



# Topstek Current Transducer TC5A .. TC50A

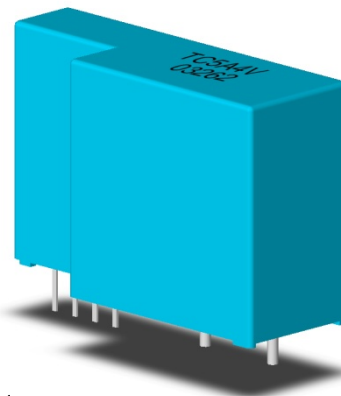
## TC 5A~50A

### Features

- ◆ Highly reliable Hall Effect device
- ◆ Compact and light weight
- ◆ Fast response time
- ◆ Excellent linearity of the output voltage over a wide input range
- ◆ Excellent frequency response (> 50 kHz)
- ◆ Low power consumption (9 mA nominal)
- ◆ Capable of measuring both DC and AC, both pulsed and mixed
- ◆ High isolation voltage between the measuring circuit and the current-carrying conductor (AC2.5KV)
- ◆ Extended operating temperature range
- ◆ Flame-Retardant plastic case and silicone encapsulate, using UL classified materials, ensures protection against environmental contaminants and vibration over a wide temperature and humidity range

### Applications

- ◆ UPS systems
- ◆ Industrial robots
- ◆ NC tooling machines
- ◆ Elevator controllers
- ◆ Process control devices
- ◆ AC and DC servo systems
- ◆ Motor speed controller
- ◆ Electrical vehicle controllers
- ◆ Inverter-controlled welding machines
- ◆ General and special purpose inverters
- ◆ Power supply for laser processing machines
- ◆ Controller for traction equipment e.g. electric trains
- ◆ Other automatic control systems



### Specifications

Parameter	Symbol	Unit	TC 5A 4V	TC 7.5A 4V	TC 10A 4V	TC 12.5A 4V	TC 15A 4V	TC 18.5A 4V	TC 20A 4V	TC 25A 4V	TC 50A 4V
Nominal Input Current	$I_{in}$	A DC	5	7.5	10	12.5	15	18.5	20	25	50
Linear Range	$I_{fs}$	A DC	±15	±23	±30	±38	±45	±56	±60	±75	±150
Diameter of Primary Coil	d	mm	0.7	1	1.2	1.2	1.4	1.4	1.4	1.6	1.6x2.5
Turns of Primary Coil	T	T	10	6	5	4	3	2	2	2	1
Ampere-Turn of Primary Coil	AT	AT	50	45	50	50	45	37	40	50	50
Nominal Output Voltage	$V_{hn}$	V	4 V ±1% at $I_f = I_{in}$ ( $R_L = 10k\Omega$ )								
Offset Voltage	$V_{os}$	mV	Within ±40 mV @ $I_f = 0$ , $T_a = 25^\circ C$								
Output Resistance	$R_{OUT}$	$\Omega$	< 50 $\Omega$ (35 $\Omega$ nominal)								
Hysteresis Error	$V_{oh}$	mV	Within ±10 mV @ $I_f = I_{in} \rightarrow 0$								
Supply Voltage	$V_{CC}/V_{EE}$	V	±15V ±5%								
Linearity ( Within ± $I_{in}$ )	$\rho$	%	Within ±1% of $I_{in}$								
Consumption Current	$I_{CC}$	mA	±9 mA nominal								
Response Time (90% $V_{hn}$ )	$T_r$	$\mu sec$	3 $\mu sec$ max. @ $d I_f / dt = I_{in} / \mu sec$								
Thermal Drift of Output	-	%/ $^\circ C$	Within ±0.1 %/ $^\circ C$ @ $I_{in}$								
Thermal Drift of Zero Current Offset	-	mV/ $^\circ C$	Within ±1.5 mV/ $^\circ C$ @ $I_{in}$								
Dielectric Strength	-	V	AC2.5KV X 60 sec								
Isolation Resistance @ 1000 VDC	$R_{IS}$	M $\Omega$	>1000 M $\Omega$								
Operating Temperature	$T_a$	$^\circ C$	-15 $^\circ C$ to 80 $^\circ C$								
Storage Temperature	$T_s$	$^\circ C$	-20 $^\circ C$ to 85 $^\circ C$								
Mass	W	g	14 g								

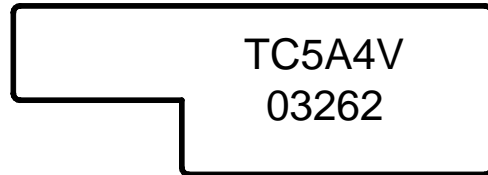




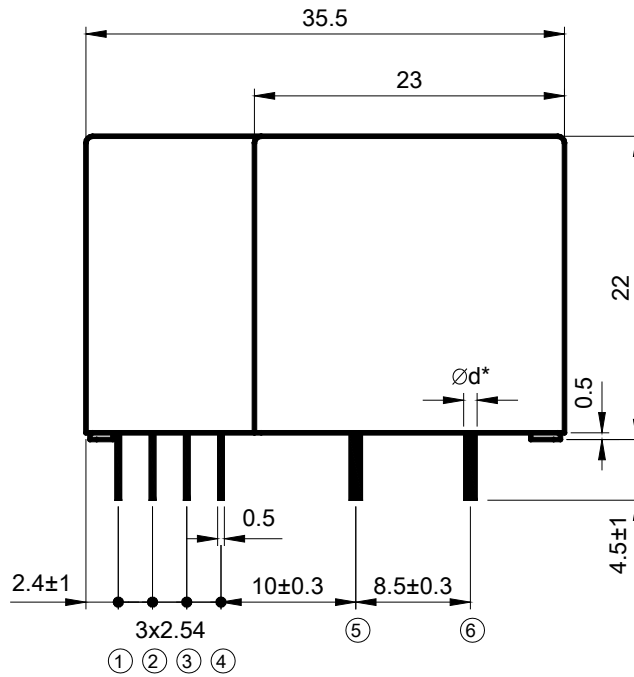
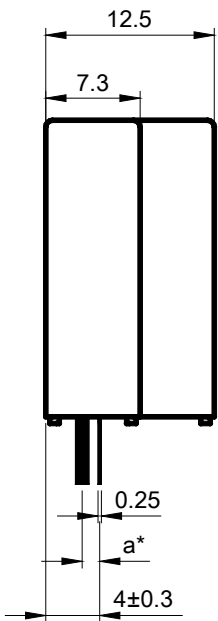
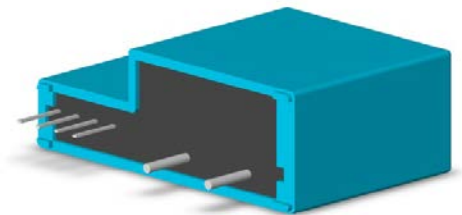
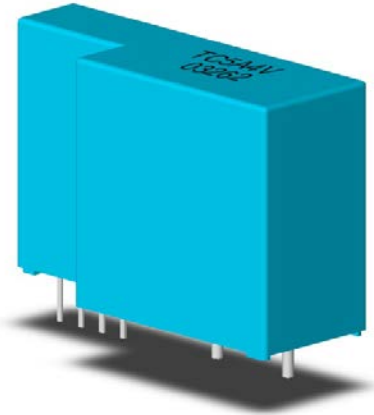
# Topstek Current Transducer TC5A .. TC50A

## Appearance, dimensions and pin identification for 5A to 25A models

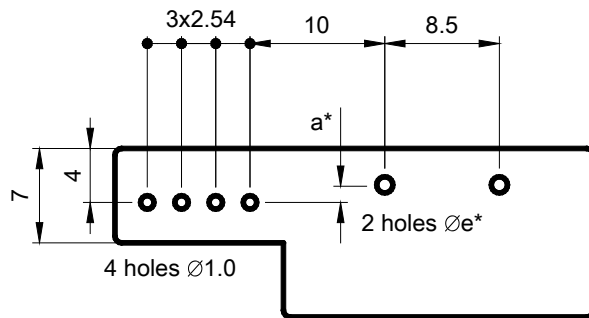
All dimensions in mm  $\pm 0.5$ , holes  $-0, +0.2$  except otherwise noted



Model number and date code marking



Pin Assignment	
①	+15V
②	-15V
③	V <sub>OUT</sub>
④	0V
⑤	I <sub>+</sub>
⑥	I <sub>-</sub>



5A to 25A PCB mounting hole layout

Part Number	a* (mm)	d* (mm)	e* (mm)
TC5A4V	1.2	Ø0.7	Ø1.2
TC7.5A4V	1.3	Ø1.0	Ø1.6
TC10A4V	1.4	Ø1.2	Ø1.8
TC12.5A4V	1.4	Ø1.2	Ø1.8
TC15A4V	1.5	Ø1.4	Ø2.0
TC18.5A4V	1.5	Ø1.4	Ø2.0
TC20A4V	1.5	Ø1.4	Ø2.0
TC25A4V	1.5	Ø1.4	Ø2.2

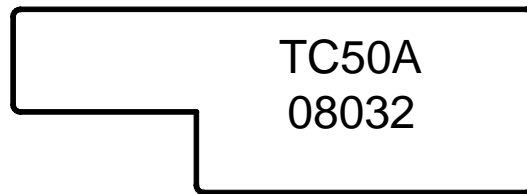
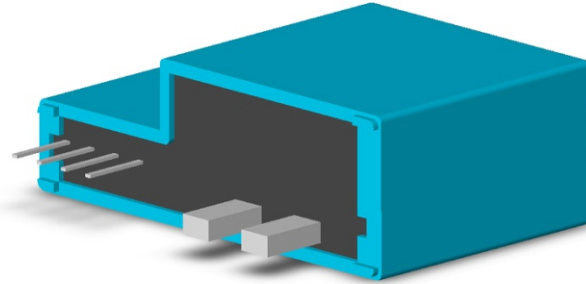




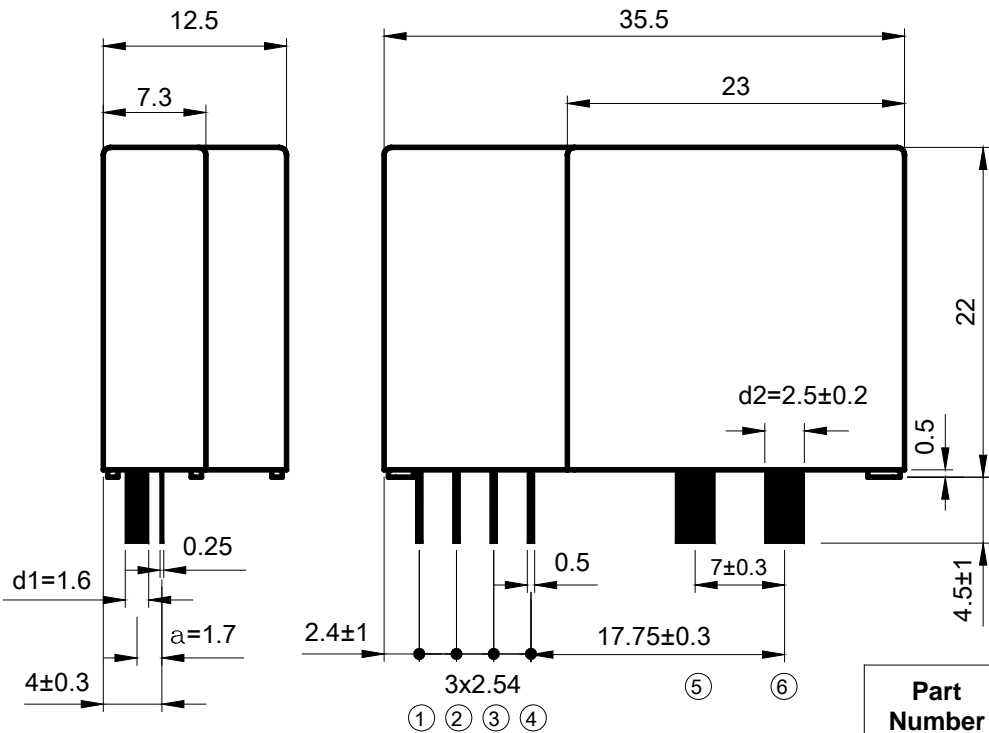
# Topstek Current Transducer TC5A .. TC50A

## Appearance, dimensions and pin identification for TC50A model

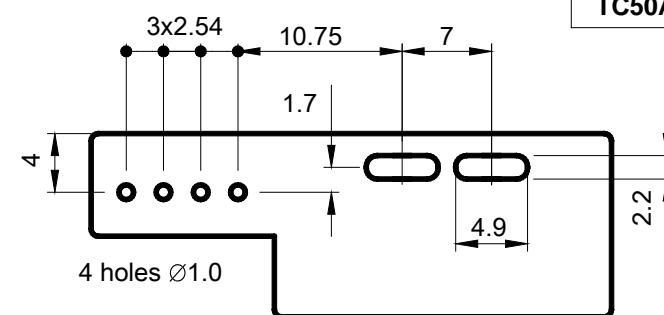
All dimensions in mm  $\pm 0.5$ , holes  $-0, +0.2$  except otherwise noted



Model number and date code marking



Pin Assignment	
①	+15V
②	-15V
③	V <sub>OUT</sub>
④	0V
⑤	I <sub>+</sub>
⑥	I <sub>-</sub>



TC50A PCB mounting hole layout

Part Number	a* (mm)	d1xd2 (mm)	hole (mm)
TC50A	1.7	□1.6x2.5	□2.2x4.9

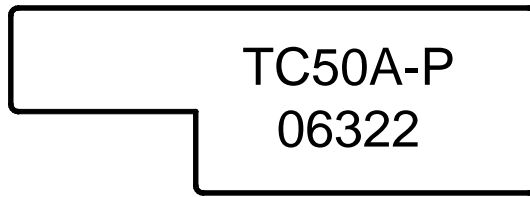
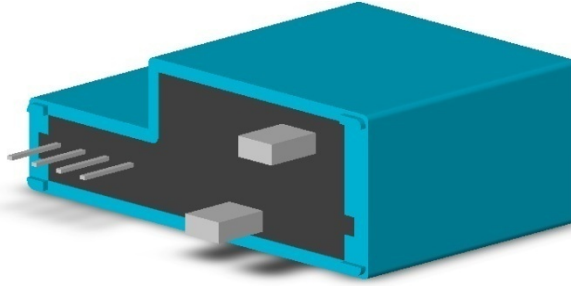




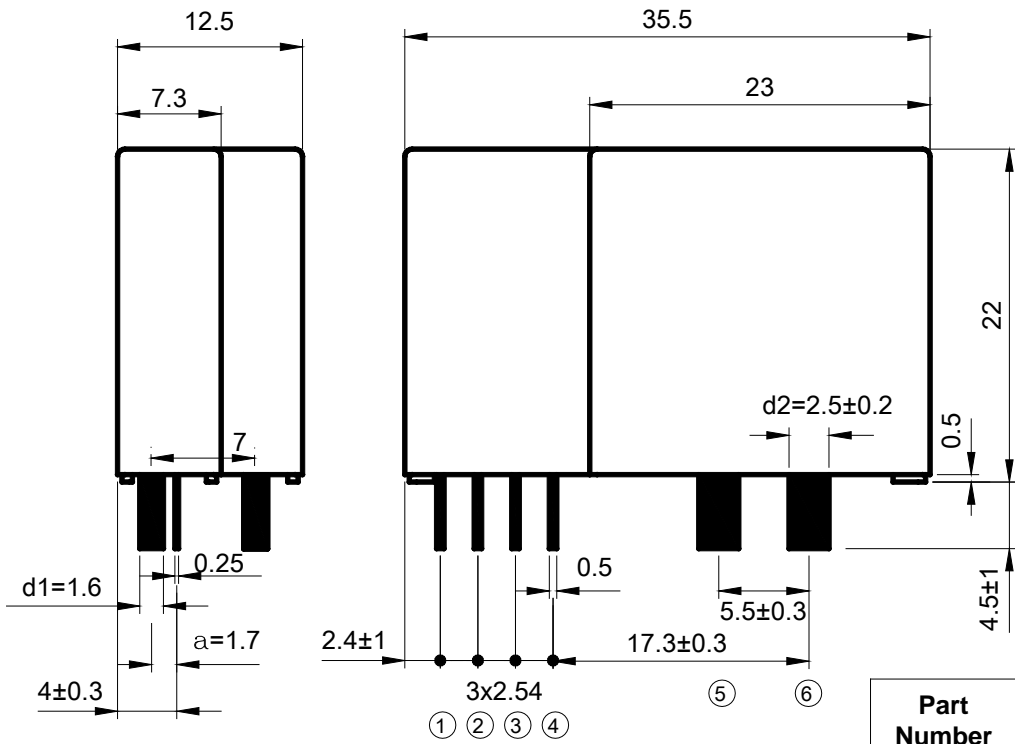
# Topstek Current Transducer TC5A .. TC50A

## Appearance, dimensions and pin identification for TC50A-P model

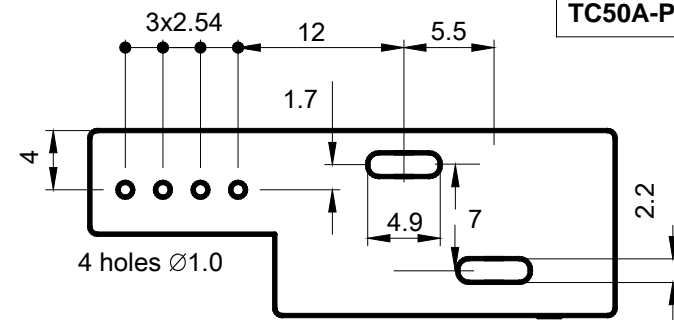
All dimensions in mm  $\pm 0.5$ , holes  $-0, +0.2$  except otherwise noted



Model number and date code marking



Pin Assignment	
①	+15V
②	-15V
③	$V_{OUT}$
④	0V
⑤	I+
⑥	I-



TC50A-P PCB mounting hole layout

Part Number	a* (mm)	d1xd2 (mm)	hole (mm)
TC50A-P	1.7	□1.6x2.5	□2.2x4.9

