

# Panasonic

## CURRENT TRANSFORMERS

## KW2M & KW9M ACCESSORIES



You can't manage what you don't measure!

## AC current measurement

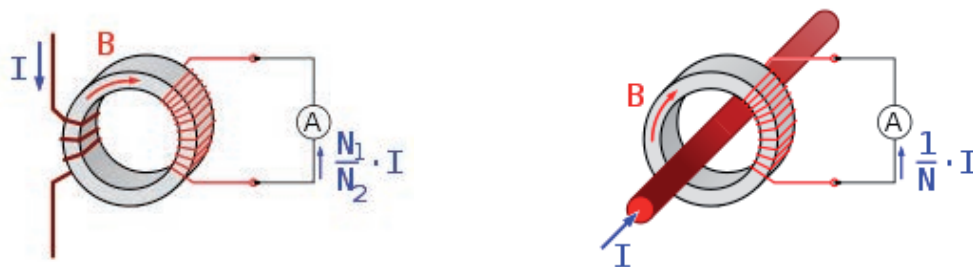
Current transformers are electrical devices which transform large primary currents into similar smaller secondary currents, and as the case may be also voltages, providing galvanic isolation.

There are many modifications, whereby the classification into passive current transformer without and active current transformer with an auxiliary power supply simplifies understanding.

Compared with the non-isolated current measurement via a shunt resistor the use of current transformers offers substantial benefits:

- galvanic isolation between metering circuit and instrument input
- minimum load and alteration of the current to be measured, low power dissipation even at high primary currents
- the internal electronic evaluation circuitry of the current transformer often can be supplied from the transformed energy of the primary current.
- the high overload capability allows the use for protection application, too

An AC current transformer is a special transformer who in its simplest version consists of two galvanic isolated windings. These windings are magnetically coupled via a ferromagnetic core



The transducer is a quasi shortcircuited small power transformer (left-hand picture) which always has to be operated with an burden or shortcircuit on the output side. An “open” secondary circuits can result in overvoltages and destruction. In normal operation mode the current transformer is very low loaded and the magnetic flow in the core is very low, too. The primary winding often consists of only one single winding (right-hand picture), of a conductor led through the core, while the secondary winding defines the transformation ratio with its high turns number. The rated ratio is the ratio of the primary rated current divided by the secondary rated current which equals in this case the turns number N of the secondary winding.

The respective mechanical construction of AC currents transformers depends on the voltage-level category and paves the way for the application on printed circuit boards within metering or protection devices by the introduction of very compact models equipped with amorphous / nanocrystalline cores. The use in the High-Voltage and Medium-Voltage-Level Category or the use on DIN-rails in Low-Voltage switchgear systems or as current transducer for mobile energy monitoring systems for the selective demand sensing are further application fields.

		Secondary nominal current = 1 A Burden = 0.2 VA. cable = 0.75 mm <sup>2</sup>			Sekundary nominal current = 5 A Burden = 0.2 VA. cable = 2.5 mm <sup>2</sup>		
		Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3
Prim. nominal current in A	Model						
60	JS17S			0.2 VA / 0.5 m			
75	JS17S			0.5 VA / 5 m			
100	JS17S			0.5 VA / 5 m			
	JS24S			1 VA / 15 m			1.5 VA / 3.5 m
	JSC01			0.5 VA / 5 m			0.5 VA / 0.7 m
125	JS17S			1 VA / 15 m			
	JS24S			1 VA / 15 m			
150	JS17S			1 VA / 15 m			1.5 VA / 3.5 m
	JS24S			1 VA / 15 m			1.5 VA / 3.5 m
	JSC01			1.5 VA / 26 m			1.5 VA / 3.5 m
200	JS17S			1 VA / 15 m			
	JS24S		0.5 VA / 5 m			0.5 VA / 0.7 m	
	JS36S						2.5 VA / 6 m
	JSC01		0.5 VA / 5 m			0.5 VA / 0.7 m	
250	JS24S		1 VA / 15 m			0.5 VA / 0.7 m	
	JS36S					0.5 VA / 0.7 m	
	JSC01		0.5 VA / 5 m			0.5 VA / 0.7 m	
300	JS24S		1.5 VA / 26 m			0.5 VA / 0.7 m	
	JS36S		1.5 VA / 26 m			0.5 VA / 0.7 m	
	JSC01		0.5 VA / 5 m			0.5 VA / 0.7 m	
400	JS24S					0.5 VA / 0.7 m	
	JS36S	0.5 VA / 5 m			0.5 VA / 0.7 m	2.5 VA / 6 m	
	JSC01	0.5 VA / 5 m				0.5 VA / 0.7 m	
	JSC02		1 VA / 15 m			1 VA / 2.1 m	
500	JS36S		2.5 VA / 47 m		0.5 VA / 0.7 m	2.5 VA / 6 m	
	JSC02		2.5 VA / 47 m			2.5 VA / 6 m	
600	JS36S	0.5 VA / 5 m			0.5 VA / 0.7 m	5 VA / 13 m	
	JSC02	1 VA / 15 m	5 VA / 100 m		1 VA / 2.1 m	5 VA / 13 m	
750	JSC02	1 VA / 15 m	5 VA / 100 m		1 VA / 2.1 m	5 VA / 13 m	
800	JSC02	1 VA / 15 m	5 VA / 100 m		1 VA / 2.1 m	5 VA / 13 m	
	JSC03	1 VA / 15 m	5 VA / 100 m		1 VA / 2.1 m	5 VA / 13 m	
1000	JSC02	2.5 VA / 47 m	10 VA / 205 m		2.5 VA / 6 m	10 VA / 27 m	
	JSC03	1 VA / 15 m	5 VA / 100 m		1 VA / 2.1 m	5 VA / 13 m	
1200	JSC03	5 VA / 100 m	10 VA / 205 m		5 VA / 13 m	10 VA / 27 m	
1250	JSC03	5 VA / 100 m	10 VA / 205 m		5 VA / 13 m	10 VA / 27 m	
1500	JSC03	10 VA / 205 m	20 VA / 416 m		10 VA / 27 m	20 VA / 55 m	
1600	JSC03	10 VA / 205 m	20 VA / 416 m		10 VA / 27 m	20 VA / 55 m	
2000	JSC03	10 VA / 205 m	20 VA / 416 m		10 VA / 27.4 m	20 VA / 55 m	
2400	JSC03	10 VA / 205 m	20 VA / 416 m		10 VA / 27 m	20 VA / 55 m	



This split-core AC current transformers deliver an output current of 1A from the sensed rated input currents. They are made for watt-hour meters and power meters in power distributions, control panels, switch gears and others appliances. Because of their snap-on design they can simply be turned up on any current-carrying conductor without the need of interrupting the current flow. The built-in output over-voltage protection circuitry allows the secure mounting.

**Benefits / Features**

- Covered output terminal block, secure locking hinge, one touch structure makes easy install actions to existent equipments such as power distribution boards.
- Over-voltage protection circuit is installed
- Isolated polycarbonate case recognized according to UL94-V0
- UL and EN61010-1 certified (CE)

**Notice**

- Core contact surface is waterproofed.
- Customizing output lead wire version possible.

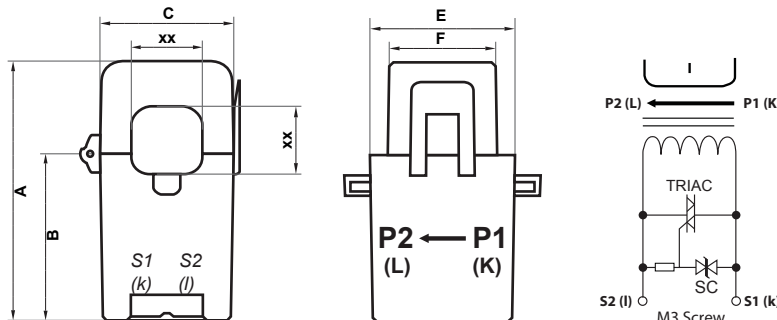


**Specification - JSxxS-I<sub>pn</sub> / 1A**

<b>Accuracy</b>	Class 0.5 / 1.0 / 3.0; depending on models; look at the table below
<b>Output Terminals</b>	2 x M3-Screw with terminals cover
<b>System Voltage</b>	AC 720V
<b>Overload withstand</b>	1.2 times rated current continuously
<b>Compliant with</b>	IEC/EN60044-1, IEC61010-1
<b>Operating Temperature Range</b>	-20 °C to +55 °C
<b>Relative Humidity</b>	≤ 85%, non condensing
<b>Test Voltage</b>	3kV for 1 minute
<b>Frequency Range</b>	50/60Hz
<b>Protection Level</b>	bipolar 6,5Vs
<b>Installation Category</b>	CAT II or CAT III 600VAC

Prim.nominal current (I <sub>pn</sub> ) in A	JS17S-I <sub>pn</sub> / 1A						JS24S-I <sub>pn</sub> / 1A						JS36S-I <sub>pn</sub> / 1A			
	060	075	100	125	150	200	100	125	150	200	250	300	300	400	500	600
Class 0.5 : Burden in VA	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Class 1.0 : Burden in VA	-	-	-	-	-	-	-	-	-	0.5	1	1.5	1.5	-	-	-
Class 3.0 : Burden in VA	0.2	0.5	0.5	1	1	1	1	1	1	-	-	-	-	-	-	-

Dimension in mm



model	A	B	C	xx	E	F
JS17S	64.1	41.1	33.1	17	35.8	26.2
JS24S	74.5	47.0	45.0	24	33.7	21.1
JS36S	91.4	57.0	57.1	36	40.2	21.1



This split-core AC current transformers deliver an output current of 5A from the sensed rated input currents. They are made for watt-hour meters and power meters in power distributions, control panels, switch gears and others appliances. Because of their snap-on design they can simply be turned up on any current-carrying conductor without the need of interrupting the current flow. The built-in output over-voltage protection circuitry allows the secure mounting.

**Benefits / Features**

- Covered output terminal block, secure locking hinge, one touch structure makes easy install actions to existent equipments such as power distribution boards.
- Over-voltage protection circuit is installed
- Isolated polycarbonate case recognized according to UL94-V0
- UL and EN61010-1 certified (CE)

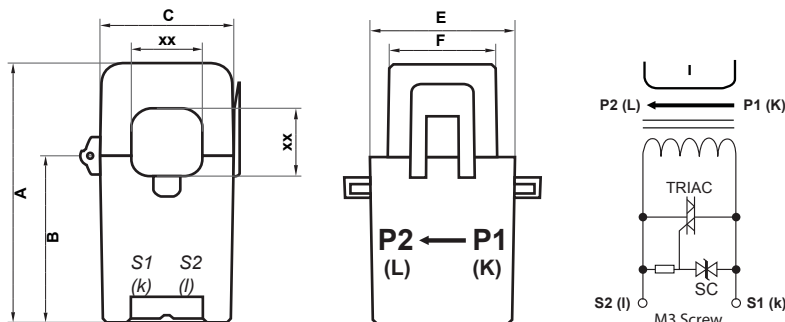
**Notice**

- Core contact surface is waterproofed.
- Customizing output lead wire.

<b>Specification - JSxxS-I<sub>pn</sub> / 5A</b>	
<b>Accuracy</b>	Class 0.5 / 1.0 / 3.0; depending on models; look at the table below
<b>Output Terminals</b>	2 x M3-Screw with terminals cover
<b>System Voltage</b>	AC 720V
<b>Overload withstand</b>	1.2 times rated current continuously
<b>Compliant with</b>	IEC/EN60044-1, IEC61010-1
<b>Operating Temperature Range</b>	-20 °C to +55 °C
<b>Relative Humidity</b>	≤ 85%, non condensing
<b>Test Voltage</b>	3kV for 1 minute
<b>Frequency Range</b>	50/60Hz
<b>Protection Level</b>	bipolar 6,5Vs
<b>Installation Category</b>	CAT II or CAT III 600VAC

	JS17S-I <sub>pn</sub> /5A		JS24S-I <sub>pn</sub> /5A						JS36S-I <sub>pn</sub> /5A					
Prim. nominal current (I <sub>pn</sub> ) in A	150		100	150	200	250	300	400	200	250	300	400	500	600
Class 0.5 : Burden in VA	-		-	-	-	-	-	-	-	-	-	0.5	0.5	0,5
Class 1.0 : Burden in VA	-		-	-	0.5	0.5	0.5	0.5	-	0.5	0.5	2.5	2.5	5,0
Class 3.0 : Burden in VA	1.5		1.5	1.5	-	-	-	-	2.5	-	-	-	-	-

Dimension in mm



model	A	B	C	xx	E	F
JS17S	64.1	41.1	33.1	17	35.8	26.2
JS24S	74.5	47.0	45.0	24	33.7	21.1
JS36S	91.4	57.0	57.1	36	40.2	21.1



**Features**

- high-precision metering up to class 0.5
- fast installation without prim. current interrupting
- built-in over-voltage protection
- high lifespan (study hinge)
- customized lead cable length possible



**Applications**

- Power meters
- Low-voltage distribution panels
- Switchgears
- Control panels



**Specification - JSC-XX-I<sub>pn</sub> / 1A**

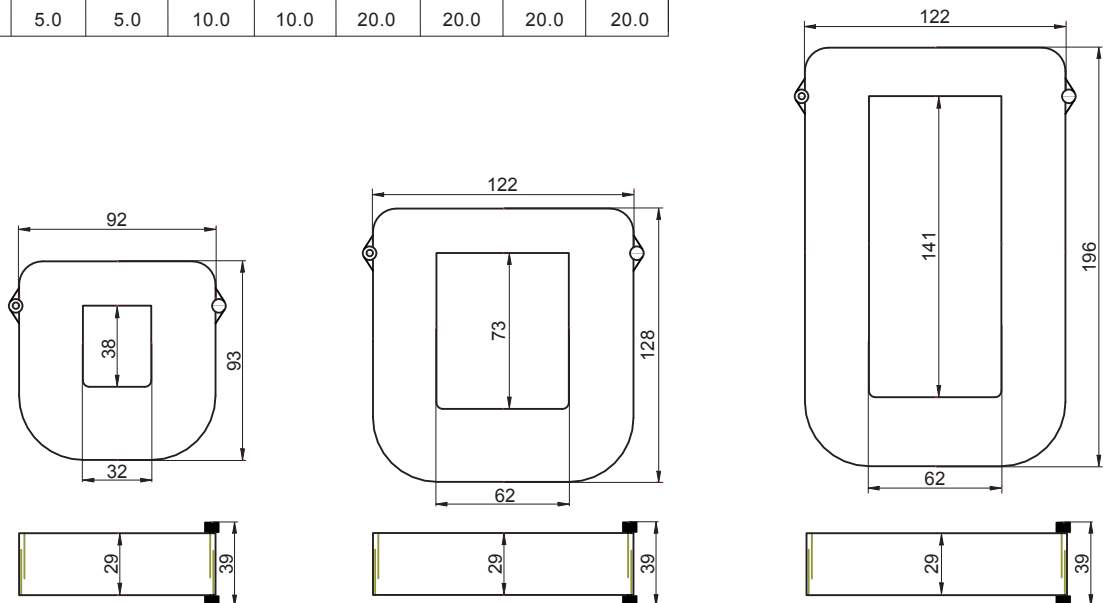
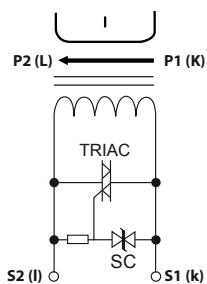
Typ	JSC-01	JSC-02	JSC-03
Primary nominal current (I <sub>pn</sub> )	100 to 400A	400 to 1000A	800 to 2400A
Secondary nominal current	1A		
Accuracy	Class 0.5 / 1.0 / 3.0; depending on Models; look at the table below		
AC conductor voltage	≤ 720 V <sub>ms</sub>		
AC withstand voltage	3000 V <sub>ms</sub>		
Installation Categorie	Cat II or Cat III (600V AC)		
Overload withstand	1.2-times rated current continuously		
Operating Temperature Range	-20°C to +60°C		
Compliant with	EN 60044-1, IEC61010-1, RoHS		
Protection level	bipolar 6.5 Vs		
Lead cable	18A WG twisted stranded wires (600V) ; 2m long		
Bus-bar pass through window	32 x 38 mm	62 x 73 mm	62 x 141 mm
Weight	300g	700g	1150g

	JSC-01-I <sub>pn</sub> /1A						JSC-02-I <sub>pn</sub> /1A					
	100	150	200	250	300	400	400	500	600	750	800	1000
Primary nominal current (I <sub>pn</sub> ) in A	100	150	200	250	300	400	400	500	600	750	800	1000
Class 0.5 : Burden in VA	-	-	-	-	-	0.5	-	-	1.0	1.0	1.0	2.5
Class 1.0 : Burden in VA	-	-	0.5	0.5	0.5	-	1.0	2.5	5.0	5.0	5.0	10.0
Class 3.0 : Burden in VA	0.5	1.5	-	-	-	-	-	-	-	-	-	-

	JSC-03-I <sub>pn</sub> /1A							
	800	1000	1200	1250	1500	1600	2000	2400
Primary nominal current (I <sub>pn</sub> ) in A	800	1000	1200	1250	1500	1600	2000	2400
Class 0.5 : Burden in VA	1.0	1.0	5.0	5.0	10.0	10.0	10.0	10.0
Class 1.0 : Burden in VA	5.0	5.0	10.0	10.0	20.0	20.0	20.0	20.0

Dimension in mm





**Features**

- high-precision metering up to class 0.5
- fast installation without prim. current interrupting
- built-in over-voltage protection
- high lifespan (study hinge)
- customized lead cable length possible



**Applications**

- Power meters
- Low-voltage distribution panels
- Switchgears
- Control panels



**Specification - JSC-XX-I<sub>pn</sub> / 5A**

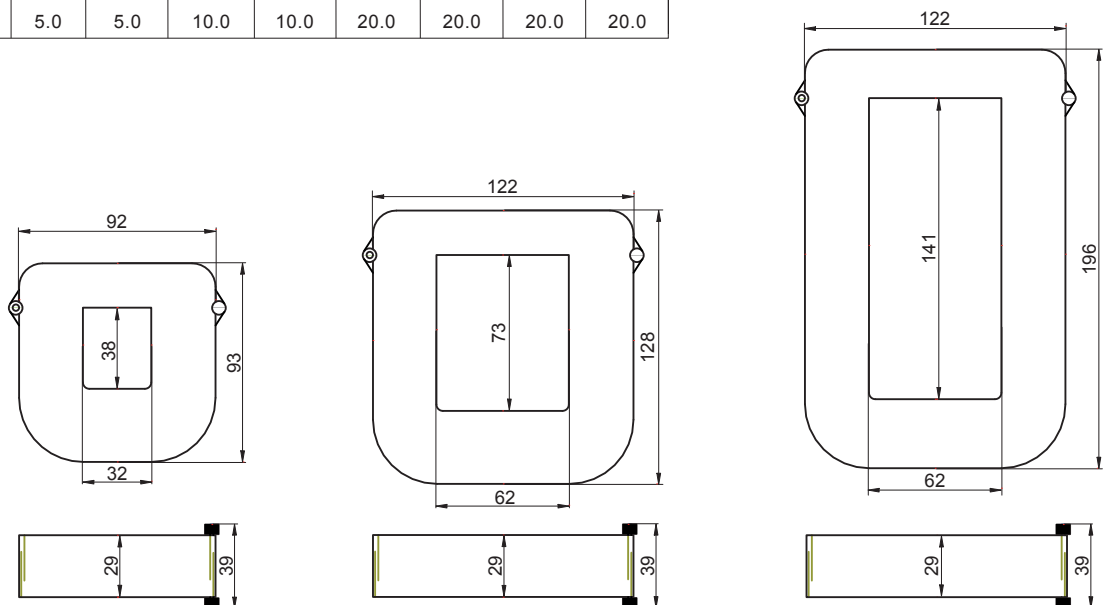
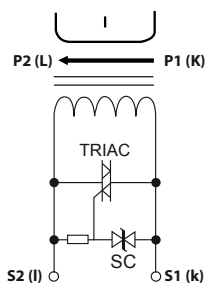
Typ	JSC-01	JSC-02	JSC-03
Primary nominal current (I <sub>pn</sub> )	100 to 400A	400 to 1000A	800 to 2400A
Secondary nominal current	5A		
Accuracy	Class 0.5 / 1.0 / 3.0; depending on Models; look at the table below		
AC conductor voltage	≤ 720 V <sub>ms</sub>		
AC withstand voltage	3000 V <sub>ms</sub>		
Installation Categorie	Cat II or Cat III (600V AC)		
Overload withstand	1.2-times rated current continuously		
Operating Temperature Range	-20°C to +60°C		
Compliant with	EN 60044-1, IEC61010-1, RoHS		
Protection level	bipolar 6.5 Vs		
Lead cable	18A WG twisted stranded wires (600V) ; 2m long		
Bus-bar pass through window	32 x 38 mm	62 x 73 mm	62 x 141 mm
Weight	300g	700g	1150g

	JSC-01-I <sub>pn</sub> /5A						JSC-02-I <sub>pn</sub> /5A					
	100	150	200	250	300	400	400	500	600	750	800	1000
Primary nominal current (I <sub>pn</sub> ) in A	100	150	200	250	300	400	400	500	600	750	800	1000
Class 0.5 : Burden in VA	-	-	-	-	-	-	-	-	1.0	1.0	1.0	2.5
Class 1.0 : Burden in VA	-	-	0.5	0.5	0.5	0.5	1.0	2.5	5.0	5.0	5.0	10.0
Class 3.0 : Burden in VA	0.5	1.5	-	-	-	-	-	-	-	-	-	-

	JSC-03-I <sub>pn</sub> /5A							
	800	1000	1200	1250	1500	1600	2000	2400
Primary nominal current (I <sub>pn</sub> ) in A	800	1000	1200	1250	1500	1600	2000	2400
Class 0.5 : Burden in VA	1.0	1.0	5.0	5.0	10.0	10.0	10.0	10.0
Class 1.0 : Burden in VA	5.0	5.0	10.0	10.0	20.0	20.0	20.0	20.0

Dimension in mm



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