Y06-1000 Current Sensor

The Y06-1000 series is a current transducer which operates on the principle of magnetic compensation. It measures DC, AC or pulse currents and their combinations, with galvanic isolation techniques used to separate the primary and secondary circuits.

Features

- Non-contact measurement of high current
- Close-Loop measurement (compensated)
- Nominal measuring range ±1000A (DC or AC peak)
- Nearly zero magnetic hysteresis
- Superior temperature stability and linearity
- Panel mounting
- RoHs compliance (Lead-Free)

Advantages

- Accurately measures AC, DC and pulse currents
- Fast response <1μs
- High immunity from external interference
- Low offset drift

Applications

- Windmill inverters
- Single or three phase inverters
- AC variable speed drives and servo motor drives
- Energy managements
- Test and measurement

Standards

- EN 50178:1997
- IEC 618000-5-1:2027
- IEC 61010-1:2010
- IEC 62109-1: 2010

Absolute maximum ratings

Symbol	Parameter	Min.	Max.	Unit
$V_{CC\ max.}$	Maximum supply voltage (not destructive)	-24	24	V
I_{Pm}	Maximum measuring current	-1500	1500	A
T_A	Ambient operating temperature	-40	85	°C
T_S	Storage temperature range	-40	90	°C
$V_{ESD-HBM}$	ESD sensitivity HBM (Human Body Model)		8	kV

Stresses above these ratings may cause permanent damage. Exposure to absolute maximum ratings for extended periods may degrade reliability.

Specifications (T_A= 25°C, V_{CC}= ±15.0V)

Symbol	Parameter	Description	Unit
V_{CC}	Supply voltage	±15 ...24	V
I_C	Current consumption @I_P=0	<30	mA
I_{PN}	Current nominal measuring range	±1000	A
I_{Pm}	Maximum measuring current	±1500	A
K_N	Conversion ratio	1:5,000	
R_S	Coil resistance @25 °C	<45	Ω
R_m	Measuring resistance with±15V @T_A=70°C	0~18@±1000A_{Max} ,0~7@±1200A_{Max}	Ω
	Measuring resistance with±24V @T_A=70°C	5~60.5@±1000A_{Max} ,5~24@±1500A_{Max}	Ω
	Measuring resistance with±15V @T_A=85°C	0~15@±1000A_{Max} ,0~4@±1200A_{Max}	Ω
	Measuring resistance with±24V @T_A=85°C	10~57.5@±1000A_{Max} ,10~21@±1500A_{Max}	Ω
T_{CIOT}	Temperature coefficient of I_{OUT} @ T_A=-25°C ...85°C	<±0.3	mA
T_{CIOF}	Temperature coefficient of offset @ I_P=0, T_A=-25°C ...85°C	<±0.01	mA/K
TEB	Full scale of I_{PN} @T_A=-25°C ...85°C	<0.5	%/I_{PN}
ε_L	Non-linearity error without offset	<0.15	%/I_{PN}
I_{OE}	Offset current @I_P=0	±0.2 Typ. / ±0.4 Max.	mA
I_{OM}	Magnetic offset current @I_P= 0A → I_{PN}→ 0A	<±0.2	mA
T_R	Step response to 90% of I_{PN}	<1	μs
BW	Frequency bandwidth (-3dB)	100	kHz

Insulation Parameters

Symbol	Parameter	Value	Unit	Comment
V_D	Insulation voltage for isolation, 50Hz, 1 min	3800	V	Y06-1000V
		6000	V	Y06-1000Q
V_P	Impulse withstand voltage 1.2/50 μs	15.6	kV	Y06-1000V
		17.5	kV	Y06-1000Q
R_{ISO}	Isolation resistance @500VDC	>500	MΩ	
D-CLE	Clearance	19	mm	Y06-1000V
		11.3	mm	Y06-1000Q
D-CRD	Creepage distance	20	mm	Y06-1000V
		24.6	mm	Y06-1000Q

General characteristics

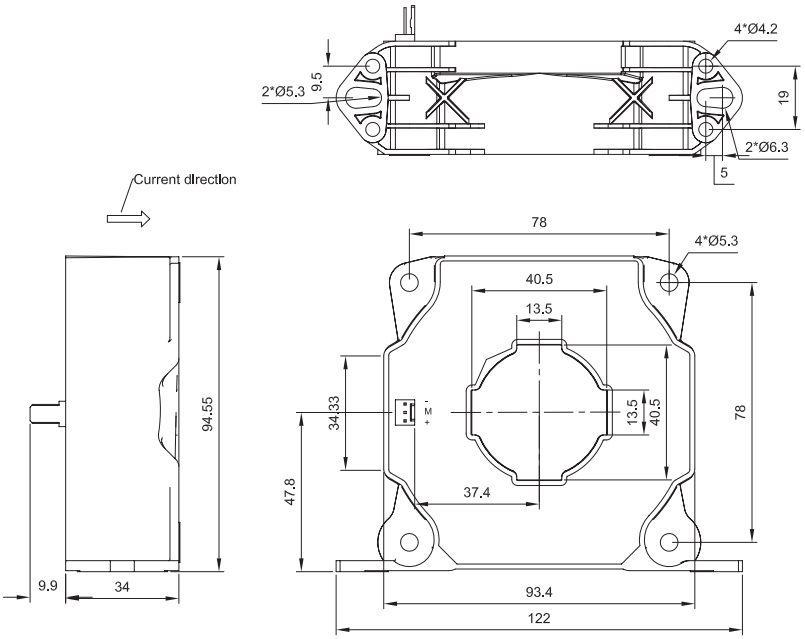
Symbol	Parameter	Value	Unit	Comment
M-HSE	Housing material	V0		Flame retardant UL 94
M-FC	Flux collector material	Oriented silicon steel		Superior magnetic permeability
m	Mass	510	grams	

Mechanical characteristics

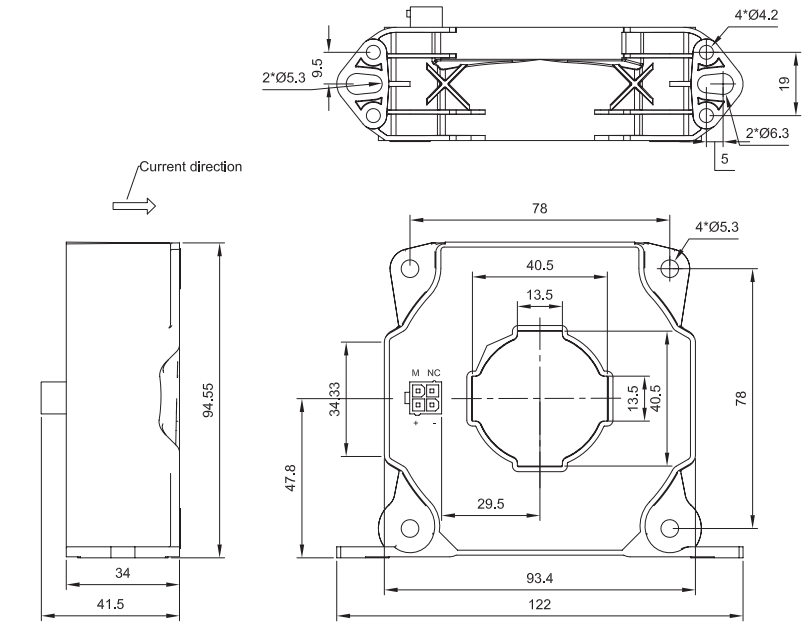
Symbol	Parameter	Comment
INS_{VET}	Vertical position of installation	Standard-2 holes, 2 M5 steel screws , 3.2 N.m 4 holes Ø 4.2 mm, 4 M4 steel screws, 2.1 N.m
INS_{HOR}	Horizon position of installation	Standard-4 holes Ø 5.3 mm, M5 steel screws, 3.2 Nm

Dimension (mm)

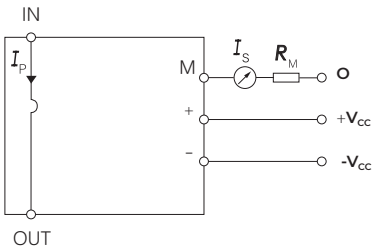
Y06-1000V



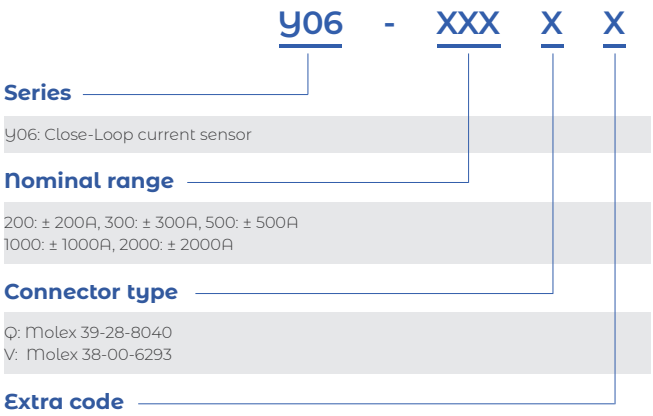
Y06-1000Q



Connection diagram:



Name Guide Description



Notes

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Safety and Environment

The product is to be installed by manufacturer trained personnel or competent person trained in accordance with manufacturer installation instructions.

With respect to applicable standards IEC 61010-1/ EN 61010-1 *safety requirements for electrical equipment for measurement, control and laboratory use part 1 general requirements*, the product should be used in limited energy secondary circuits.

Risk of electrical shock

Certain parts of the module can carry hazardous voltage during the operation process of the product because hazardous live voltage of primary conductor, power supply occurs, injury and/or serious damage will be caused if this warning is ignored.

Conducting parts must be inaccessible after installation of the product. Additional protection including shield or protective housing could be used according to IEC 60664 Insulation coordination for equipment within low-voltage supply systems.

Disconnection of the main supply will protect against possible injury and serious damage.

ESD protection

Damage from an ESD event will occur if the personnel is not well grounded when handling.

Important notice

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