PowerLogic Low Voltage Current Transformers (LVCT)

Solid Core, Split Core types, and Rogowski Coil

Schneider Electric's Low Voltage Current Transformers (CTs) offer secondary voltage AC proportional to the primary (sensed) current. These CTs are designed for use with power meters, data loggers, chart recorders, and other instruments, providing a cost-effective means to convert electrical service amperages to a voltage compatible with monitoring equipment.

The Low Voltage CTs are available in Split Core and Solid Core models, with 0.333 Vac output versions.

Schneider Electric provides four proven models of PowerLogic™ Rogowski flexible core current transducers, ranging from 250 to 900 mm in length and operating within a current range of 50 to 5000 A.

Solid core CTs - Micro

Rogowski Coil

Split core CTs - Small, Medium and Large

Split core CTs - Micro

Solid Core CTs

The listed Current Transformers from Schneider Electric are a comprehensive offer, ideally suited for low voltage network, from 50 to 400 A. They deliver secondary output in the form of 0.333 V proportional to the current measured at the primary. They can be used in combination with measurement devices (switchboard instrumentation, Ammeters, kilowatt-hour meters, power-monitoring units and, control relays etc.).

Solution

- Perfect for new and existing installations and expansion projects in a variety of markets:
  - Commercial buildings
  - Industrial facilities
  - Data centers
  - Oil and Gas
  - Infrastructure

Benefits

- Safety: UL multi listed
- Installation: on cable or bar profiles
- Well adpated CTs as the accuracy class is better than rated accuracy
- CTs for coaxial cable
- CTs for cable or bar profile
- Tropicalized rating for harsh environmental condition

Features

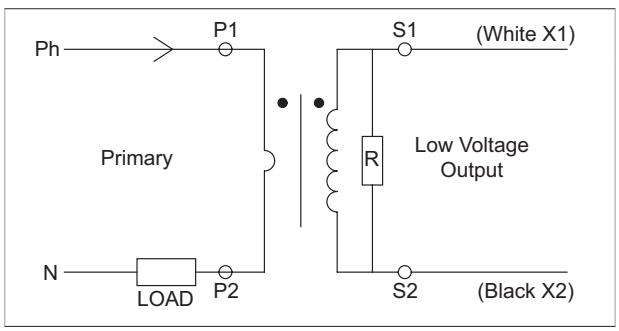
- Option of CT primary selection: from 50 to 400 A Ip with 120% max. range
- Fully compatible with Schneider Electric's complete portfolio of industry leading metering products as well as third party measurement devices.
- Compliance with IEC measurement standards with accuracy Class 0.5
- Higher safety factor during installation and for facility
- For indoor use
- Low voltage output for safer installation

Conformity of Standards

- UL/CSA 61010-1
- UL/CSA 61010-2-030
- IEC/EN 61010-1
- IEC/EN 61010-2-030
- EN IEC 63000:2018
- UL/CSA 2808
- IEC 61869-2
- CE/UKCA certified

CT Principle

When the primary circuit of a Current Transformer is energized, the Current Transformer presents a very low impedance to the secondary circuit, resulting in a low secondary voltage across the burden.



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Solid Core LVCTs

CT selection - conductor rating aspects

- The choice depends on the conductor size and the maximum current of the primary circuit.
- Primary current can be measured through CT with let-through primary.

Solid Core LVCT - Micro Dimension

mm (in)

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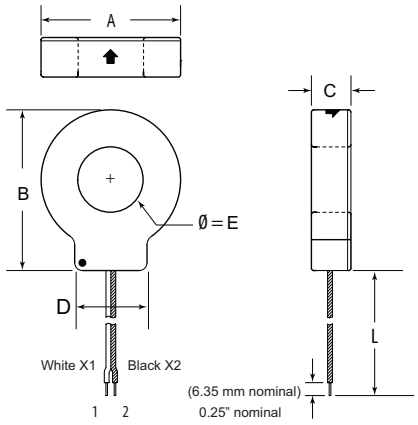


Model	L	A	B	C	D	E
METSECTLV10005U	1800 (70.9)	33 (1.3)	38 (1.5)	20 (0.8)	20 (0.8)	10 (0.4)
METSECTLV10010U						
METSECTLV25020U	1800 (70.9)	58 (2.3)	66 (2.6)	18 (0.7)	31 (1.2)	25 (1.0)
METSECTLV31040U	1800 (70.9)	71 (2.8)	78 (3.1)	25 (1.0)	36 (1.4)	31 (1.22)

Typical limits of current error and phase displacement error for measuring Current Transformers (classes from 0.1 to 1)

Accuracy Class	± Percentage current (ratio) error at percentage of rated current shown below				± Phase displacement at percentage of rated current as shown below							
					Minutes				Centiradians			
	5	20	100	120	5	20	100	120	5	20	100	120
0.1	0.4	0.2	0.1	0.1	15	8	5	5	0.45	0.24	0.15	0.15
0.2	0.75	0.35	0.2	0.2	30	15	10	10	0.9	0.45	0.3	0.3
0.5	**1.5**	**0.75**	**0.5**	**0.5**	**90**	**45**	**30**	**30**	**2.7**	**1.35**	**0.9**	**0.9**
1.0	3.0	1.5	1.0	1.0	180	90	60	60	5.4	2.7	1.8	1.8

50 - 100 Amp

METSECTLV10005U
METSECTLV10010U

200 Amp

METSECTLV25020U

400 Amp

METSECTLV31040U

Solid Core LVCTs

Technical Specification

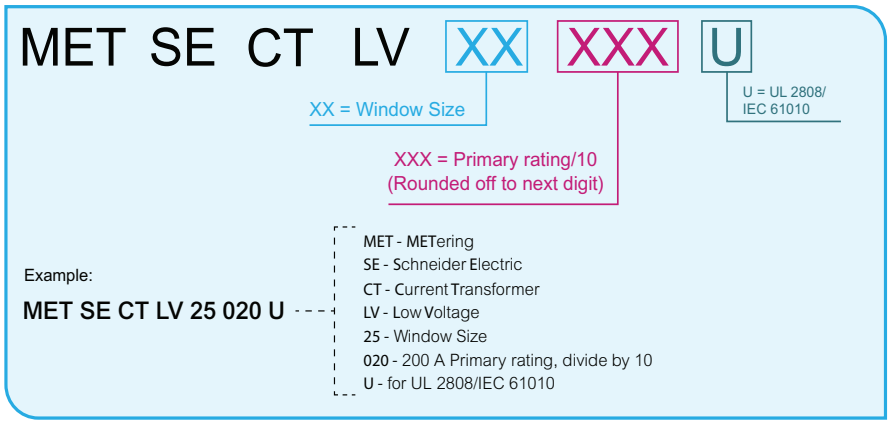
Type	Solid Core
Output at rated current	0.333 Vac
Accuracy	Class 0.5 as per IEC 61869-2
Frequency	50/60 Hz ± 3
Leads	18 AWG Twisted pair, 1.8m (6 ft.)standard length
Dielectric strength	3310 Vrms, 60 Hz, 5 Seconds.
Rated dynamic current (I_{dyn})	2.5 I_{th}
Operating temperature range	-40...85 °C (-40...185 °F)
Storage temperature range	-50...105 °C (-58...221 °F)
Humidity range	0-95% non-condensing
Max. voltage L-N sensed conductor	600 Vac (basic insulation rating)
Altitude of operation	3000 m max.
Mounting location	Not suitable for wet locations. For indoor use only.
Approvals	UL/CSA 61010-1, UL/CSA 61010-2-030, IEC/EN 61010-1, IEC/EN 61010-2-030, EN IEC 63000:2018, UL/CSA 2808
Installation category	Cat III, pollution degree 2

Commercial Reference Scheme

CT with let-through primary	CT internal type	Internal profile type and Dimension (mm (In))		Ip/0.333 V rating (+3) (A)	Accuracy class	Rated short time thermal current I_{th} (kA)	CT Commercial reference
Solid Core CT (cable)							
	Micro		10 (0.39)	50	0.5	0.5	METSECTLV10005U
				100	0.5	1	METSECTLV10010U
			25 (1.0)	200	0.5	2	METSECTLV25020U
			31 (1.22)	400	0.5	4	METSECTLV31040U

(+3) Maximum rated current (Imax) is 120% of the primary current (Ip).

Representation of Commercial Reference Numbers for Solid Core LVCTs



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Commercial Refernce Number	Description
METSECTLV10005U	Solid core LVCT, 50 A primary, 0.333 V output, 1.8m (6 ft.) lead length
METSECTLV10010U	Solid core LVCT, 100 A primary, 0.333 V output, 1.8m (6 ft.) lead length
METSECTLV25020U	Solid core LVCT, 200 A primary, 0.333 V output, 1.8m (6 ft.) lead length
METSECTLV31040U	Solid core LVCT, 400 A primary, 0.333 V output, 1.8m (6 ft.) lead length

Split Core LVCTs

The listed Split Core Current Sensors from Schneider Electric are a comprehensive offer, ideally suited for low voltage network, from 50 to 2400 A. They deliver secondary output in the form of 0.333 V proportional to the current measured at the primary. They can be used in combination with measurement devices (switchboard instrumentation, Ammeters, kilowatt-hour meters, power-monitoring units, control relays etc.). Split Core CTs are available in four distinctive frame sizes for LVCT options to accomodate different sizes of bus bars or round cables.

The solution for

- Perfect for new and existing installations and expansion projects in a variety of markets targetting retrofit application:
  - Commercial buildings
  - Industrial facilities
  - Data centers
  - Oil and Gas
  - Infrastructure

Benefits

- Safety: UL multi listed
- Well adpated Current Transformers as the accuracy class is better than rated accuracy
- Current Transformers for coaxial cable
- Current Transformers for cable or bar profile
- Tropicalized rating for harsh environmental condition
- Quick retrofitment in existing panels

Features

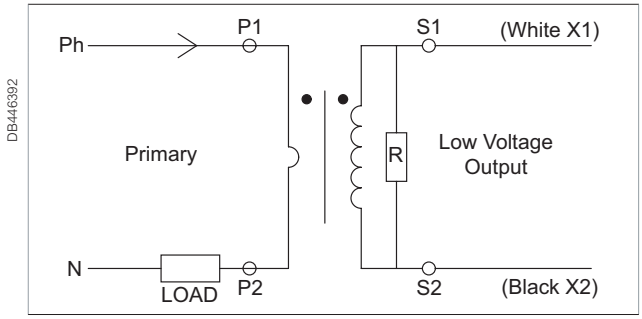
- Option of Current Transformers primary selection: from 50 to 2400 A Ip with 120% max. range
- Fully compatible with Schneider Electric's complete portfolio of industry leading metering products as well as third party measurement devices.
- Compliance with IEC measurement standards with accuracy Class 1
- Higher safety factor during installation and for facility
- For indoor use
- Low voltage output for safer installation

Conformity of Standards

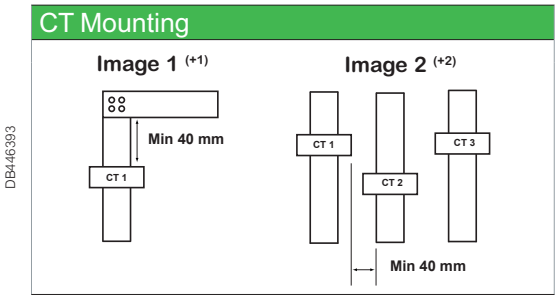
- BS/EN 61869-2:2012
- UL 2808 multi listed
- EN 61010-1
- CE/UKCA certified
- UL/CSA 61010-1
- UL/CSA 61010-2-030
- IEC/EN 61010-1
- IEC/EN 61010-2-030
- EN IEC 63000:2018
- UL/CSA 2808
- IEC 61869-2

CT Principle

When the primary circuit of a Current Transformers is energized, the CTs presents a very low impedance to the secondary circuit, resulting in a low secondary voltage across the burden.



Mounting Method



(+1) To install CS in Elbow joint of the busbars, it is recommended to separate them at a minimum of 40 mm (1.57 in) rating from 1000 to 3000 A CT.

(+2) To reduce magnetic interference between CS on adjacent busbars, it is recommended to separate them at a minimum of 40 mm (1.57 in) rating from 1000 to 3000 A CT.

Split Core LVCTs

Technical Specification

Type	Split Core (LVCT frame size - small, medium and large)	Split Core (LVCT frame size - micro)
Output at rated current	0.333 Vac	0.333 Vac
Accuracy	Class 1 as per IEC 61869-2*	Class 1 as per IEC 61869-2*
Frequency	50/60 Hz ± 3	50/60 Hz ± 3
Leads	16 AWG Twisted pair, 8 ft. (2.4 m) standard length	18 AWG Twisted pair, 6 ft. (1.8 m) standard length
Dielectric strength	5400 Vrms, 60 Hz, 60 s	METSECTLV1005U : 2210 Vrms, 60 Hz, 5 s. All other Split Core models : 3310 Vrms 60 Hz, 5 s
Rated dynamic current (I_{dyn})	2.5 I_{th}	2.5 I_{th}
Operating temperature range	-15...60 °C (5...140 °F)	0...70 °C (32...158 °F)
Storage temperature range	-40...70 °C (-40...158 °F)	-40...105 °C (-40...221 °F)
Humidity range	0...95% non-condensing	0...95% non-condensing
Max. voltage L-N sensed conductor	600 Vac (basic insulation rating)	METSECTLV1005U : 250 Vac (basic insulation rating) All other Split Core models : 600 Vac (basic insulation rating)
Altitude of operation	2000 m (6561.68 ft) max.	3000 m (9842.52 ft) max
Mounting location	Not suitable for wet locations. For indoor use only.	Not suitable for wet locations. For indoor use only.
Approvals	UL/CSA 61010-1, UL/CSA 61010-2-030, IEC/EN 61010-1, IEC/EN 61010-2-030, EN IEC 63000:2018, UL/CSA 2808	U UL/CSA 61010-1, UL/CSA 61010-2-030, IEC/EN 61010-1, IEC/EN 61010-2-030, EN IEC 63000:2018, UL/CSA 2808 L2808
Installation category	Cat III, pollution degree 2	Cat III, pollution degree 2

*Not applicable for 50 A – class 1 for ratio error and Phase displacement < ± 144 Minutes.
**Not applicable for small internal type 200...300 A CTs - Class 1 for ratio error, Phase displacement < ± 300 Minutes.

Representation of Commercial Reference Numbers for Split Core LVCTs

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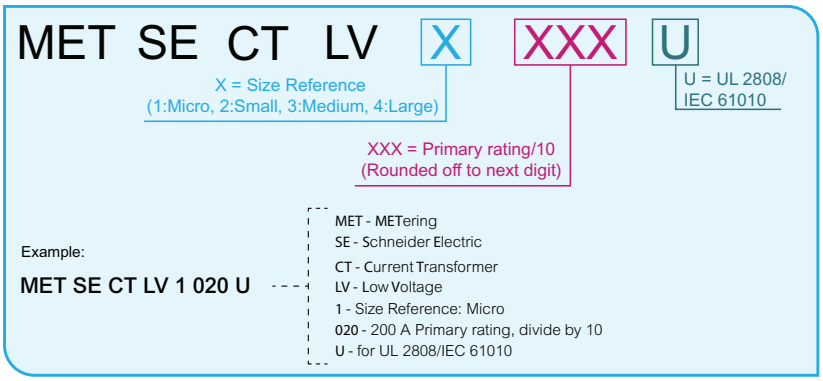
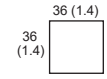
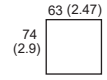
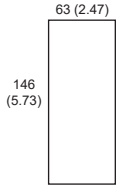
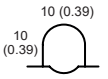
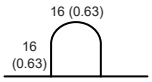
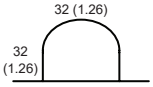


Split Core LVCTs

Commercial Reference Scheme

CS with let-through primary	CT internal type	Internal profile type and Dimension (mm (in))	Ip/0.333 V rating (+3) (A)	Accuracy class	Rated short time thermal current I_{th} (kA)	CT commercial reference
Split Core CT (bus bar)						
	Small		100	1	10.4	METSECTLV2010U
			200	1	10.8	METSECTLV2020U
			300	1	10	METSECTLV2030U
			400	1	13.8	METSECTLV2040U
	Medium		600	1	20.6	METSECTLV3060U
			800	1	35	METSECTLV3080U
	Large		800	1	35	METSECTLV4080U
			1000	1	34	METSECTLV4100U
			1200	1	41	METSECTLV4120U
			1600	1	87	METSECTLV4160U
			2000	1	109	METSECTLV4200U
			2400	1	105	METSECTLV4240U
Split Core CT (cable)						
	Micro		50	1	0.5	METSECTLV1005U
			100	1	1	METSECTLV1010U
			200	1	2	METSECTLV1020U

Split Core LVCTs

Split Core LVCT Micro Dimension

mm (in)

50 A

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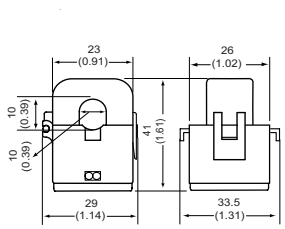
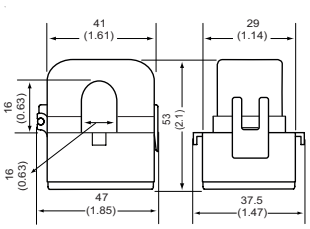


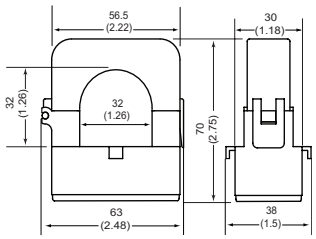
METSECTLV1005U

100 A



METSECTLV1010U

200 A



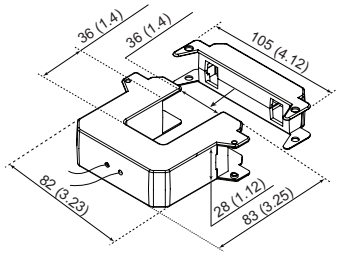
METSECTLV1020U

Split Core LVCT (Small, Medium and Large) Dimension

mm (in)

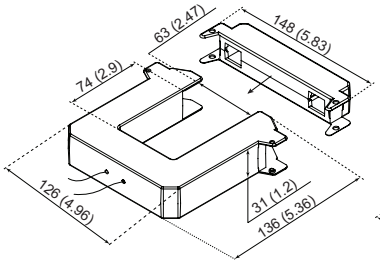
100...400 A

DB446399



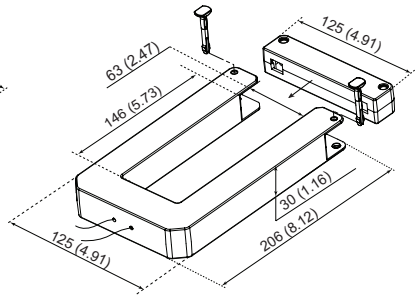
METSECTLV2010U
METSECTLV2020U
METSECTLV2030U
METSECTLV2040U

600...800 A



METSECTLV3060U
METSECTLV3080U

800...2400 A



METSECTLV4080U
METSECTLV4100U
METSECTLV4120U
METSECTLV4160U
METSECTLV4200U
METSECTLV4240U

Rogowski Coil Current Transducer Technical Datasheet

Schneider Electric is the global specialist in energy management with the most complete power monitoring product line. From simple indicators (analogue meters) and CTs, to world class energy meters and powerful compact power meters, these proven products satisfy any requirement.

Schneider Electric currently offers four proven models of PowerLogic™ Rogowski flexible core Current Tranducer. These are available from 250 to 900 mm in length operating in a current range of 50 to 5000 A.

PB118060

Rogowski Coil Current Transducer

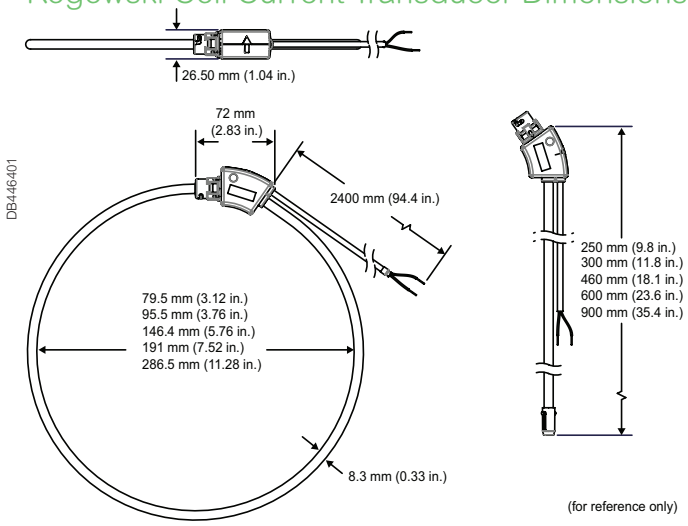
The CTRx Series of Rogowski flexible rope style Current Transducer provide secondary AC voltage proportional to the primary (sensed) current. Recommended to use with Schneider make EM35xxA, iEM35x5, EM42xx and EM3570 series power meters.
The CTRx Series Current Transducers provide a cost-effective means to transform electrical service amperages to a voltage compatible with monitoring equipment. The flexible core makes it easy to fit in tight enclosures. These products provide reinforced insulation between the sensed conductor and the output leads.

Technical specification

Specification for commercial reference	METSECTR25500U, METSECTR30500U, METSECTR46500U, METSECTR60500U, METSECTR90500U
Range	PowerLogic™
Product or component type	Current Transducer
Accessory/part category	Measurement accessory
Range compatibility	PowerLogic™ EM3500 - EM3555A EM3502A EM3560 EM3550A EM3560 EM3561A EM3570 PowerLogic™ EM4200 - EM4236 EM4235 Acti9 iEM3000 - iEM3555 iEM3565
Current transformer type	Flexible core
Specification	
Connecting cable - flying lead	2.4 m (8 ft), 600 V L-N AC max.
Connecting cable specification	1000 V awm style 20167 cable with 24 AWG leads
Coil current range	50...1000 A for METSECTR25500U 50...2000 A for METSECTR30500U 50...5000 A for all models except for METSECTR25500U and METSECTR30500U
Output voltage	58.3 mV/kA @ 50 Hz, 70 mV/kA @ 60 Hz
Network frequency of coil	50/60 Hz
Measurement accuracy of coil	Class 1-A1 as per IEC 61869-10
Installation category of coil	600 Vac Cat IV
Pollution degree of coil	2
Environmental characteristics	
Approvals	ANSI/CAN/UL 2808 Ed.3, CSA C22.2 NO. 61010-1-12, IEC 61010-1, EN IEC 63000:2018
Ambient air temperature for operation	-35 to 75 °C (-31 to 167 °F) up to 2 kA -35 to 60 °C (-31 to 140 °F) from 2 to 5 kA
Ambient air temperature for storage	-40 to 90 °C (-40 to 158 °F)
Humidity range	0...95 % non-condensing
Altitude	2000 m (6561.68 ft) max.
Protection degree	IP65
Commercial Reference Numbers	
METSECTR25500U	CT Rogowski 250 mm (9.8 in) coil, 1000 A, Lead length 2.4 m (8 ft)
METSECTR30500U	CT Rogowski 300 mm (11.8 in) coil, 2000 A, Lead length 2.4 m (8 ft)
METSECTR46500U	CT Rogowski 460 mm (18.1 in) coil 5000 A, Lead length 2.4 m (8 ft)
METSECTR60500U	CT Rogowski 600 mm (23.6 in) coil 5000 A, Lead length 2.4 m (8 ft)
METSECTR90500U	CT Rogowski 900 mm (35.4 in) coil 5000 A, Lead length 2.4 m (8 ft)

Please contact your Schneider Electric representative for complete ordering information.

Rogowski Coil Current Transducer Dimensions



Commercial Reference Numbers	CT core thickness (mm (In))	CT core length (open) (mm (In))	Diameter (closed) (mm (In))
METSECTR25500U	8.3 (0.33) dia	250 (9.8)	79.5 (3.12)
METSECTR30500U	8.3 (0.33) dia.	300 (11.8)	95.5 (3.76)
METSECTR46500U	8.3 (0.33) dia.	460 (18.1)	146.4 (5.76)
METSECTR60500U	8.3 (0.33) dia.	600 (23.6)	191 (7.52)
METSECTR90500U	8.3 (0.33) dia.	900 (35.4)	286.5 (11.28)

See the appropriate **Installation Guide** for correct installation instructions.

www.se.com

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PowerLogic™ UL 2808 Current Transformers
PLSED323102EN