



Most sensitive & fastest current transformer
Best non-destructive instrument to observe pulsed or CW beams. Yet not a precise measuring instrument.

High sensitivity up to 5 V/A
Rise time down to 200 ps

Up to 10 V/A with limited bandwidth

Technology

Magnetic cores made of Cobalt-based amorphous or nanocrystalline alloys provide high permeability and low losses even at very high signal frequencies. Thus, allowing to achieve very fast risetime.

Alloys are thermally and magnetically processed in-house, to obtain unequalled performance. Alloy batches are individually annealed to give each of them specific characteristics.

Proprietary multithread winding techniques to assure uniform field density in magnetic core. Annealing techniques are the result of 40 years experience in cobalt-based alloy processing.

Two packaging types



In-flange FCT is mounted in the beam line. Short axial length, includes a ceramic gap vacuum-brazed to kovar. Does not require bellows, wall current bypass nor electromagnetic shield. UHV compatible.



In-air FCT installation, over the vacuum chamber Requires installation of a "gap" to prevent the wall current from flowing through the FCT aperture. The gap can be a brazed ceramic ring or an organic material O-ring depending on the vacuum requirements. Typical installations include bellows, a wall current bypass and an electromagnetic shield enclosing the FCT completely.

MANUFACTURER

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DISTRIBUTORS

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India: GEEBEE International
www.geebeinternational.com
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China: Beijing Conveyi Limited
www.conveyi.com
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Specifications

Wideband models (standard)

Sensitivity (nominal)	0.25	0.5	1.25	2.5	5.0	V/A
Turns ratio (old reference)	100:1	50:1	20:1	10:1	5:1	
Rise time (typ.)*	0.60	0.30	0.23	0.30	0.39	ns
Droop	< 1	< 3	< 6	< 10	< 32	%/μs
Upper cutoff frequency -3dB typ. *	0.58	1.17	1.50	1.17	0.90	GHz
Lower cutoff frequency -3dB typ. *	< 1.6	< 5	< 9.5	< 16	< 50	kHz
L/R time constant (min.)	100	35	17	10	5	μs
Max. charge/pulse	8100	2000	324	81	20	μC
Max. rms current (f > 10 kHz)	2.7	2.7	2.7	2.7	2.7	A
Max. peak current (pulse = 1 ns)	2	0.4	0.2	0.1	0.1	kA

For 10 V/A sensitivity specifications, please ask

* Depends on FCT sensor dimensions and selected options

Low droop (-LD) models on option

Sensitivity (nominal)	0.25	0.5	1.25	2.5	5.0	V/A
Turns ratio (old reference)	100:1	50:1	20:1	10:1	5:1	
Rise time (typ.)*	1.00	0.54	0.40	0.50	0.78	ns
Droop	< 0.05	< 0.2	< 1	< 3	< 8	%/μs
Upper cutoff frequency -3dB typ. *	350	650	850	700	450	MHz
Lower cutoff frequency -3dB typ. *	< 0.08	< 0.32	< 1.6	< 5	< 13	kHz
L/R time constant (min.)	2000	500	100	35	12	μs
Max. charge/pulse	8100	2000	324	81	20	μC
Max. rms current (f > 10 kHz)	2.7	2.7	2.7	2.7	2.7	A
Max. peak current (pulse = 1 ns)	2	0.4	0.2	0.1	0.1	kA

For 10 V/A sensitivity specifications, please ask

* Depends on FCT sensor dimensions and selected options

Order codes

In-flange FCT sensors

In-flange FCT sensor order code	Pipe OD	Mating flange	ID (mm)	H (mm)	
FCT-CF3"3/8-22.2-40-UHV	1"	DN/NW50CF	22.2		
FCT-CF4"1/2-34.9-40-UHV	1.5"	DN/NW63CF	34.9		
FCT-CF4"1/2-38.0-40-UHV	40 mm	DN/NW63CF	38.0		
FCT-CF6"-47.7-40-UHV	2"	DN/NW100CF	47.7		
FCT-CF6"-60.4-40-UHV	2.5"	DN/NW100CF	60.4		
FCT-CF6"3/4-96.0-40-UHV	4"	DN/NW130CF	96.0		
FCT-CF8"-96.0-40-UHV	4"	DN160/NW150CF	96.0		
FCT-CF10"-147.6-40-UHV	6"	DN/NW200CF	147.6		
FCT-CF12"-198.4-40-UHV	8"	DN/NW250CF	198.4		
FCT-CFXX"-XXX-40-UHV-5.0 V/A and lower					40.0
FCT-CFXX"-XXX-XX-UHV-10.0 V/A, please ask dimensions					

Options

-LD	Low droop
-316LN	AISI 316LN instead of AISI 304 SS
-ARB#xx	Arbitrary shape aperture
-BK150C	150 °C (300 °F) bakeable, In-flange only
-BK185C	185 °C (365 °F) bakeable, In-flange only
-BK200C	200 °C (392 °F) bakeable, In-flange only
-VAC	Degassed in-air sensor
-H	Radiation-tolerant sensor

Connector

SMA jack 50Ω

Environment

Temperature	
In-air models:	100 °C (212 °F) any time
In-flange models:	100 °C (212 °F) any time
On option:	150 °C (300 °F)
	185 °C (365 °F)
	200 °C (392 °F)
Core saturation	2 mT radial field 2 A permanent DC current
Radiation damage	
Standard SMA	PTFE: 10 ³ Gray max
On option:	
Rad-tolerant SMA	PEEK: 6 x 10 ⁷ Gray max 10 ¹⁷ n/cm ² max

In-air FCT sensors

In-air FCT sensor order code	ID (min)	OD (max)	H (max)	
FCT-016	16	42		
FCT-028	28	64		
FCT-055	55	91		
FCT-082	82	118		
FCT-122	122	156		
FCT-178	178	226		
FCT-XXX-2.5 V/A and lower				22
FCT-XXX-5.0 V/A				35
FCT-XXX-10.0 V/A, please ask dimensions				

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