

EFFICIENT

EM4900

Flexible Multi-circuit Meter for Multi-Use & Multi-Tenant applications

Arnaud Denis

Agenda



Applications

Problem to Solve

The solution

Offer Overview

Physical Aspect

References

Current Transformers

Summary

Application

Multi-user, Multi-tenant, and retrofit application

Multi-user, Multi-tenant, and retrofit application

The right location for the EM4900

- Places trying to provide compliance reporting (Energy use per branch for LEED, etc.)
 - Mixed-use retail/residential
 - Shared office space
 - Industrial buildings
 - Campuses
 - Airports & Transportation hubs
 - Hospitals



Problem to Solve

Metering existing sites, and adapting to varied needs

Metering existing sites, and adapting to varied needs

Multi-Tenant, Multi-use complexity, and retrofit scenarios

- Adding metering on varied loads and circuit types
- Meeting space requirements
- Allowing for circuit modifications when a tenant changes
- Adding metering to integrate the data into a building/process reporting system
- Reducing cost of installation

The solution

EM4900: Flexible multi-circuit meter with a low cost per metering point

Flexible multi-circuit meter with a low cost per metering point

Meeting the needs for Multi-use, Multi-Tenant retrofit

- EM4900 provides
 - A flexible solution via changeable CTs and Circuit settings
 - Integration in Energy Management systems, Building Management Systems and IT systems
 - A reduced space and installation time solution

Cost allocation requirements will be addressed with the EM4880 and EM3500 ranges of meters.

Offer Overview

Key features

Key Features

Flexible, low cost per metering point

- Adapting to the need:
 - Offers between 12 and 84 circuits
 - Each circuit can be part of a logical meter (1ph, 2ph or 3ph)
 - Supports Low Voltage (.333mV) CTs
 - Safer and easier to deploy
 - CTs can be changed and circuits re-assigned.
 - Up to 100ft (33m) between the meter and the CTs
- Reduces costs
 - Choice in number of circuits
 - Smaller space requirement and 1 install for multiple meters
 - CT push pin connectors, and circuits overlays to simplify the installation

Key Features

Accuracy and THD

- Measurements
 - Accuracy of 0.5%, ANSI Class 0.5
 - CTs can be set from 50A to 32767A
 - Provides basic THD metering on V-LL, V-LN, and Current (THD %)
 - Helps identify power quality issues, early wear & tear or inefficiency
- Compliance
 - UL 508 listed
- Power
 - 100 to 277 Vac line-to-neutral, 50/60 Hz

Physical Aspect

Look and space requirements

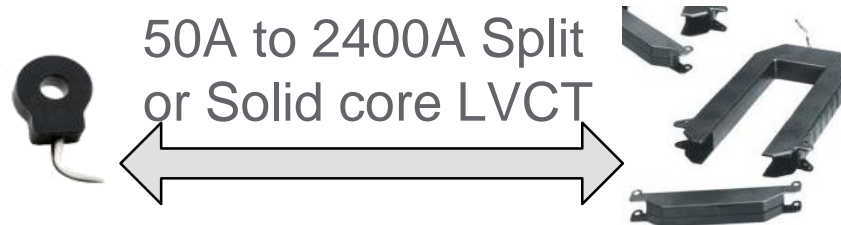
EM4900A

Open Board with Modbus RTU

EM4900A



50A to 2400A Split
or Solid core LVCT



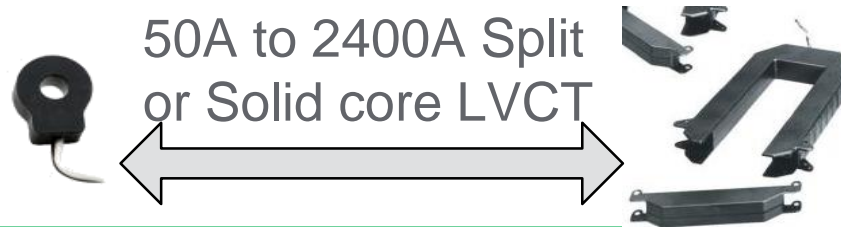
Enclosed Measurement Unit with Ethernet

Enclosed Measurement Unit with Ethernet

EM4900E



50A to 2400A Split
or Solid core LVCT



Enclosed Measurement Unit with Ethernet

Enclosed Measurement Unit with Ethernet

Expansion board

- Same board for either the “A” or “E” EM4900
- The board is mounted separately



EM4900A with 84 circuits



Ribbon Cables



*Adapter Board
mounted separately*

Ordering

- Dedicated reference for the 28 Meters EM4900 “A” or “E”
- Board & Ribbon cables provided



EM4900E with 84 circuits



References

What to order

References

How to select the right meter

- Selection is made with:
 - Modbus Only (A type) or Ethernet (E type)
 - Number of meters or circuits required (1ph = 1 circuit)

“A” Modbus RTU only	“E” Ethernet (Modbus RTU & TCP, BACnet MS/TP & IP, SNMP)	1 ph meters	2 ph meters	3 ph meters without Neutral (used to select the reference)	3 ph with Neutral
METSEEM4904A	METSEEM4904E	12	6	4	3
METSEEM4908A	METSEEM4908E	24	12	8	6
METSEEM4914A	METSEEM4914E	42	21	14	10
METSEEM4928A	METSEEM4928E	84	42	28	21

Current Transformers

Completing the measurement chain

LVCT range

1/3 V Low Voltage Current Transformers

Solid Core

- Size 0: 50A, 100A
- Size 2: 200A
- Size 3: 400A
- Accuracy - 0.5% of reading from 5% to 100% of rated current



Size 0



Size 2



Size 3

Split Core

- Size 0: 50A
- Size 1(a): 100A
- Size 1(b): 200A
- Size 2: 100A, 200A, 300A
- Size 3: 400A, 600A, 800A
- Size 4: 800A, 1000A, 1200A, 1600A, 2000A, 2400A
- Accuracy - 1% of reading from 10% to 100% of rated current



Size 0



Size 1(a)



Size 1(b)



Size 3



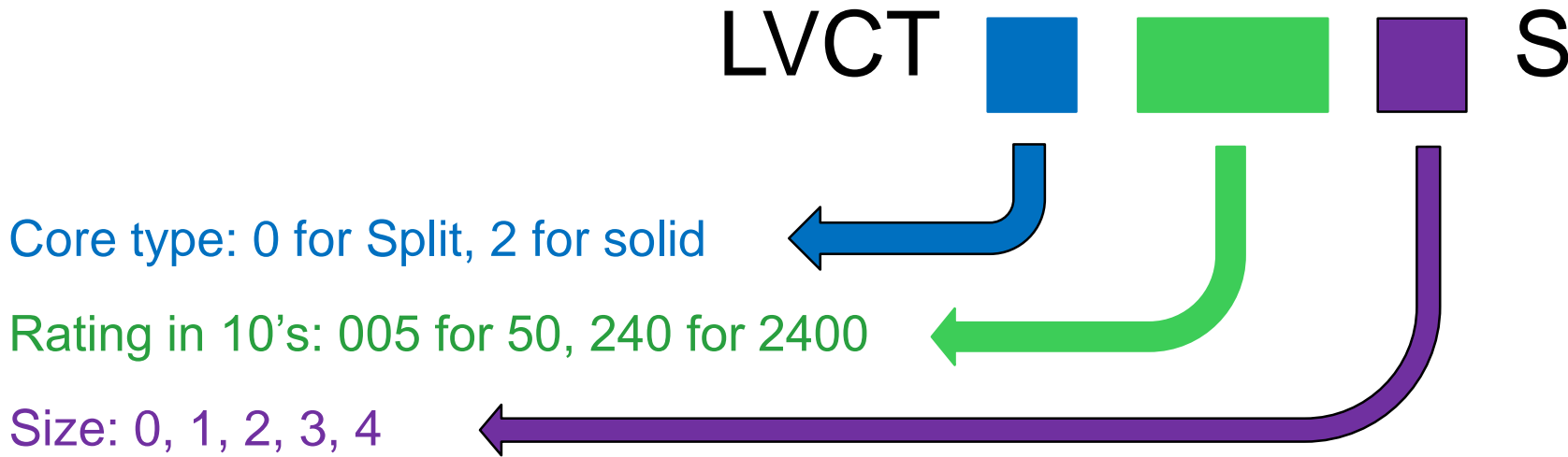
Size 2



Size 4

CT selection

Schneider Low Voltage CTs



Examples:

- LVCT00803S -> Split Core, 800 Amps, size 3
- LVCT20050S -> Solid Core, 50 Amps, size 0

Core	Rating	Size	Reference
Split	50A	0	LVCT00050S
Split	100A	1(a)	LVCT00101S
Split	200A	1(b)	LVCT00201S
Split	100A	2	LVCT00102S
Split	200A	2	LVCT00202S
Split	300A	2	LVCT00302S
Split	400A	3	LVCT00403S
Split	600A	3	LVCT00603S
Split	800A	3	LVCT00803S
Split	800A	4	LVCT00804S
Split	1000A	4	LVCT01004S
Split	1200A	4	LVCT01204S
Split	1600A	4	LVCT01604S
Split	2000A	4	LVCT02004S
Split	2400A	4	LVCT02404S
Solid	50A	0	LVCT20050S
Solid	100A	0	LVCT20100S
Solid	200A	2	LVCT20202S
Solid	400A	3	LVCT20403S

Summary

When and why would EM4900 be offered

EM4900 in a few words

Main things to remember

- EM4900 addresses
 - Metering of multiple circuits in Multi-Tenant, Multi-Use applications such as campuses, Airports, Mixed-used buildings, offices.
 - Metering where Electrical networks likely to change
 - Customers requiring basic THD information on multiple circuits.
 - The Total Cost of deployment through reduced installation time and space requirements
 - BMS/EMS/IT system integration of metering data for multiple circuits.

EM4900 Vs EM4000 & EM4800

	EM4000	EM4800	EM49xxA	EM49xxE
Density: number of meters	8	8	4,8,14 or 28	4,8,14 or 28
THD			THD % measurements V-LL THD, V-LN THD, and Current THD	THD % measurements V-LL THD, V-LN THD, and Current THD
Additional features	2 Pulse Inputs, LCD display	2 Pulse Inputs, LCD display	Demand Measurements, much more extensive alarming	Demand Measurements, much more extensive alarming
Protocols	Modbus RTU, Modbus TCP,	Modbus RTU, Modbus TCP,	Modbus RTU	Modbus RTU & TCP, BACnet MS/TP & IP, SNMP
CT support	EM4033: 1/3V CT EM4080: 80mA CT, or 5A CT with Adapter	EM4833: 1/3V CT EM4880: 80mA CT, and 200A primary EM4805: 5A CT	LVCT & push-in connectors	LVCT & push-in connectors
Size	13.1" x 12" x 2.1"	13.1" x 12" x 2.1" (13.1" x 17" x 2.1" for EM4805)	6" x 9" x 4"	8" x 13" x 3"
Weight	8.77 lbs	8.77 lbs (11.9 for EM4805)	½ lbs	8 lbs (mostly housing)
Control power	120 Vac or 240 Vac (different model) 60Hz only	120 Vac 60Hz only, or 230-240 Vac (different model) 50/60Hz	90 – 277 Vac 50/60Hz	100 – 277 Vac 50/60Hz

Q&A

A man with glasses on his head, wearing a pink shirt, is sitting at a desk with a laptop. He is smiling and looking towards the right. The background is a blurred office environment with a green banner across the middle.

Life Is On

Life Is On

Schneider
Electric