurations
- Detailed power and energy monitoring per circuit, including Waveform capture and THD

ORDERING

Core Module Monitoring Systems

CM02SV	Enhanced Core Module, 90-300 VAC L-N, 50/60 Hz (combined sensing and power supply input); supports 277V L-N / 480V 4W with neutral sources and 240 VAC / 415V 4W sources; use alternate models for 3W sources that do not have a neutral
CM02SV-480	Enhanced Core Module, 160-480 VAC L-L / 0.1A, 50 Hz (combined sensing and power supply input); used for 3W applications where neutral is not available
CM02SV-DC	Enhanced Core Module with 12-24VDC control power required; supports 3W and 4W sources; 90-300 VAC L-N / 160-480VAC L-L, 50/60 Hz sensing voltage
CTS-ENCL1	NEMA 1 Core Module Enclosure

Busway Strips

CTS403-F	3 channel tap-off monitor for remote CTs (end feed and retrofit)
CTS203E	3 channel tap-off monitor with PC mounted 100 A solid core CTs and presence of voltage sensing
CTS406-F	6 channel tap-off monitor for remote CTs (end feed and retrofit)
CTS206E	6 channel tap-off monitor with PC mounted 100 A solid core CTs and presence of voltage sensing

Solid Core CT Strip monitoring system for installations on new panelboards

All systems include 10mm x 100 A solid core CTs and + 3 auxiliary CT terminals per strip for main input CTs

0.75" c-c CT strips

CTS021A	Standard 0.75" CT center 1 x 21 100A solid core CT strip
CTS021B	Enhanced 0.75" CT center 1 x 21 100A solid core CT strip with presence of voltage detection

1.0" c-c CT strips

CTS121A	Standard 1.0" CT center 1 x 21 100A solid core CT strip

CTS121B	Enhanced 1.0" CT center 1 x 21 100A solid core CT strip with presence of voltage detection

18mm c-c CT strips

CTS218A	Standard 18mm CT center 1 x 18 100A solid core CT strip
CTS218B	Enhanced 18mm CT center 1 x 18 100A solid core CT strip with presence of voltage detection
CTS221A	Standard 18mm CT center 1 x 21 100A solid core CT strip
CTS221B	Enhanced 18mm CT center 1 x 21 100A solid core CT strip with presence of voltage detection
CTS223A	Enhanced 18mm CT center 1 x 23 100A solid core CT strip
CTS223B	Enhanced 18mm CT center 1 x 23 100A solid core CT strip with presence of voltage detection

Retrofit Panelboard CT Interface Module (Floating Strip CT interface module) and Core Module monitor

Floating Strip CT interface boards reside in raceway and interface with 10mm x 75 A or 100 A split core CTs using plug-in quick connects; each

CTS321A	24-channel Floating Strip split core CT interface board; utilizes branch CTs with connectors
CTSC01050	50 A x 10mm window split core current transformer, 250mm 300V AWG24 lead with Molex connector
CTSC01075	75 A x 10mm window split core current transformer, 250mm 300V AWG24 lead with Molex connector
CTSC010100	100 A x 16mm window split core current transformer, 250mm 300V AWG24 lead with Molex connector

Multi-Circuit Monitoring Systems and Core Module monitor

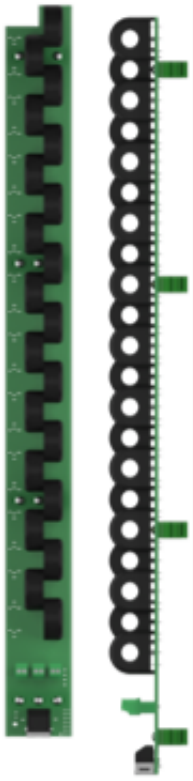
The Multi-Circuit Monitoring system supports up to 4 x 24 CT Interface Cards (96 circuits) and accommodates any 0.33 Vout current transformers or native Rogowski coils.

IOC24A1	24-Channel Digital Input Card
CTC24A1	24-Channel Multi-Circuit Monitoring CT interface board

Current Transformers

see Current Transformer selection guide for details

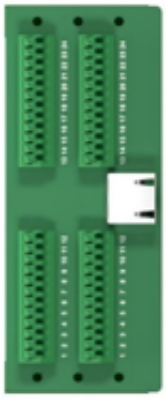
CTS218
CTS221
CTS121



CTS203E
CTS206E

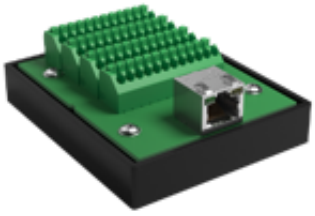
CTS403-F
CTS406-F

CTC24A1



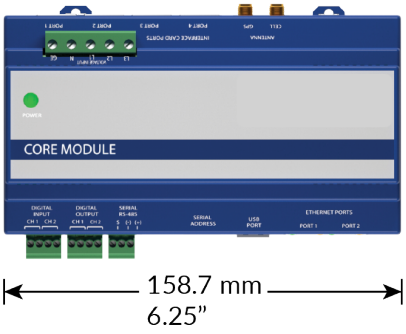
CTS321A1

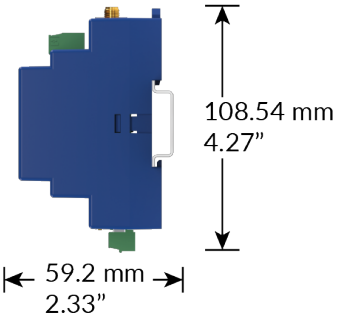
IOC24A1



CTS-ENCL1

DIMENSIONS





Warning: The datasheet is designed for reference only. Refer to installation instructions that accompany the product and heed all safety instructions. Product improvement is a continuing process at Senva. Changes may occur to products without prior notice.

SPECIFICATIONS

INPUTS	
Input power (standard)	90-277 VAC (480 VAC 4W+G) 50/ 60 Hz
Input power (enhanced)	480-600 VAC (3W or 4W+G) 50/ 60 Hz
DC Control	12-24 VDC nominal (only avaiable on models with DC input power supply)
Overload protection	Internally fused
Power consumption	<5W
Channels / circuit capacity	24 x 4 channels (96 circuits total)
PERFORMANCE	
Power/Energy	IEC 62053-21 Class 1, ANSI C12.1-2008 System Accuracy (including branch CTs) (1% system accuracy includes both the Core Module and branch current sensors
Accuracy	0.50% for voltage and current
Sampling rate	> 3 kHz
COMMUNICATIO	
Physical interface	Cat5 or greater Ethernet cable. 10/100Mbit speeds supported
Data protocols	Modbus TCP/IP (Ethernet), Modbus RTU (RS-485 2 wire), HTML (web server)
Baud Rate	9600, 19200, 38400, 57600, 76800, 115200
Ethernet ports	2 x RJ-45 10/100 Mbit
USB port	USB 2.0 Type A
Web server	HTML via standard browser
Protocols supported	BACnet/IP
DIGITAL I/O	
Digital Input	Dry Contact (N.O) with 5V @ 10mA source
Digital Output	30VDC / 0.1A maximum
ENVIRONMENTAI	
Operating temperature	0 to 60 °C (32 to 140 °F) (<95% RH non-condensing)
Storage temperature	-40 to 70 °C (-40 to 158 °F)
Enclosure versions	NEMA 1/IP20 (indoor use);
APPROVALS	
Agency approvals	UL61010 IEC/EN61010-1, CE, CAT II

MONITORED PARAMETERS		
Monitored Parameter	Circuit Level	Input Level1
phase per Current	•	•
Max. current per phase	•	•
Current demand (avg. current) per phase	•	•
Current phase angle	•	•
Voltage phase angle	•	•
Real power (kW) per phase	•	•
Real power (kW) demand per phase	•	•
Real power (kW) demand max	•	•
Energy (kWh) per phase	•	•
Power factor	•	•
Power factor vector	•	•
Apparent power (kVA)	•	•
Reactive power (kVA)	•	•
THDI	•	•
THDV	•	•
Voltage, L-L and average		•
Voltage, L-N and average		•
Voltage, L-N and per phase		•
Waveform capture	•	•
Presence of Voltage3	•	•
Ground current2	•	•

1 - Input level data can be calculated by summing up branch CT measurements or directly measured using CTs.
2 - Required optional ground current CT connected to auxiliary CT input

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