



2023 New JPC SERIES of current transducers





J&D announces JPC series current transducers rated to UL61010-1

From Pioneers to Innovators: The Story of J&D

When J&D was founded more than 20 years ago, it was not possible to imagine how far our industry would expand. J&D is one of the pioneering companies that supported customers in implementing smart metering by using voltage and current sensors. Now, we have a close relationship with the most innovative power quality and smart metering companies in the world due to our efforts over the years.

As of today, we have helped to empower the market so that customers can have control over breakthrough products, and the rapid growth of human energy use could be ensured until the future. We are "innovation" at the DNA level. Our customers are also innovators and have contributed to making the new boundaries of branding and industry today. These changes always inspire us.

We are recognized as leaders in the smart metering market due to our constant efforts and dedication to improving traditional energy efficiency solutions for the development of our customers and industries. We strive to delight our customers by providing better value and innovative energy efficiency solutions that enhance their operations and industry.

Take Your precision current monitoring to the Next Level with the JPC Series

For power electronics applications, such as motor control drives, switch-mode power supplies, and welding, reducing energy consumption and improving efficiency are crucial goals. Similarly, modern wind and solar energy generation plants also prioritize these targets. To meet these requirements, advanced materials must be utilized, insulation improved, and better partial discharge levels achieved for enhanced safety and immunity from external electrical, magnetic, and electro-magnetic fields. Additionally, power semiconductors must possess characteristics such as low thermal drift, fast response times, low influence in common mode, large bandwidth, and low noise in their surrounding components. To meet these technical requirements, J&D has developed the new JPC series which take Hall effect technology to the next level.

The JPC series of current transducers delivers outstanding quality with remarkable linearity and low-end accuracy, making it an ideal choice for various applications. Best of all, the JPC series features a 30% lighter weight compared to other products, which can save its user's assembly costs and improved mounting diversity.

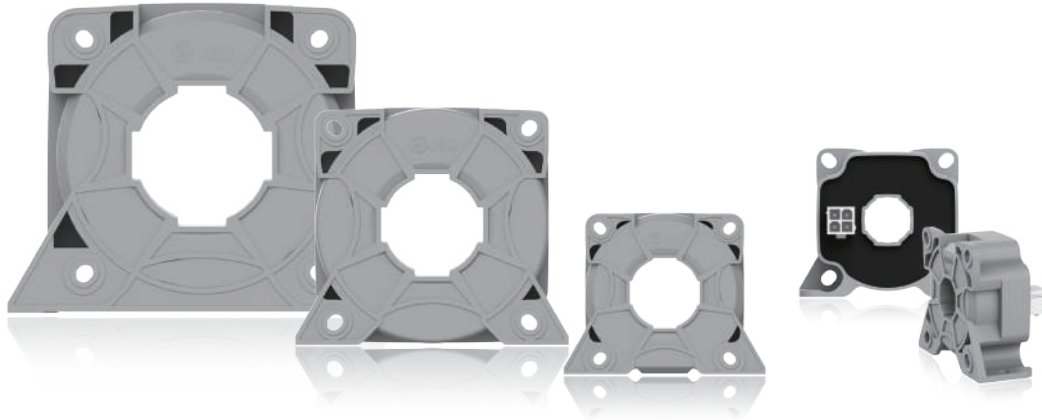
Applications requiring precise control and automation to enhance productivity and energy efficiency, such as variable speed drives, servo motor drives, uninterruptible and switch-mode power supplies, battery supply installations, power supplies for welding, air conditioning, home appliances, static converters for DC motor drives, and robotics, often require a large number of current transducers. These applications can benefit from the high performance and versatile mounting options offered by the new JPC series.

With a wide operating temperature range of -40 to +85°C, the JPC series is suitable for use in any top performance SiC MOSFET inverter applications.

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LIGHT & COMPACT JPC SERIES WITH AOCT TECHNOLOGY



Power converter and inverter for wind turbines

In a wind turbine, the inverter converts electricity and connects the generator to the grid.

A wind power converter in a wind turbine performs several essential functions besides power transfer and therefore requires current transducers of the highest quality. JPC series current transducers play a key role in monitoring the current of energy from renewable sources.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

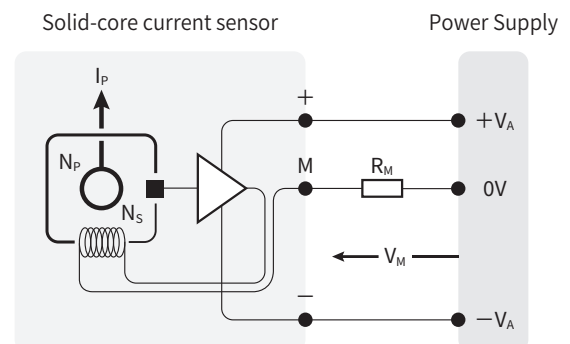
Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.
- Solar inverter

Digital isolation amplifier technology



HIGH PERFORMANCE SENSING TECHNOLOGY



A new technology based on high precision closed-loop technology



Speed up your projects

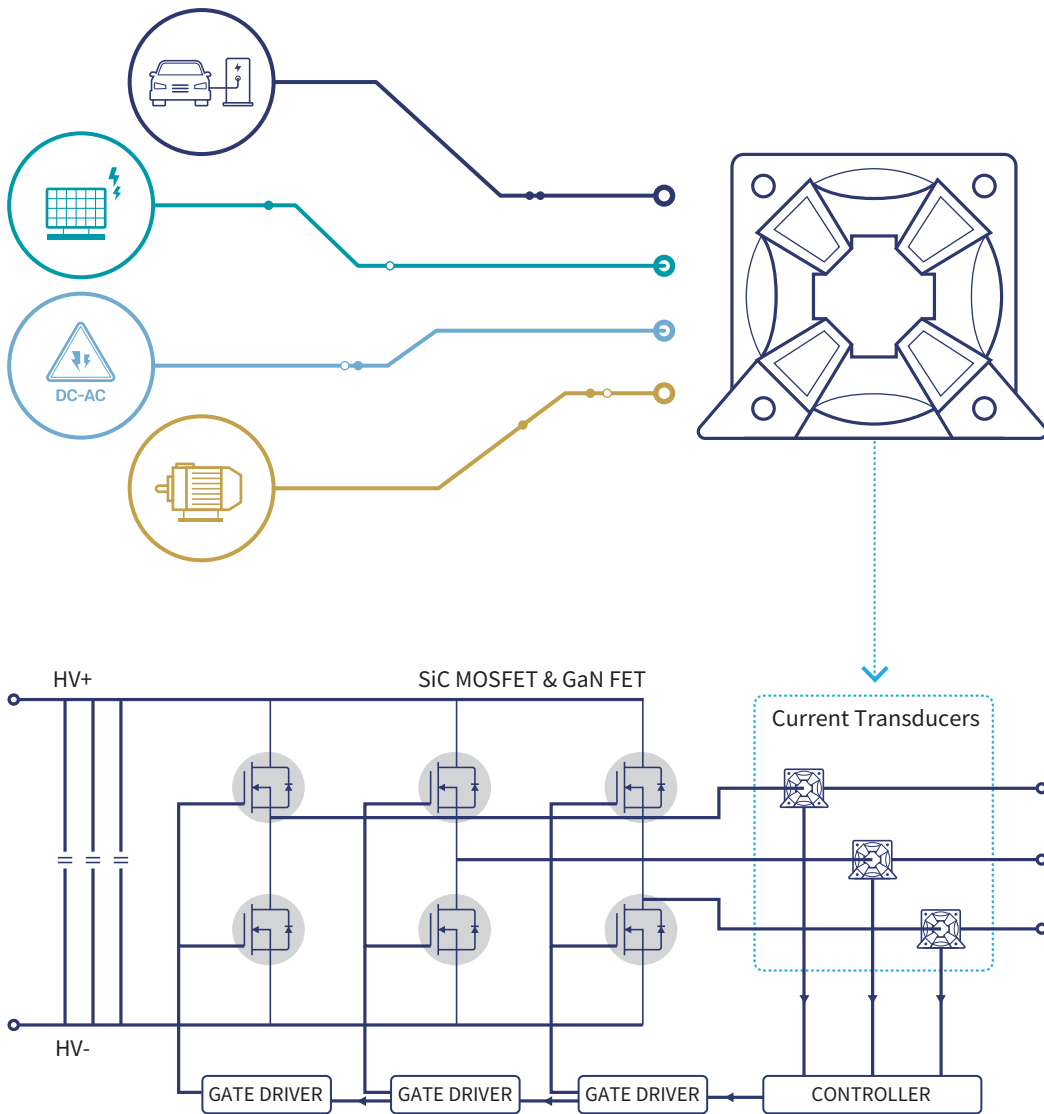


Reliable in extreme conditions

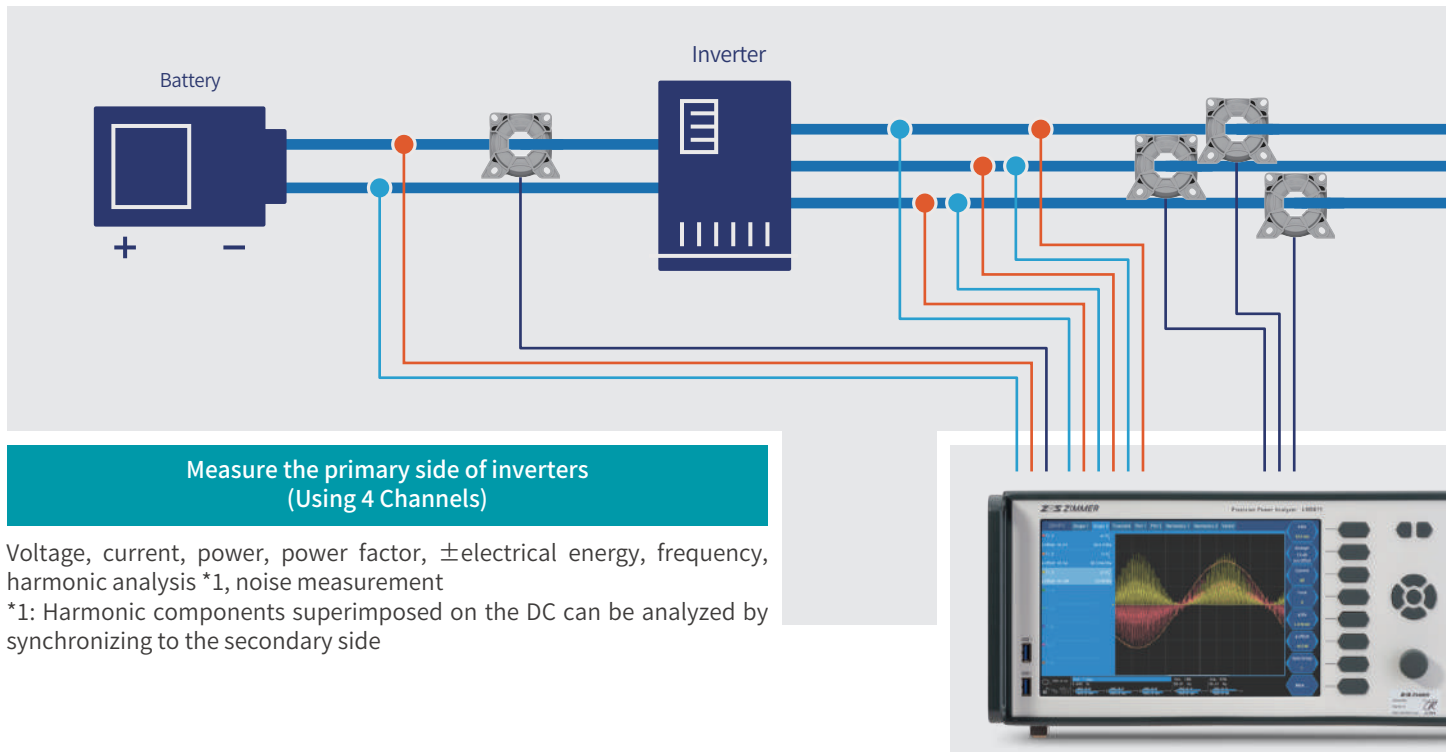


Continuous operation

High performance 3-phase SiC Inverter Based on Next Generation Current Sensing Solution JPC series.



Example of HEV and EV measurement system



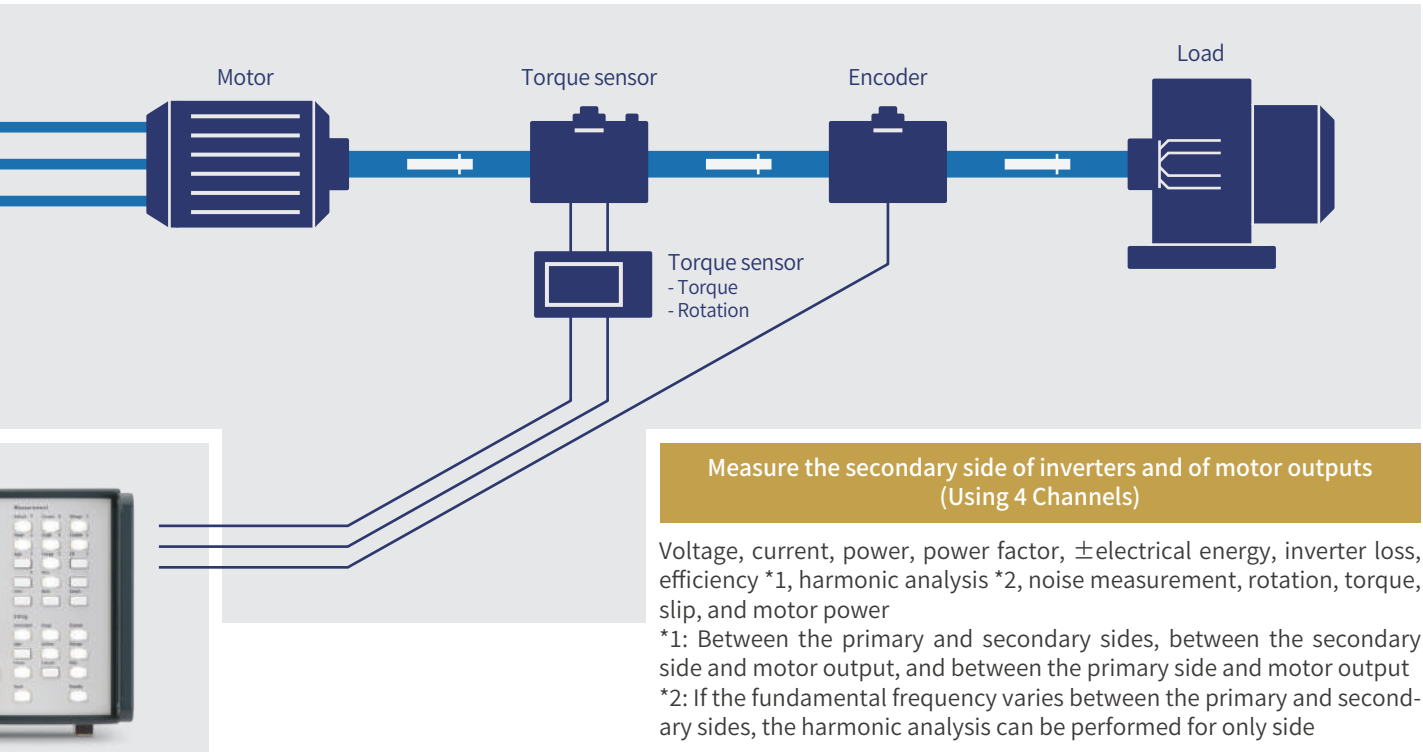
JPC SERIES is

J&D launched the JPC series, a new range of Hall effect current sensors, in September 2022. The JPC series is designed for non-intrusive and isolated nominal measuring of AC, DC, and pulsed currents ranging from 100A to 2000A. The weight of the plastic parts and magnetic core has been reduced by 30% compared to the previous version.

The JPC series utilizes precise closed-loop Hall effect technology, providing an accuracy of 0.25% to 0.6% for measuring primary current. It can measure both AC and DC currents, as well as signals with complex waveforms, over a frequency range of 0 to 100kHz. Its most significant benefit is its high resistance to interference from magnetic fields generated by external current-carrying conductors.

Operating from a dual supply voltage ranging from ± 12 to ± 24 V (depending on the model), the JPC series can measure higher current ranges compared to the previous generation, up to three times the primary nominal current while responding faster against a di/dt step, with a response time of less than 1.0 μ s due to a dedicated special magnetic core and winding design.

The JPC series comes in various sizes, and its compact construction allows for easy integration into AC/DC current measuring applications. Typical applications include variable speed drives, servo motor drives, uninterruptible power supplies, battery-supply installations, power supplies for welding, air conditioning, PV inverters, frequency converters, and robotics.



AOCT TECHNOLOGY

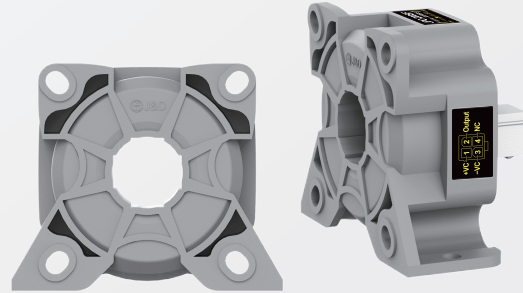
Advanced
Offset
Cancellation
Technology

Old Model New Model

30%
Lighter
weight

Current Transducer JPC-200SX

For electronic current measurements, the JPC series of AC/DC current sensors provides excellent stability even at high currents and offers high insulation between the primary and secondary circuits.



Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

Specification

SPEC	MODEL	JPC-200SF			JPC-200ST	
Connector	-	39-28-8040[5566-04A-210] Molex			38-00-6293[6410-03C(102)] Molex	
Primary nominal RMS current	A	200				
Primary current, measuring range	A	0 .. ± 420				
Measuring resistance	Ω	± 12V	@ ± 200A @ ± 420A	Ta=70°C : 0 ~ 61 Ta=70°C : 0 ~ 7	Ta=85°C : 0 ~ 59 Ta=85°C : 0 ~ 5	
		± 15V	@ ± 200A @ ± 420A	Ta=70°C : 0 ~ 84 Ta=70°C : 0 ~ 11	Ta=70°C : 0 ~ 82 Ta=70°C : 0 ~ 9	
Secondary nominal RMS current	mA	100				
Conversion ratio	-	1 : 2000				
Supply voltage (± 5%)	V	± 12 .. 15				
Current consumption @ ± 15 V	mA	17 + I _s				
Overall accuracy	%	± 0.5				
Linearity error	%	< 0.1				
Offset current	mA	Max. ± 0.2				
Magnetic offset current	mA	Max. ± 0.1(@ I _p = 0 and specified R _m , after an overload of 3 X I _{PN})				
Insulation voltage	V _D	AC 3500V / 1min.				
Temperature variation	mA	Typ. ± 0.12 , Max. ± 0.4 (-45°C...+85°C)				
Reaction time to 10 % of I _{PN}	ns	< 500				
Step response time to 90 % of I _{PN}	μs	< 1 (With a di/dt of 100 A/μs.)				
di/dt accurately followed	A/μs	> 100				
Frequency bandwidth (-3 dB)	kHz	DC .. 100				
Ambient Operating temperature	°C	- 40 .. + 85				
Ambient storage temperature	°C	- 40 .. + 90				
Resistance of Secondary winding	Ω	22 (@Ta=70°C) / 24 (@Ta=85°C)				
Mass	g	78				
Standards	-	EN 50178: 1997 / IEC 61010-1				

Dimensions JPC-200SX (in mm)

JPC-200SF

Connector

Manufacturer	Molex
Part Number	39-28-8040
Old Part Number	5566-04A-210

Primary through-hole Ø20.1 mm

JPC-200ST

Connector

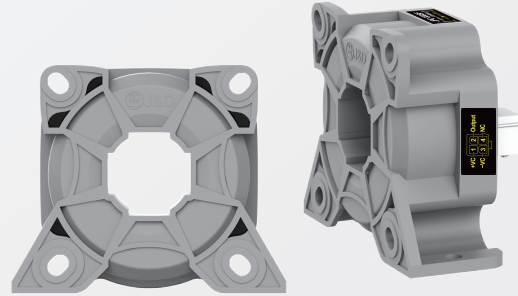
Manufacturer	Molex
Part Number	39-00-6293
Old Part Number	6410-03C (102)

Primary through-hole Ø20.1 mm

Specifications are subject to change without notice

Current Transducer JPC-300SX

For electronic current measurements, the JPC series of AC/DC current sensors provides excellent stability even at high currents and offers high insulation between the primary and secondary circuits.



Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

Specification

SPEC	MODEL	JPC-300SF		JPC-300ST	
Connector	-	39-28-8040[5566-04A-210] Molex		38-00-6293[6410-03C(102)] Molex	
Primary nominal RMS current	A	300			
Primary current, measuring range	A	0 .. ± 500			
Measuring resistance	Ω	± 12V	@ ± 300A @ ± 500A	Ta=70°C : 0 ~ 31 Ta=70°C : 0 ~ 7	Ta=85°C : 0 ~ 29 Ta=85°C : 0 ~ 5
		± 15V	@ ± 300A @ ± 500A	Ta=70°C : 0 ~ 45 Ta=70°C : 0 ~ 15	Ta=85°C : 0 ~ 43 Ta=85°C : 0 ~ 13
		± 20V	@ ± 300A @ ± 500A	Ta=70°C : 0 ~ 67 Ta=70°C : 0 ~ 28	Ta=85°C : 0 ~ 65 Ta=85°C : 0 ~ 26
Secondary nominal RMS current	mA	150			
Conversion ratio	-	1 : 2000			
Supply voltage (± 5%)	V	± 12 .. 20			
Current consumption @ ± 15 V	mA	26(@ ± 20V) + I _s			
Overall accuracy	%	± 0.5			
Linearity error	%	< 0.1			
Offset current	mA	Max. ± 0.2			
Magnetic offset current	mA	Max. ± 0.2(@ I _p = 0 and specified R _M , after an overload of 3 X I _{PN})			
Insulation voltage	V _D	AC 3800V / 1min.			
Temperature variation	mA	Typ. ± 0.2, Max. ± 0.7 (-40°C...+85°C) / Typ. ± 0.1, Max. ± 0.3 (-10°C...+70°C)			
Reaction time to 10 % of I _{PN}	ns	< 500			
Step response time to 90 % of I _{PN}	μs	< 1 (With a di/dt of 100 A/μs.)			
di/dt accurately followed	A/μs	> 100			
Frequency bandwidth (-3 dB)	kHz	DC .. 100			
Ambient Operating temperature	°C	- 40 .. + 85			
Ambient storage temperature	°C	- 40 .. + 90			
Resistance of Secondary winding	Ω	22 (@Ta=70°C) / 24 (@Ta=85°C)			
Mass	g	95			
Standards	-	EN 50178: 1997 / IEC 61010-1			

Dimensions JPC-300SX (in mm)

JPC-300SF

Wiring Diagram

Connector

Manufacturer	Molex
Part Number	39-28-8040
Old Part Number	5566-04A-210

Primary through-hole $\varnothing 20.1$ mm

JPC-300ST

Wiring Diagram

Connector

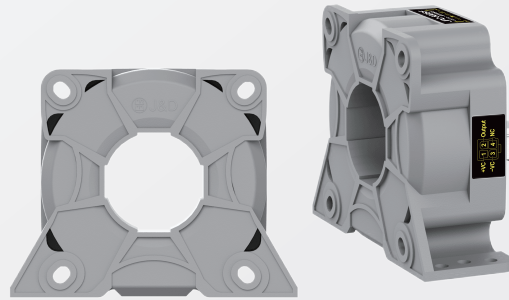
Manufacturer	Molex
Part Number	39-00-6293
Old Part Number	6410-03C (102)

Primary through-hole $\varnothing 20.1$ mm

Specifications are subject to change without notice

Current Transducer JPC-500SX

For electronic current measurements, the JPC series of AC/DC current sensors provides excellent stability even at high currents and offers high insulation between the primary and secondary circuits.



Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

Specification

SPEC	MODEL	JPC-500SF			JPC-500ST	
Connector	-	39-28-8040[5566-04A-210] Molex			38-00-6293[6410-03C(102)] Molex	
Primary nominal RMS current	A	500				
Primary current, measuring range	A	0 .. ± 800				
Measuring resistance	Ω	± 15V	@ ± 500A	0 ~ 40	@ ± 800A	0 ~ 10
		± 18V	@ ± 500A	0 ~ 70	@ ± 800A	0 ~ 14
		± 24V	@ ± 500A	0 ~ 104	@ ± 800A	0 ~ 45
Secondary nominal RMS current	mA	100				
Conversion ratio	-	1 : 5000				
Supply voltage (± 5%)	V	± 15 .. 24				
Current consumption @ ± 15 V	mA	24(@ ± 18V) + I _s				
Overall accuracy	%	± 0.6				
Linearity error	%	< 0.1				
Offset current	mA	Max. ± 0.4				
Magnetic offset current	mA	Max. ± 0.2(@ I _p = 0 and specified R _{M2} after an overload of 3 X I _{PN})				
Insulation voltage	V _D	AC 3800V / 1min.				
Temperature variation	mA	Typ. ± 0.1, Max. ± 0.4 (-40°C...+70°C)				
Step response time to 90 % of I _{PN}	μs	< 1 (With a di/dt of 100 A/μs.)				
di/dt accurately followed	A/μs	> 100				
Frequency bandwidth (- 3 dB)	kHz	DC .. 100				
Ambient Operating temperature	°C	- 40 .. + 70				
Ambient storage temperature	°C	- 40 .. + 85				
Resistance of Secondary winding	Ω	53 (@Ta=70°C)				
Mass	g	230				
Standards		EN 50178: 1997 / IEC 61010-1				

Dimensions JPC-500SX (in mm)

JPC-500SF

Wiring Diagram

Connector

Manufacturer	Molex
Part Number	39-28-8040
Old Part Number	5566-04A-210

Primary through-hole Ø30.2 mm

JPC-500ST

Wiring Diagram

Connector

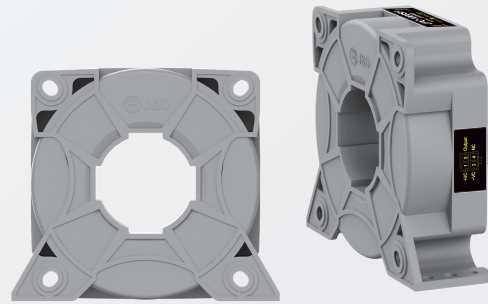
Manufacturer	Molex
Part Number	39-00-6293
Old Part Number	6410-03C (102)

Primary through-hole Ø30.2 mm

Specifications are subject to change without notice

Current Transducer JPC-1000SX

For electronic current measurements, the JPC series of AC/DC current sensors provides excellent stability even at high currents and offers high insulation between the primary and secondary circuits.



Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

Specification

SPEC	MODEL	JPC-1000SF		JPC-1000ST	
Connector	-	39-28-8040[5566-04A-210] Molex		38-00-6293[6410-03C(102)] Molex	
Primary nominal RMS current	A	1000			
Primary current, measuring range	A	0 .. ± 1500			
Measuring resistance	Ω	± 12V	@ ± 1000A @ ± 1200A	Ta=70°C : 0 ~ 20 Ta=70°C : 0 ~ 15	Ta=85°C : 0 ~ 18 Ta=85°C : 0 ~ 13
		± 15V	@ ± 1000A @ ± 1500A	Ta=70°C : 0 ~ 65 Ta=70°C : 0 ~ 30	Ta=85°C : 0 ~ 63 Ta=85°C : 0 ~ 28
Secondary nominal RMS current	mA	200			
Conversion ratio	-	1 : 5000			
Supply voltage (± 5%)	V	± 15 .. 24			
Current consumption @ ± 15 V	mA	28(@ ± 24V) + I _s			
Overall accuracy	%	± 0.4			
Linearity error	%	< 0.1			
Offset current	mA	Max. ± 0.4			
Magnetic offset current	mA	Max. ± 0.2(@ I _p = 0 and specified R _M , after an overload of 3 X I _{PN})			
Insulation voltage	V _D	AC 3800V / 1min.			
Temperature variation	mA	Typ. ± 0.3, Max. ± 0.5 (-10°C...+85°C) / Max. ± 0.8 (-40°C...-10°C)			
Step response time to 90 % of I _{PN}	μs	< 1 (With a di/dt of 100 A/μs.)			
di/dt accurately followed	A/μs	> 100			
Frequency bandwidth (- 3 dB)	kHz	DC .. 150			
Ambient Operating temperature	°C	- 40 .. + 85			
Ambient storage temperature	°C	- 40 .. + 100			
Resistance of Secondary winding	Ω	34 (@Ta=70°C) / 36 (@Ta=85°C)			
Mass	g	550			
Standards	-	EN 50178: 1997 / IEC 61010-1			

Dimensions JPC-1000SX (in mm)

JPC-1000SF

Wiring Diagram

Connector

Manufacturer	Molex
Part Number	39-28-8040
Old Part Number	5566-04A-210

Primary through-hole 40.5×13mm or Ø max 38 mm

JPC-1000ST

Wiring Diagram

Connector

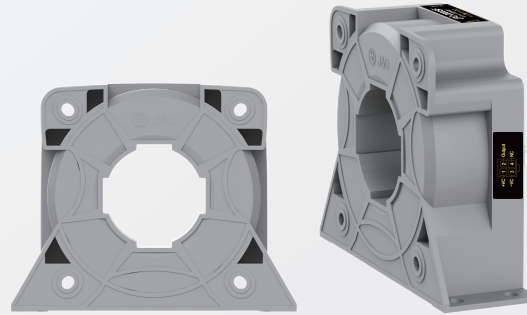
Manufacturer	Molex
Part Number	39-00-6293
Old Part Number	6410-03C (102)

Primary through-hole 40.5×13mm or Ø max 38 mm

Specifications are subject to change without notice

Current Transducer JPC-2000SX

For electronic current measurements, the JPC series of AC/DC current sensors provides excellent stability even at high currents and offers high insulation between the primary and secondary circuits.



Features

- Closed loop (compensated) current transducer using the Hall effect
- Insulated plastic case recognized according to UL 94-V0
- Panel mounting

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Advantages

- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.
- Excellent accuracy
- Very good linearity

Specification

SPEC	MODEL	JPC-2000SF		JPC-2000ST	
Connector	-	39-28-8040[5566-04A-210] Molex		38-00-6293[6410-03C(102)] Molex	
Primary nominal RMS current	A	2000			
Primary current, measuring range	A	0 .. ± 3000			
Measuring resistance	Ω	± 15V	@ ± 2000A @ ± 2200A	Ta=70°C : 0 ~ 10 Ta=70°C : 0 ~ 7	Ta=85°C : 0 ~ 8 Ta=85°C : 0 ~ 5
		± 24V	@ ± 2000A @ ± 2800A @ ± 3000A	Ta=70°C : Ta=70°C : Ta=70°C : 0 ~ 12	Ta=85°C : Ta=85°C : Ta=85°C : 0 ~ 10
Secondary nominal RMS current	mA	400			
Conversion ratio	-	1 : 5000			
Supply voltage (± 5%)	V	± 15 .. 24			
Current consumption @ ± 15 V	mA	33(@ ± 24V) + I _s			
Overall accuracy	%	± 0.3			
Linearity error	%	< 0.1			
Offset current	mA	Max. ± 0.5			
Magnetic offset current	mA	Max. ± 0.2(@ I _p = 0 and specified R _M , after an overload of 3 X I _{PN})			
Insulation voltage	V _D	AC 6000V / 1min.			
Temperature variation	mA	Typ. ± 0.2, Max. ± 0.5 (-25°C...+85°C) / Max. ± 1.5 (-40°C...-25°C)			
Step response time to 90 % of I _{PN}	μs	< 1 (With a di/dt of 100 A/μs.)			
di/dt accurately followed	A/μs	> 50			
Frequency bandwidth (- 3 dB)	kHz	DC .. 100			
Ambient Operating temperature	°C	- 40 .. + 85			
Ambient storage temperature	°C	- 50 .. + 90			
Resistance of Secondary winding	Ω	24 (@Ta=70°C) / 26 (@Ta=85°C)			
Mass	g	1.5			
Standards	-	EN 50178: 1997 / IEC 61010-1			

Dimensions JPC-2000SX (in mm)

JPC-2000SF

Wiring Diagram

Terminal Legend:

- ② 0V
- ① +VC
- ③ -VC
- ④ NC

Manufacturer	Molex
Part Number	39-28-8040
Old Part Number	5566-04A-210

Primary through-hole 60.5×50.5mm or Ø max 57 mm

JPC-2000ST

Wiring Diagram

Terminal Legend:

- ② 0V
- ① +VC
- ③ -VC

Manufacturer	Molex
Part Number	39-00-6293
Old Part Number	6410-03C (102)

Primary through-hole 60.5×50.5mm or Ø max 57 mm

Specifications are subject to change without notice

Safety & Danger Notes

Important Safety Information



The J&D CTs are designed to comply with UL/EN 61010-1, CE, and RoHS standards, and are rated up to Pollution degree 2 and 600Vac CAT III. Failure to follow these instructions may result in serious injury or damage.

The transducer should only be used in accordance with the operating instructions provided by the equipment manufacturer and all related systems and components. It is important to follow all applicable standards and safety requirements.

Qualified personnel, who possess the necessary skills, knowledge, and safety training, should only install and service this equipment. When installing or maintaining the device, make sure the main power supply is disconnected, unless there are no hazardous live parts and all applicable national regulations are fully observed.



Please note that dangerous active voltages (such as primary conductors) may be present in certain parts of the module when the transducer is operating. Users should take all necessary precautions to protect against electric shock.

The transducer is a built-in device that contains conductive parts that are inaccessible after installation. As such, it requires a protective enclosure or additional insulation barrier for safe operation.

To ensure safe and trouble-free operation, please ensure that the transport, storage, installation, and maintenance of this converter are carried out correctly and with care.

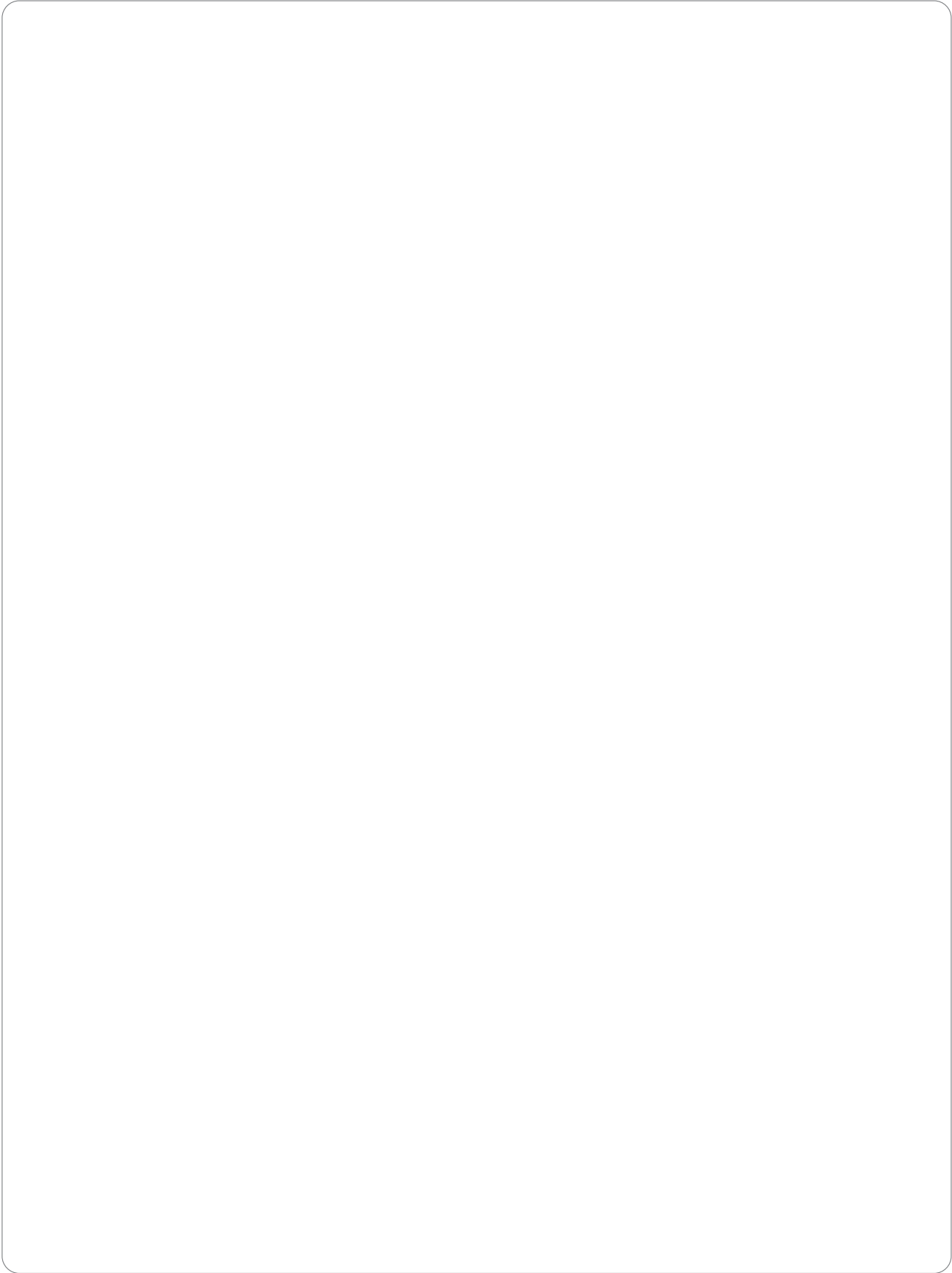
Remark

- The output current (I_o) is positive when the primary current (I_p) flows in the direction of the arrow.
- The temperature of the primary conductor should not exceed 100°C (212°F).
- For the best dynamic performances (di/dt and delay time), it is recommended to use a single bar and ensure that the primary hole is completely filled.

Warning



This product can expose you to chemicals including Antimony Trioxide, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov





300, Wiryegwangjang-ro, Sujeong-gu, Seongnam-si,
Gyeonggi-do, South Korea
<http://www.hqsensing.com>