Medium Voltage Distribution

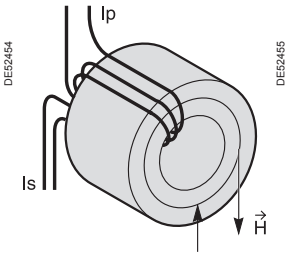
Indoor instrument transformers

Current transformers
Voltage transformers

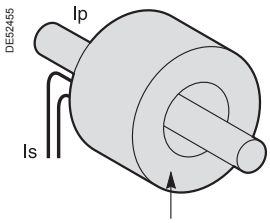
Catalogue
2008

Schneider Electric

Current transformers (CT) meet standard IEC 60044-1.
Their function is to supply the secondary circuit with a current that is proportional to that of the MV circuit on which they are installed.
The primary is series-mounted on the MV network and subject to the same over-currents as the latter and withstands the MV voltage.
The secondary generally has one of its terminals connected to earth.
***The secondary must never be in an open circuit** (short circuit).*



Wound type primary current transformer



Closed core type current transformer

Current transformers

Current transformers have two basic functions:
- adapting the MV current value at the primary to the characteristics of the metering or protection devices by supplying a secondary current with a reduced, but proportional current value
- isolating power circuits from the metering and/or protection circuit.

Composition and types

A current transformer comprises a primary circuit and a secondary circuit connected via a magnetic core and an insulating coating system in epoxy-silica, in the case of Schneider Electric transformers.
The device is of the following type:
- wound: when the primary and the secondary have a coil wound on the magnetic circuit
- slip-over: primary made up of a conductor that is not insulated from the installation
- core: primary made up of an insulated cable.

Characteristics

These are defined in standard IEC 60044-1.

Insulation
Characterized by the rated voltage:
- of the insulation, which is that of the installation (e.g.: 24 kV)
- of the power frequency withstand 1 min (e.g.: 50 kV)
- of the impulse withstand (e.g.: 125 kV).

Rated frequency
50 or 60 Hz.

Rated primary current (Ipn)
Rms value of the maximum continuous primary current. Usual values are 25, 50, 75, 100, 200, 400, 600 A.

Rated secondary current (Isn)
This is equal to 1 A or 5 A.

Rated transformation ratio
Kn = I rated primary / I rated secondary (e.g.: 100 A / 5 A)

Short-time thermal current Ith - 1 second
This characterizes the thermal withstand under short circuit conditions for 1 second. It is expressed in kA or in a multiple of the rated primary current (e.g.: 80 x Ipn) for 1 second.
The value for a **duration that is different to 1 second** is given by:
$I'th = Ith/\sqrt{2}$
For example 16 kA - 1 s is equivalent for 2 s to $I'th = 16 \times \sqrt{2} = 22.6$ kA.

Selection guide
Technical description (cont.)

Characteristics (cont.)

Short-time thermal current peak value
This value is standardized from Ith - 1 s at:
- IEC: 2.5 Ith at 50 Hz and 2.6 Ith at 60 Hz
- ANSI: 2.7 Ith 60 Hz.

Accuracy load
The value of the load on which is based the metered current accuracy conditions.

Accuracy power Pn
Apparent power (VA) that the CT can supply on the secondary for the rated secondary current for which the accuracy is guaranteed (accuracy load).
Usual values 5 - 7.5 - 10 - 15 VA (IEC).

Accuracy class
Defines the limits of error guaranteed on the transformation ratio and on the phase shift under the specified conditions of power and current. Classes **0.5** and **1** are used for metering class **P** for protection.

Current error ε (%)
Error that the transformer introduces in the measurement of a current when the transformation ratio is different from the rated value.

Phase shift or phase error ψ (minute)
Difference in phase between the primary and secondary currents, in angle minutes.

Table of current transformer characteristics

Characteristics	Rated values				
Rated voltage (kV)	7.2	12	17.5	24	36
Insulation level: ■ power frequency withstand (kV) 1 min ■ lightning impulse withstand (kV - peak)	 20 60	 28 75	 38 95	 50 125	 70 170
Frequency (Hz)	50 - 60				
Primary current Ipn (A)	25 - 50 - 75 - 100 - 200 - 400 - 600...				
Short-time thermal current Ith (1 s)	12.5 - 16 - 20 - 25 - 31.5 - 40 - 50 kA or 40 - 80 - 100 - 200 - 300 x In				
Secondary current Isn (A)	1 - 5				
Accuracy power Pn (VA)	2.5 - 5 - 7.5 - 10 - 15				

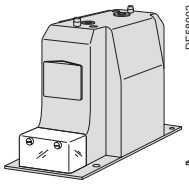
Selection guide
Using the order forms

The tables on the following pages allow you to define the current transformer reference that corresponds to the necessary and required characteristics, and to place your order.
The selection factors enabling you to find the reference you require are explained in the example given below for a DIN type metering CT, in reference to the previous definitions.

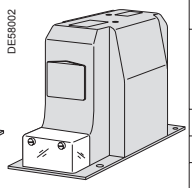
Network insulation 12 kV — Rated primary current 75 A and secondary output 5 A — Short-time thermal current MV side 31.5 A - 1 s — Power supplied to the secondary 15 VA. Accuracy class 0.5 defines the metering error limits. The safety factor is < 10 — Mark the quantity to be ordered

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Quantity
Ur 12 kV **Ud 28 kV - 1 min** **Up 75 kV peak**	50 / 5	12.5	15 VA cl. 0.5 Fs < 10	AD12	**03811366N0**	
		16		AD12	**03811368N0**	
	75 / 5	25		AD12	**03811371N0**	
		31.5		AD12	**03811373N0**	
fr 50/60 Hz	100 / 5	25		AD12	**03811376N0**	
		31.5		AD12	**03811378N0**	
	200 / 5	25		AD12	**03811380N0**	
		31.5		AD12	**03811382N0**	
		40		AD12	**03811384N0**	
	400 / 5	40		AD12	**03811386N0**	
	600 / 5	50	20 VA cl. 0.5 Fs < 10	AD12	**03811388N0**	
	750 / 5	50		AD12	**03811390N0**	
AD12N1 **AD13N1**	1000 / 5	50	30 VA cl. 0.5 Fs < 10	AD13	**03811392N0**	
Dimensions page 21	1250 / 5	50		AD13	**03811394N0**	

DE58001



DE58002



Calculating the power (VA)

Indicative metering consumptions

Device		Max. consumption in VA (per circuit)
Ammeter	Electromagnetic	3
	Electronic	1
Transducer	Self-powered	3
	External powered	1
Meter	Induction	2
	Electronic	1
	Wattmeter, varmeter	1

Indicative protection consumption

Device	Max. consumption in VA (per circuit)
Static over-current relay	0.2 to 1
Electromagnetic over-current relay	1 to 8

Indicative secondary cabling consumption

Cables (mm^2)	Consumption (VA/m)	
	1 A	5 A
2.5	0.008	0.2
4	0.005	0.13
6	0.003	0.09
10	0.002	0.05

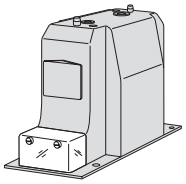
Order form

DIN standard 12 kV CT - single and double secondary

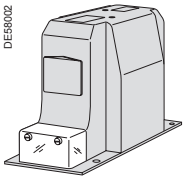
Single secondary metering CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 12 kV **Ud 28 kV - 1 min** **Up 75 kV peak** **fr 50/60 Hz**	50 / 5	12.5	15 VA cl. 0.5 Fs < 10	AD12/N1	**03811366N0**	
		16		AD12/N1	**03811368N0**	
	75 / 5	25		AD12/N1	**03811371N0**	
		31.5		AD12/N1	**03811373N0**	
	100 / 5	25		AD12/N1	**03811376N0**	
		31.5		AD12/N1	**03811378N0**	
	200 / 5	25		AD12/N1	**03811380N0**	
		31.5		AD12/N1	**03811382N0**	
		40		AD12/N1	**03811384N0**	
	400 / 5	40		AD12/N1	**03811386N0**	
	600 / 5	50	20 VA cl. 0.5 Fs < 10	AD12/N1	**03811388N0**	
	750 / 5	50		AD12/N1	**03811390N0**	
	1000 / 5	50	30 VA cl. 0.5 Fs < 10	AD13/N1	**03811392N0**	
	1250 / 5	50		AD13/N1	**03811394N0**	

DE58001



DE58002



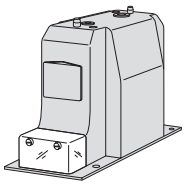
AD12 **AD13**

Dimensions page 21

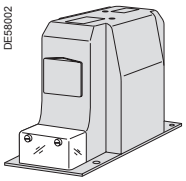
Single secondary protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 12 kV **Ud 28 kV - 1 min** **Up 75 kV peak** **fr 50/60 Hz**	50 / 5	12.5	15 VA 5P10 - 7.5 VA 5P20	AD12/N1	**03811367N0**	
		16		AD12/N1	**03811369N0**	
		25	7.5 VA 5P10	AD12/N1	**03811370N0**	
	75 / 5	25	15 VA 5P10 - 7.5 VA 5P20	AD12/N1	**03811372N0**	
		31.5	7.5 VA 5P10	AD12/N1	**03811374N0**	
		40		AD12/N1	**03811375N0**	
	100 / 5	25	15 VA 5P10 - 7.5 VA 5P20	AD12/N1	**03811377N0**	
		31.5		AD12/N1	**03811379N0**	
		40	7.5 VA 5P10	AD12/N1	**03811839N0**	
	200 / 5	25	15 VA 5P10 - 7.5 VA 5P20	AD12/N1	**03811381N0**	
		31.5		AD12/N1	**03811383N0**	
		40		AD12/N1	**03811385N0**	
	400 / 5	40		AD12/N1	**03811387N0**	
	600 / 5	50		AD12/N1	**03811389N0**	
	750 / 5	50		AD12/N1	**03811391N0**	
	1000 / 5	50	10 VA 5P20	AD13/N1	**03811393N0**	
	1250 / 5	50		AD13/N1	**03811395N0**	

DE58001



DE58002



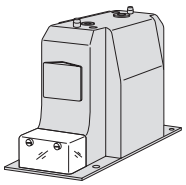
AD12 **AD13**

Dimensions page 21

Double secondary metering and protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 12 kV **Ud 28 kV - 1 min** **Up 75 kV peak** **fr 50/60 Hz**	50 / 5-5	12.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD12/N2	**03811396N0**	
		16			AD12/N2	**03811397N0**	
	75 / 5-5	16			AD12/N2	**03811398N0**	
		25			AD12/N2	**03811399N0**	
	100 / 5-5	25			AD12/N2	**03811400N0**	
		31.5			AD12/N2	**03811401N0**	
	200 / 5-5	25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD12/N2	**03811402N0**	
		31.5			AD12/N2	**03811403N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD12/N2	**03811404N0**	
	400 / 5-5	40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD12/N2	**03811405N0**	
	600 / 5-5	50	20 VA cl. 0.5 Fs < 10		AD12/N2	**03811406N0**	
	750 / 5-5	50			AD12/N2	**03811407N0**	
	1000 / 5-5	50	30 VA cl. 0.5 Fs < 10	10 VA 5P20	AD13/N2	**03811408N0**	
	1250 / 5-5	50			AD13/N2	**03811409N0**	

DE58001



AD12

Dimensions page 21

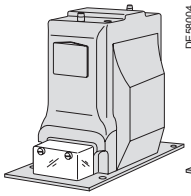
Order form

DIN standard 24 kV CT - single secondary

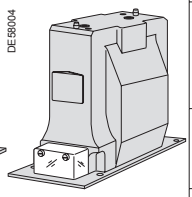
Single secondary metering CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 24 kV **Ud 50 kV - 1 min** **Up 125 kV peak** **fr 50/60 Hz**	25 / 5	16	15 VA cl. 0.5 Fs < 10	AD22/N1	**03811410N0**	
		20		AD22/N1	**03811413N0**	
	50 / 5	20		AD21/N1	**03811416N0**	
		20		AD22/N1	**03811419N0**	
		20		AD22/N1	**03811421N0**	
	75 / 5	16		AD21/N1	**03811424N0**	
		25		AD21/N1	**03811427N0**	
		31.5		AD21/N1	**03811430N0**	
		40		AD22/N1	**03811433N0**	
	100 / 5	25		AD21/N1	**03811436N0**	
		31.5		AD21/N1	**03811439N0**	
		40		AD22/N1	**03811442N0**	
	200 / 5	25		AD21/N1	**03811443N0**	
		31.5		AD21/N1	**03811445N0**	
		40		AD21/N1	**03811447N0**	
	400 / 5	40		AD21/N1	**03811450N0**	
	600 / 5	50	20 VA cl. 0.5 Fs < 10	AD21/N1	**03811452N0**	
	750 / 5	50		AD21/N1	**03811454N0**	
	1000 / 5	50	30 VA cl. 0.5 Fs < 10	AD23/N1	**03811456N0**	
	1250 / 5	50		AD23/N1	**03811458N0**	
	1500 / 5	50		AD23/N1	**03811460N0**	
	2000 / 5	50		AD23/N1	**03811462N0**	
	2500 / 5	50		AD23/N1	**03811464N0**	

DE58003

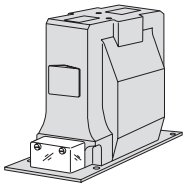


DE58004



AD21 **AD22**

DE58005



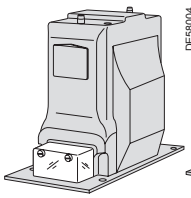
AD23

Dimensions page 21

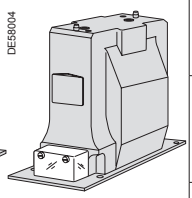
Single secondary protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 24 kV **Ud 50 kV - 1 min** **Up 125 kV peak** **fr 50/60 Hz**	25 / 5	16	7.5 VA 5P10	AD22/N1	**03811411N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	ARJD/N1	**03811412N0**	
		20	7.5 VA 5P10	AD22/N1	**03811414N0**	
		20	15 VA 5P10 - 7.5 VA 5P20	ARJD/N1	**03811415N0**	
	50 / 5	20	7.5 VA 5P10	AD21/N1	**03811417N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811418N0**	
		20		AD22/N1	**03811420N0**	
		20		ARJD/N1	**03811422N0**	
		20	7.5 VA 5P10	ARJD/N1	**03811423N0**	
	75 / 5	16		AD21/N1	**03811425N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811426N0**	
		25	7.5 VA 5P10	AD21/N1	**03811428N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811429N0**	
		31.5	7.5 VA 5P10	AD21/N1	**03811431N0**	
		31.5	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811432N0**	
		40	7.5 VA 5P10	AD22/N1	**03811434N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARJD/N1	**03811435N0**	
	100 / 5	25	7.5 VA 5P10	AD21/N1	**03811437N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811438N0**	
		31.5	7.5 VA 5P10	AD21/N1	**03811440N0**	
		31.5	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811441N0**	
	200 / 5	25		AD21/N1	**03811444N0**	
		31.5		AD21/N1	**03811446N0**	
		40	7.5 VA 5P10	AD21/N1	**03811448N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	AD22/N1	**03811449N0**	
	400 / 5	40		AD21/N1	**03811451N0**	
	600 / 5	50		AD21/N1	**03811453N0**	
	750 / 5	50		AD21/N1	**03811455N0**	
	1000 / 5	50	10 VA 5P20	AD23/N1	**03811457N0**	
	1250 / 5	50		AD23/N1	**03811459N0**	
	1500 / 5	50	15 VA 5P20	AD23/N1	**03811461N0**	
	2000 / 5	50		AD23/N1	**03811463N0**	
	2500 / 5	50		AD23/N1	**03811465N0**	

DE58003

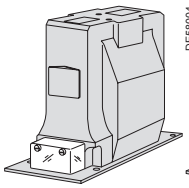


DE58004

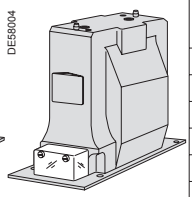


AD21 **AD22**

DE58005



DE58004



AD23 **ARJD**

Dimensions page 21

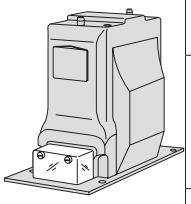
Order form

DIN standard 24 kV CT - double secondary

Double secondary metering and protection CT

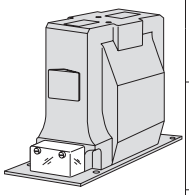
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 24 kV **Ud 50 kV - 1 min** **Up 125 kV peak** **fr 50/60 Hz**	25 / 5-5	16	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD22/N2	**03811466N0**	
		20			ARJD/N2	**03811467N0**	
	50 / 5-5	16			AD21/N2	**03811468N0**	
		16		15 VA 5P10 - 7.5 VA 5P20	ARJD/N2	**03811469N0**	
		25		7.5 VA 5P10	AD22/N2	**03811470N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJD/N2	**03811471N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJD/N2	**03811472N0**	
	75 / 5-5	16	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD21/N2	**03811473N0**	
		25			AD21/N2	**03811474N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD22/N2	**03811475N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJD/N2	**03811476N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJD/N2	**03811477N0**	
	100 / 5-5	25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD21/N2	**03811478N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD21/N2	**03811479N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD22/N2	**03811480N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD22/N2	**03811481N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJD/N2	**03811482N0**	
	200 / 5-5	31.5			AD21/N2	**03811483N0**	
		40			AD21/N2	**03811484N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	AD21/N2	**03811485N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	AD22/N2	**03811486N0**	
	400 / 5-5	40			AD21/N2	**03811487N0**	
	600 / 5-5	40	20 VA cl. 0.5 Fs < 10		AD21/N2	**03811488N0**	
	750 / 5-5	40			AD21/N2	**03811489N0**	
	1000 / 5-5	40	30 VA cl. 0.5 Fs < 10		AD23/N2	**03811490N0**	
	1250 / 5-5	40			AD23/N2	**03811491N0**	
	1500 / 5-5	40			AD23/N2	**03811492N0**	
	2000 / 5-5	40			AD23/N2	**03811493N0**	
	2500 / 5-5	40			AD23/N2	**03811494N0**	

DE58003



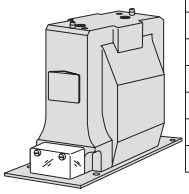
AD21

DE58005



AD23

DE58004



ARJD

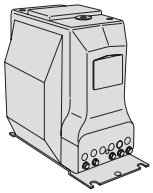
Dimensions page 21

Order form

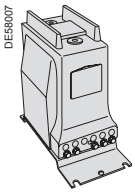
24 kV primary conductor support CT - single secondary

Single secondary metering CT

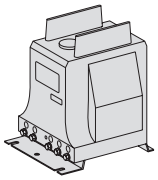
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 24 kV **Ud 50 kV - 1 min** **Up 125 kV peak** **fr 50/60 Hz**	25 / 5	16	15 VA cl. 0.5 Fs < 10	ARJM2/N1J	**03811495N0**	
		25		ARJM2/N1J	**03811498N0**	
	50 / 5	16		ARJP1/N1J	**03811501N0**	
		25		ARJM2/N1J	**03811504N0**	
		31.5		ARJM2/N1J	**03811507N0**	
	75 / 5	25		ARJP1/N1J	**03811510N0**	
		31.5		ARJP1/N1J	**03811513N0**	
		40		ARJM2/N1J	**03811516N0**	
	100 / 5	25		ARJP1/N1J	**03811519N0**	
		31.5		ARJP1/N1J	**03811522N0**	
		40		ARJM2/N1J	**03811525N0**	
	200 / 5	25		ARJP1/N1J	**03811526N0**	
		31.5		ARJP1/N1J	**03811528N0**	
		40		ARJP1/N1J	**03811530N0**	
	400 / 5	40		ARJP1/N1J	**03811533N0**	
	600 / 5	50	20 VA cl. 0.5 Fs < 10	ARJP1/N1J	**03811535N0**	
	750 / 5	50		ARJP1/N1J	**03811537N0**	
	1000 / 5	50	30 VA cl. 0.5 Fs < 10	ARJP3/N1J	**03811539N0**	
	1250 / 5	50		ARJP3/N1J	**03811541N0**	
	1500 / 5	50		ARJA1/N1J	**03811543N0**	
	2000 / 5	50		ARJA1/N1J	**03811545N0**	
	2500 / 5	50		ARJA1/N1J	**03811547N0**	

DE58006 

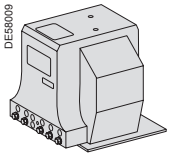
ARJM2

DE58007 

ARJP1

DE58008 

ARJP3

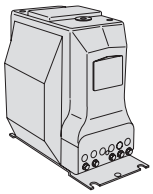
DE58009 

ARJA1

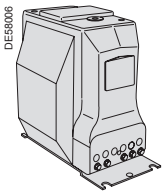
Dimensions page 22

Single secondary protection CT

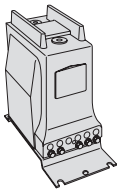
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 24 kV **Ud 50 kV - 1 min** **Up 125 kV peak** **fr 50/60 Hz**	25 / 5	16	7.5 VA 5P10	ARJM2/N1J	**03811496N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	ARJH/N1J	**03811497N0**	
		25	7.5 VA 5P10	ARJM2/N1J	**03811499N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	ARJH/N1J	**03811500N0**	
	50 / 5	16	7.5 VA 5P10	ARJP1/N1J	**03811502N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	ARJP2/N1J	**03811503N0**	
		25	7.5 VA 5P10	ARJP2/N1J	**03811505N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N1J	**03811506N0**	
		31.5		ARJH/N1J	**03811508N0**	
		40	7.5 VA 5P10	ARJH/N1J	**03811509N0**	
	75 / 5	25		ARJP1/N1J	**03811511N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	ARJP2/N1J	**03811512N0**	
		31.5	7.5 VA 5P10	ARJP2/N1J	**03811514N0**	
		31.5	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N1J	**03811515N0**	
		40	7.5 VA 5P10	ARJP2/N1J	**03811517N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARJH/N1J	**03811518N0**	
	100 / 5	25	7.5 VA 5P10	ARJP1/N1J	**03811520N0**	
		25	15 VA 5P10 - 7.5 VA 5P20	ARJP2/N1J	**03811521N0**	
		31.5	7.5 VA 5P10	ARJP1/N1J	**03811523N0**	
		31.5	15 VA 5P10 - 7.5 VA 5P20	ARJP2/N1J	**03811524N0**	
		40	7.5 VA 5P10	ARJP2/N1J	**03811840N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARJH/N1J	**03811841N0**	
	200 / 5	31.5		ARJP1/N1J	**03811527N0**	
		40		ARJP1/N1J	**03811529N0**	
		40	7.5 VA 5P10	ARJP1/N1J	**03811531N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARJP2/N1J	**03811532N0**	
	400 / 5	40		ARJP1/N1J	**03811534N0**	
	600 / 5	50		ARJP1/N1J	**03811536N0**	
	750 / 5	50		ARJP1/N1J	**03811538N0**	
	1000 / 5	50	10 VA 5P20	ARJP3/N1J	**03811540N0**	
	1250 / 5	50		ARJP3/N1J	**03811542N0**	
	1500 / 5	50	15 VA 5P20	ARJA1/N1J	**03811544N0**	
	2000 / 5	50		ARJA1/N1J	**03811546N0**	
	2500 / 5	50		ARJA1/N1J	**03811548N0**	

DE58006 

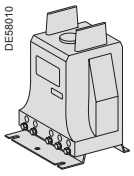
ARJM2

DE58006 

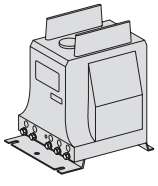
ARJH

DE58007 

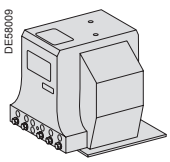
ARJP1

DE58010 

ARJP2

DE58008 

ARJP3

DE58009 

ARJA1

Dimensions page 22

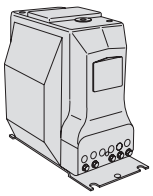
Order form

24 kV primary conductor support CT - double secondary

Double secondary metering and protection CT

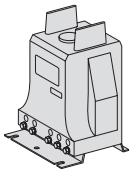
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 24 kV Ud 50 kV - 1 min Up 125 kV peak fr 50/60 Hz	25 / 5-5	12.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJH/N2J	**03811549N0**	
		20			ARJH/N2J	**03811550N0**	
	50 / 5-5	16			ARJP2/N2J	**03811551N0**	
		16	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N2J	**03811552N0**	
		25	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811553N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJH/N2J	**03811554N0**	
		31.5			ARJH/N2J	**03811555N0**	
	75 / 5-5	16	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811556N0**	
		16	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N2J	**03811557N0**	
		25	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811558N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N2J	**03811559N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811560N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJH/N2J	**03811561N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJH/N2J	**03811562N0**	
	100 / 5-5	25			ARJP2/N2J	**03811563N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJM2/N2J	**03811564N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811565N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJH/N2J	**03811566N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811567N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJH/N2J	**03811568N0**	
	200 / 5-5	25			ARJP2/N2J	**03811569N0**	
		31.5			ARJP2/N2J	**03811570N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARJP2/N2J	**03811571N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARJH/N2J	**03811572N0**	
	400 / 5-5	40			ARJP2/N2J	**03811573N0**	
	600 / 5-5	40	20 VA cl. 0.5 Fs < 10		ARJP2/N2J	**03406314F0**	
	750 / 5-5	40			ARJP2/N2J	**03406332F0**	
	1000 / 5-5	50	30 VA cl. 0.5 Fs < 10	10 VA 5P20	ARJP3/N2J	**03406333F0**	
	1250 / 5-5	50			ARJP3/N2J	**03406315F0**	
	1500 / 5-5	50		15 VA 5P20	ARJA1/N2J	**03406335F0**	
	2000 / 5-5	50			ARJA1/N2J	**03406336F0**	
	2500 / 5-5	50			ARJA1/N2J	**03406337F0**	

DE58006



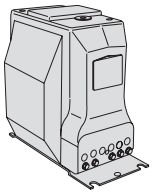
ARJH

DE58010



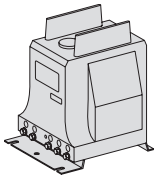
ARJP2

DE58006



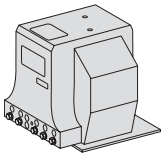
ARJM2

DE58008



ARJP3

DE58009



ARJA1

Dimensions page 22

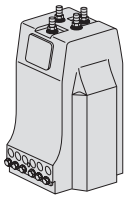
Order form

36 kV primary conductor support CT - single secondary

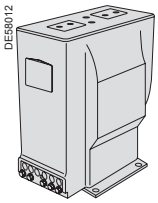
Single secondary metering CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 36 kV **Ud 70 kV - 1 min** **Up 170 kV peak** **fr 50/60 Hz**	25 / 5	16	15 VA cl. 0.5 Fs < 10	ARM6T/N1	**03811574N0**	
		20		ARM6T/N1	**03811577N0**	
	50 / 5	16		ARM6T/N1	**03811580N0**	
		25		ARM6T/N1	**03811582N0**	
		31.5		ARM6T/N1	**03811584N0**	
	75 / 5	25		ARM6T/N1	**03811588N0**	
		31.5		ARM6T/N1	**03811590N0**	
		40		ARM6T/N1	**03811592N0**	
	100 / 5	25		ARM6T/N1	**03811595N0**	
		31.5		ARM6T/N1	**03811597N0**	
		40		ARM6T/N1	**03811599N0**	
	200 / 5	25		ARM6T/N1	**03811602N0**	
		31.5		ARM6T/N1	**03811604N0**	
		40		ARM6T/N1	**03811606N0**	
	400 / 5	40		ARM6T/N1	**03811608N0**	
	600 / 5	40	20 VA cl. 0.5 Fs < 10	ARM6T/N1	**03811610N0**	
	750 / 5	40		ARM6T/N1	**03811612N0**	
	1000 / 5	40	30 VA cl. 0.5 Fs < 10	ARM9T/N1	**03811614N0**	
	1250 / 5	40		ARM9T/N1	**03811616N0**	
	1500 / 5	40		ARM9T/N1	**03811618N0**	
	2000 / 5	40		ARM9T/N1	**03811620N0**	
	2500 / 5	40		ARM9T/N1	**03811622N0**	

DE58011



DE58012



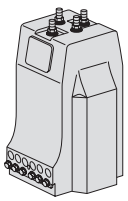
ARM6T **ARM9T**

Dimensions page 23

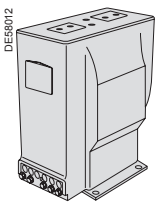
Single secondary protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 36 kV **Ud 70 kV - 1 min** **Up 170 kV peak** **fr 50/60 Hz**	25 / 5	16	7.5 VA 5P10	ARM6T/N1	**03811575N0**	
		16	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N1	**03811576N0**	
		20	7.5 VA 5P10	ARM6T/N1	**03811578N0**	
		20	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N1	**03811579N0**	
	50 / 5	16		ARM6T/N1	**03811581N0**	
		25		ARM6T/N1	**03811583N0**	
		31.5	7.5 VA 5P10	ARM6T/N1	**03811585N0**	
		31.5	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N1	**03811586N0**	
		40	7.5 VA 5P10	ARM9T/N1	**03811587N0**	
	75 / 5	25	15 VA 5P10 - 7.5 VA 5P20	ARM6T/N1	**03811589N0**	
		31.5		ARM6T/N1	**03811591N0**	
		40	7.5 VA 5P10	ARM6T/N1	**03811593N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N1	**03811594N0**	
	100 / 5	25		ARM6T/N1	**03811596N0**	
		31.5		ARM6T/N1	**03811598N0**	
		40	7.5 VA 5P10	ARM6T/N1	**03811600N0**	
		40	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N1	**03811601N0**	
	200 / 5	25		ARM6T/N1	**03811603N0**	
		31.5		ARM6T/N1	**03811605N0**	
		40		ARM6T/N1	**03811607N0**	
	400 / 5	40		ARM6T/N1	**03811609N0**	
	600 / 5	40		ARM6T/N1	**03811611N0**	
	750 / 5	40		ARM6T/N1	**03811613N0**	
	1000 / 5	40	10 VA 5P20	ARM9T/N1	**03811615N0**	
	1250 / 5	40		ARM9T/N1	**03811617N0**	
	1500 / 5	40	15 VA 5P20	ARM9T/N1	**03811619N0**	
	2000 / 5	40		ARM9T/N1	**03811621N0**	
	2500 / 5	40		ARM9T/N1	**03811623N0**	

DE58011



DE58012



ARM6T **ARM9T**

Dimensions page 23

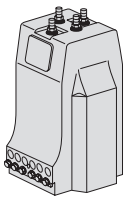
Order form

36 kV primary conductor support CT - double secondary

Double secondary metering and protection CT

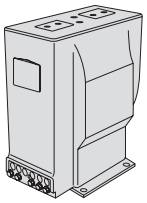
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 36 kV Ud 70 kV - 1 min Up 170 kV peak fr 50/60 Hz	25 / 5-5	16	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811624N0**	
		20			ARM9T/N2	**03811625N0**	
	50 / 5-5	16			ARM6T/N2	**03811626N0**	
		16	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811627N0**	
		25	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811628N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811629N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM9T/N2	**03811630N0**	
	75 / 5-5	25			ARM6T/N2	**03811631N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811632N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811633N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811634N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM9T/N2	**03811635N0**	
	100 / 5-5	25			ARM6T/N2	**03811636N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811637N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811638N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811639N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811640N0**	
	200 / 5-5	25			ARM6T/N2	**03811641N0**	
		25	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811642N0**	
		31.5	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811643N0**	
		31.5	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811644N0**	
		40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811645N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811646N0**	
	400 / 5-5	40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811647N0**	
		40	15 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811648N0**	
	600 / 5-5	40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811649N0**	
		40	20 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811650N0**	
	750 / 5-5	40	7.5 VA cl. 0.5 Fs < 10	7.5 VA 5P10	ARM6T/N2	**03811651N0**	
		40	20 VA cl. 0.5 Fs < 10	15 VA 5P10 - 7.5 VA 5P20	ARM9T/N2	**03811652N0**	
	1000 / 5-5	40	30 VA cl. 0.5 Fs < 10	10 VA 5P20	ARM9T/N2	**03811653N0**	
	1250 / 5-5	40			ARM9T/N2	**03811654N0**	
	1500 / 5-5	40		15 VA 5P20	ARM9T/N2	**03811655N0**	
	2000 / 5-5	40			ARM9T/N2	**03811656N0**	
	2500 / 5-5	40			ARM9T/N2	**03811657N0**	

DE58011



ARM6T

DE58012



ARM9T

Dimensions page 23

Order form

17.5 - 24 - 36 kV - slip-over CT
single and double secondary

Single secondary metering CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 17.5 kV Ud 38 kV - 1 min Up 95 kV peak fr 50/60 Hz	2500 / 5	50	30 VA cl. 0.5 Fs < 10	ARO1b/N1	**03811842N0**	
	3000 / 5	50		ARO1b/N1	**03811659N0**	
Ur 24 kV Ud 50 kV - 1 min Up 125 kV peak fr 50/60 Hz	2500 / 5	50	30 VA cl. 0.5 Fs < 10	ARO2/N1	**03811661N0**	
	3000 / 5	50		ARO2/N1	**03811663N0**	
Ur 36 kV Ud 70 kV - 1 min Up 170 kV peak fr 50/60 Hz	2500 / 5	50	30 VA cl. 0.5 Fs < 10	ARO2/N1	**03811665N0**	
	3000 / 5	50		ARO2/N1	**03811667N0**	

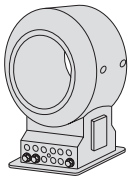
Single secondary protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 17.5 kV Ud 38 kV - 1 min Up 95 kV peak fr 50/60 Hz	2500 / 5	50	15 VA 5P20	ARO1b/N1	**03811658N0**	
	3000 / 5	50		ARO1b/N1	**03811660N0**	
Ur 24 kV Ud 50 kV - 1 min Up 125 kV peak fr 50/60 Hz	2500 / 5	50	15 VA 5P20	ARO2/N1	**03811662N0**	
	3000 / 5	50		ARO2/N1	**03811664N0**	
Ur 36 kV Ud 70 kV - 1 min Up 170 kV peak fr 50/60 Hz	2500 / 5	50	15 VA 5P20	ARO2/N1	**03811666N0**	
	3000 / 5	50		ARO2/N1	**03811668N0**	

Double secondary metering and protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 17.5 kV Ud 38 kV - 1 min Up 95 kV peak fr 50/60 Hz	2500 / 5 - 5	50	30 VA cl. 0.5 Fs < 10	15 VA 5P20	ARO1b/N2	**03811669N0**	
	3000 / 5 - 5	50			ARO1b/N2	**03811670N0**	
Ur 24 kV Ud 50 kV - 1 min Up 125 kV peak fr 50/60 Hz	2500 / 5 - 5	50	30 VA cl. 0.5 Fs < 10	15 VA 5P20	ARO2/N2	**03811671N0**	
	3000 / 5 - 5	50			ARO2/N2	**03811672N0**	
Ur 36 kV Ud 70 kV - 1 min Up 170 kV peak fr 50/60 Hz	2500 / 5 - 5	50	30 VA cl. 0.5 Fs < 10	15 VA 5P20	ARO2/N2	**03811673N0**	
	3000 / 5 - 5	50			ARO2/N2	**03811674N0**	

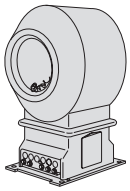
DE58013



ARO1b

Dimensions page 23

DE58014



ARO2

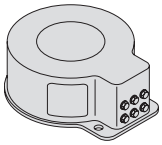
Order form

0.72 kV closed core CT - single and double secondary

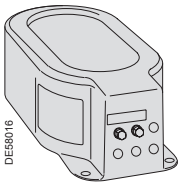
Single secondary metering CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power, accuracy class, safety factor FS	Type	Reference	Qty
Ur 0.72 kV **Ud 3 kV - 1 min** **fr 50/60 Hz**	150 / 5	50	7.5 VA cl. 0.5 Fs < 10	ARC2/N1	**03811675N0**	
	200 / 5	50		ARC2/N1	**03811676N0**	
	250 / 5	50	15 VA cl. 0.5 Fs < 10	ARC2/N1	**03811677N0**	
	300 / 5	50		ARC2/N1	**03811678N0**	
	400 / 5	50		ARC2/N1	**03811679N0**	
	600 / 5	50	20 VA cl. 0.5 Fs < 10	ARC2/N1	**03811680N0**	
	750 / 5	50		ARC3/N1	**03811681N0**	
	1000 / 5	50	30 VA cl. 0.5 Fs < 10	ARC3/N1	**03811682N0**	
	1250 / 5	50		ARC3/N1	**03811683N0**	

DE58015



DE58016



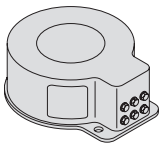
ARC2 **ARC3**

Dimensions page 23

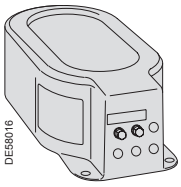
Single secondary protection CT

Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Power and accuracy class (possible double use)	Type	Reference	Qty
Ur 0.72 kV **Ud 3 kV - 1 min** **fr 50/60 Hz**	75 / 5	50	2.5 VA 5P20	ARC2/N1	**03881124N0**	
	100 / 5	50		ARC2/N1	**03881125N0**	
	150 / 5	50	5 VA 5P20	ARC2/N1	**03881126N0**	
	200 / 5	50		ARC2/N1	**03881127N0**	
	250 / 5	50		ARC2/N1	**03881128N0**	
	300 / 5	50		ARC2/N1	**03881129N0**	
	400 / 5	50		ARC2/N1	**03881130N0**	
	600 / 5	50	7.5 VA 5P20	ARC2/N1	**03881131N0**	
	750 / 5	50		ARC3/N1	**03881302N0**	
	1000 / 5	50	10 VA 5P20	ARC3/N1	**03881303N0**	
	1250 / 5	50		ARC3/N1	**03881304N0**	

DE58015



DE58016



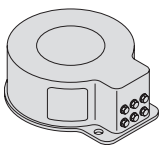
ARC2 **ARC3**

Dimensions page 23

Double secondary metering and protection CT

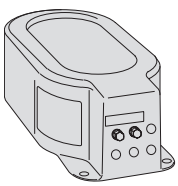
Insulation level and frequency	Transformation ratio A / A	Short-time thermal current kA x 1 s	Metering secondary: power, accuracy class, safety factor FS	Metering secondary: power and accuracy class (possible double use)	Type	Reference	Qty
Ur 0.72 kV **Ud 3 kV - 1 min** **fr 50/60 Hz**	250 / 5-5	50	10 VA cl. 0.5 Fs < 10	5 VA 5P20	ARC2/N2	**03881141N0**	
	300 / 5-5	50			ARC2/N2	**03881142N0**	
	400 / 5-5	50	15 VA cl. 0.5 Fs < 10		ARC2/N2	**03881143N0**	
	600 / 5-5	50	20 VA cl. 0.5 Fs < 10	7.5 VA 5P20	ARC2/N2	**03881144N0**	
	750 / 5-5	50			ARC3/N2	**03881305N0**	
	1000 / 5-5	50	30 VA cl. 0.5 Fs < 10	15 VA 5P20	ARC3/N2	**03881306N0**	
	1250 / 5-5	50			ARC3/N2	**03881307N0**	

DE58015



ARC2

DE58016



ARC3

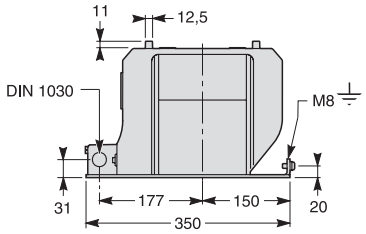
Dimensions page 23

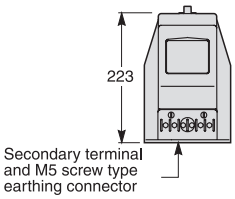
Dimensions

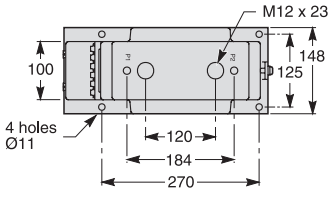
AD12

DE52378

DE52459



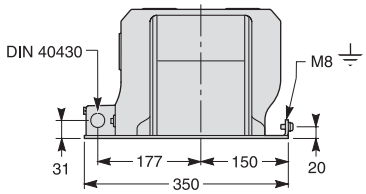


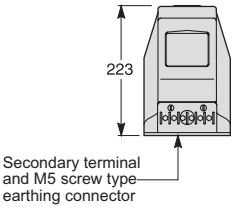


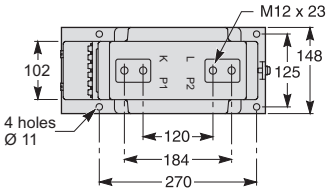
AD13

DE52379

DE58052EN



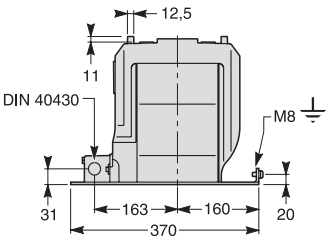


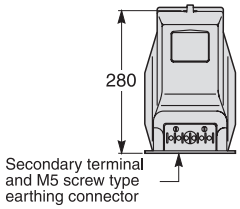


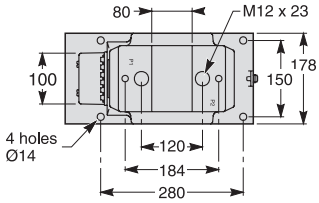
AD21

DE52380

DE52461



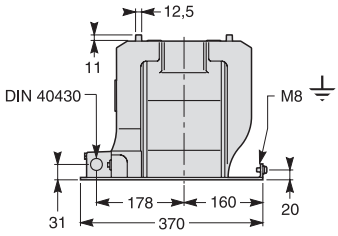


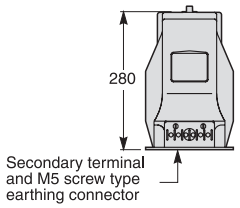


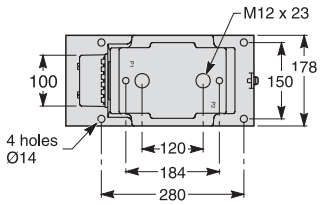
AD22

DE52420

DE52462



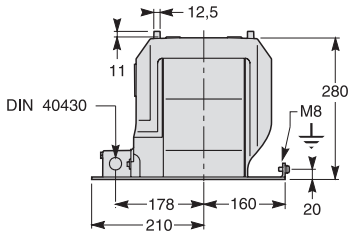


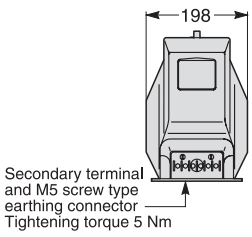


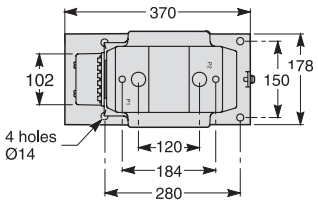
ARJD

DE52420

DE52464



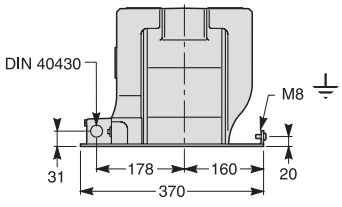


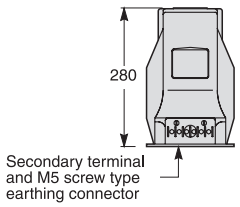


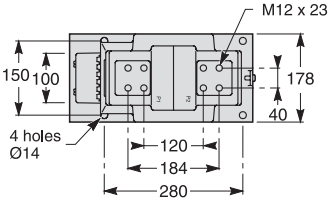
AD23

DE52381

DE52463



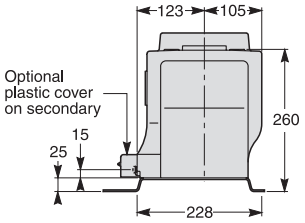


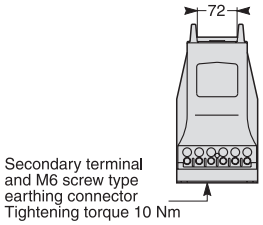


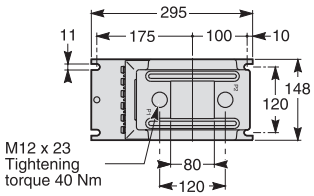
ARJP1

DE52387

DE52468



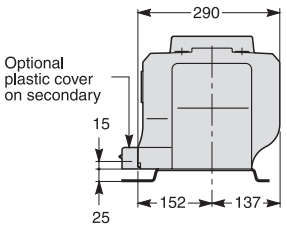


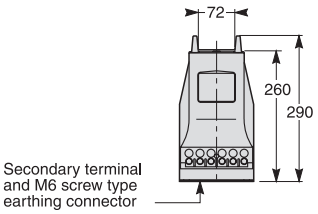


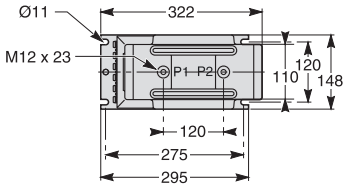
ARJP2

DE52388

DE52470



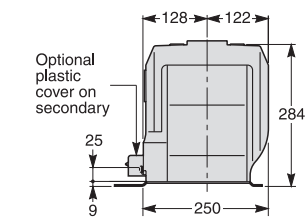


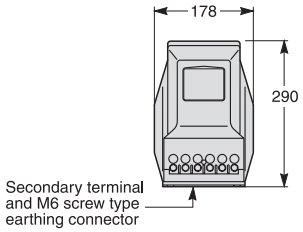


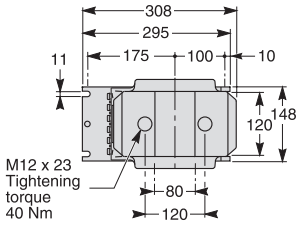
ARJM2

DE52386

DE52465



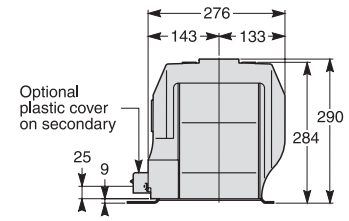


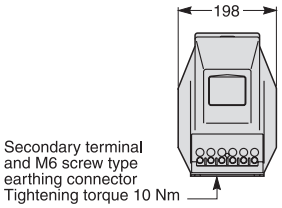


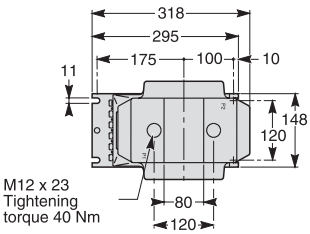
ARJH

DE52385

DE52469



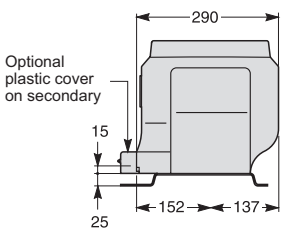


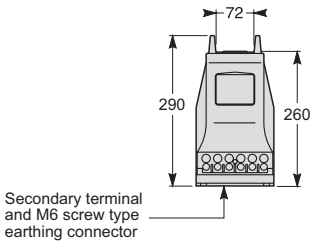


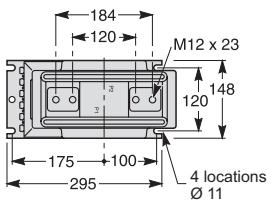
ARJP3

DE52389

DE58045EN



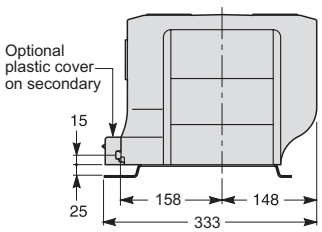


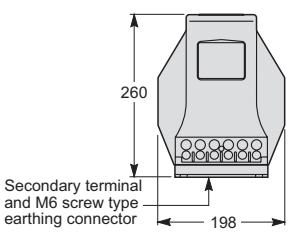


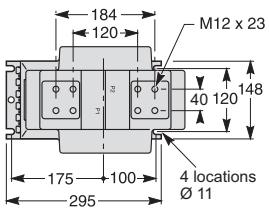
ARJA1

DE52384

DE58046EN





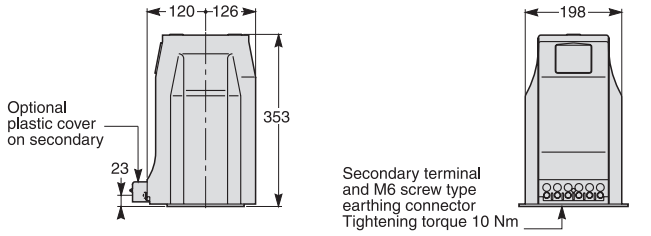


Dimensions (cont.)

ARM6T

DE52390

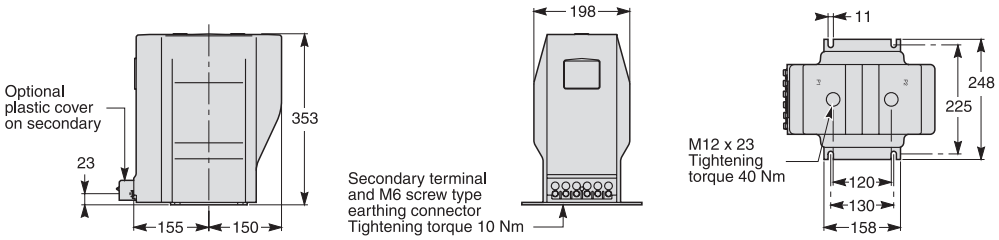
DE52474



ARM9T

DE52391

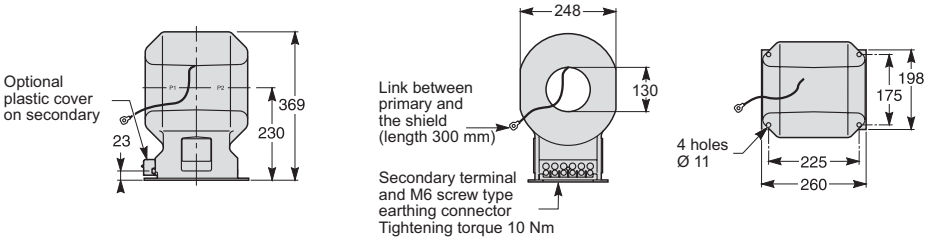
DE52472



ARO1b

DE52392

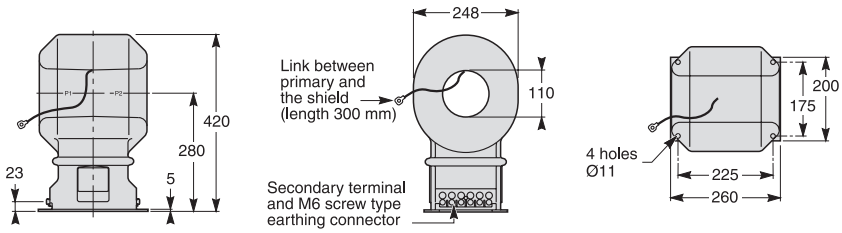
DE58049EN



ARO2

DE52393

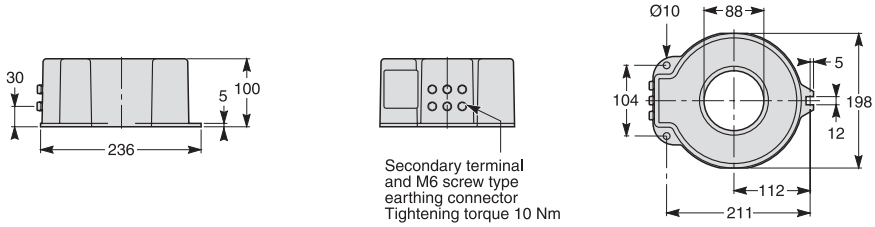
DE52471



ARC2

DE52444

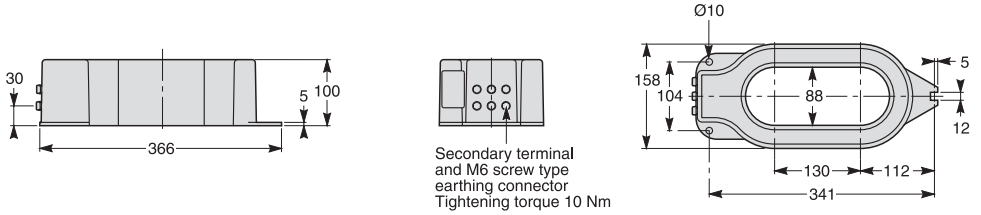
DE52473



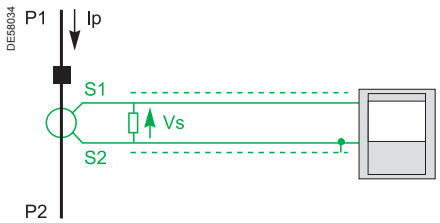
ARC3

DE52445

DE52475



LPCT's (Low Power Current Transformers) meet IEC standard IEC 60044-8.
These are CT's with a direct voltage output which has the advantage of having a very wide range of applications, simplifying selection.



LPCT low power current transformers

LPCT's are specific current sensors with a direct voltage output of the "Low Power Current Transformers" type, in conformity with standard IEC 60044-8.
LPCT's provide metering and protection functions.
They are defined by:
- the rated primary current
- the extended primary current
- the accuracy limit primary current or the accuracy limit factor.

These have a linear response over a large current range and do not start to saturate until beyond the currents to be broken.

Examples of LPCT characteristics according to IEC standard 60044-8

These characteristics are summarized in the curves below. They show the maximum error limits (as an absolute value) on the current and the phase corresponding to the accuracy class for the given examples.
They give the same error limits shown for these classes in page 9, but with much wider current ranges, which gives an advantage to this type of sensor.

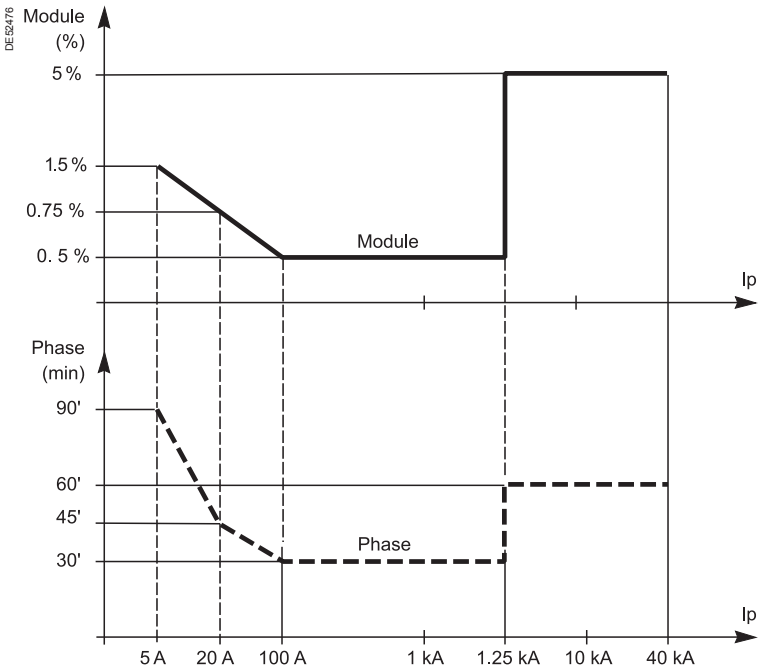
Example for metering class 0.5
- rated primary current Ipn = 100 A
- extended primary current Ipe = 1250 A
- secondary voltage Vsn = 22.5 mV (for 100 A on the secondary)
- class 0.5:
  - accuracy (see definitions page 13) on:
  - the primary current module 0.5% (error ⩽ ± 0.5%)
  - the primary current phase 60 min (error ⩽ 30 minutes)

over a range of 100 A to 1250 A
- accuracy 0.75% and 45 min at 20 A
- accuracy 1.5% and 90 min at 5 A.

which are two metering points specified by the standard.

Example for class 5P protection
- primary current Ipn = 100 A
- secondary voltage Vsn = 22.5 mV
- class 5P:
  - accuracy (see definitions page 9) on:
  - the primary current module 5% (error ⩽ ± 5%)
  - the primary current phase 60 min (error ⩽ 60 minutes) on a range of 1.25 kA to 40 kA.

The LPCT and Sepam guarantees a very high coverage range and flexibility of usage. Example: protection system with CLP1 or CLP2 and Sepam guaranteeing a usage range of 5 A to 1250 A.



Accuracy characteristics of a LPCT (example of Schneider Electric's CLP1): the accuracy classes are given for extended current ranges (here class 0.5 for metering from 100 to 1250 A and protection class 5P from 1.25 to 40 kA).

Order form

Primary current rated (A)	Primary current extended (A)	Secondary voltage (mV)	Accuracy class	Accuracy limit factor FLP	Short-time thermal current (kA - 1 s)	Rated insulation (kV)	Secondary connector	Internal diameter (mm)	Type	Reference	Qty
100	1250	22.5	0.5 – 5P	500	50	17.5	RJ45 - 8 pts		CLP1	62623	
100	1250	22.5	0.5 – 5P	400	40	24	RJ45 - 8 pts		CLP2	51238696F0	
100	2500	22.5	0.5 – 5P	400	40	24	RJ45 - 8 pts		CLP3	AAA10474	
100	2500	22.5	0.5 – 5P	400	40	0.72	RJ45 - 8 pts	160	TLP160	AAA10094	
100	2500	22.5	0.5 – 5P	400	40	0.72	RJ45 - 8 pts	190	TLP190	AAA10095	

Frequency and insulation

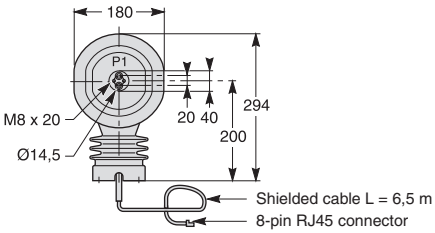
Frequency (Hz)	Ur (kV)	Ud (kV - 1 min)	Up (kV peak)
50 / 60	24	50	125
	17.5	38	95
	0.72	3	

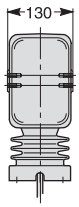
Dimensions

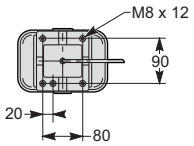
CLP1

DE52394

DE52373EN



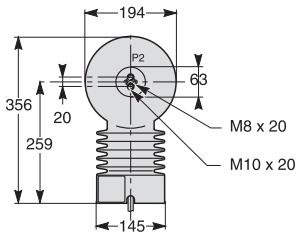


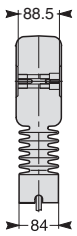


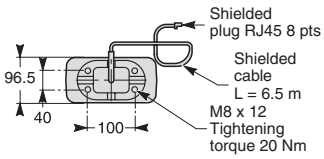
CLP2

DE52395

DE52374EN



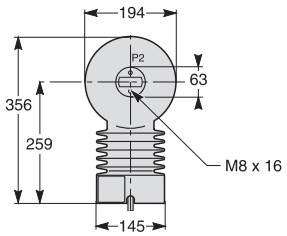


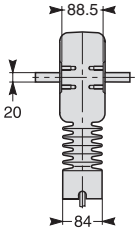


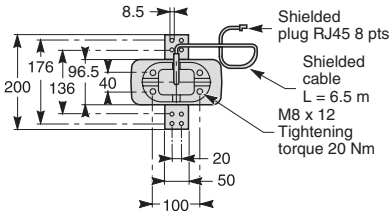
CLP3

DE52396

DE52375EN



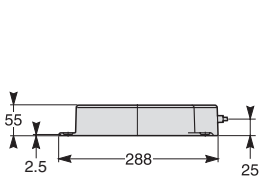


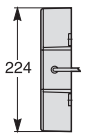


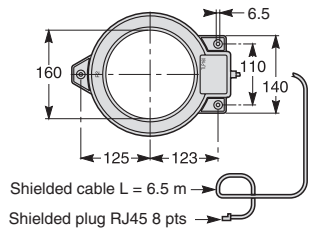
TLP160

PE56703

DE52376EN







TLP190

DE52397

DE52377EN