

HFCF-F12

FLUXGATE CURRENT SENSOR



File No.: IEC 62955



Features

- Fluxgate current sensor
- Digital open-drain output and PWM output
- Error output for system fault indication
- All-in-One highly integrated digital residual current action indicator
- On-board residual current protection modules for charging piles
- Meets UL 2231, IEC62752 requirements for residual current operating characteristics

SCOPE OF APPLICATION

HFCF-F12 Inspection modules are integrated with instrument transformers.
Measurement of various irregular waveform current under electrically isolated conditions.

ELECTRICAL DATA (Ta=25°C)

Type	Sym	Min	Typ	Max
Primary nominal RMS current (1phase / 3phase)	I _P		32A	40A
Supply voltage	V _{DD}	4.85V	5V	5.15V
Power Consumption	P _C			110mW
Voltage input/output, low level	V _L	0V		0.6V
Voltage input/output, high level	V _H	4.2V		5V
Ambient operation temperature	T _A	-40°C		+105°C
Ambient storage temperature	T _S	-40°C		+105°C
Theoretical design life ¹	—		20Yr	
Operating altitude ²	—			4000m

INSULATION COORDINATION

Parameter	Sym	HFCF-F12/ D-S5-1
Electrical clearance;Primary-Primary	E _C	≥6.5mm
Electrical clearance;Primary-Secondary	E _C	≥10mm
Creepage distance;Primary-Primary	C _D	≥8mm
Creepage distance;Primary-Secondary	C _D	≥10mm

RESIDUAL CURRENT RELATED CHARACTERISTICS

Parameter	Sym	HFCF-F12/ D-S5-1	HFCF-F12/ D-S5-2	HFCF-F12/ D-S5-3
Rated residual operating current (DC)	I _{AN1}	6mA DC	6mA DC	56mA DC
Rated residual operating current (rms)	I _{AN2}	30mA rms	—	20mA rms



HONGFA CURRENT TRANSFORMER
ISO9001 CERTIFIED

2024 Rev. 1.00

ORDERING INFORMATION

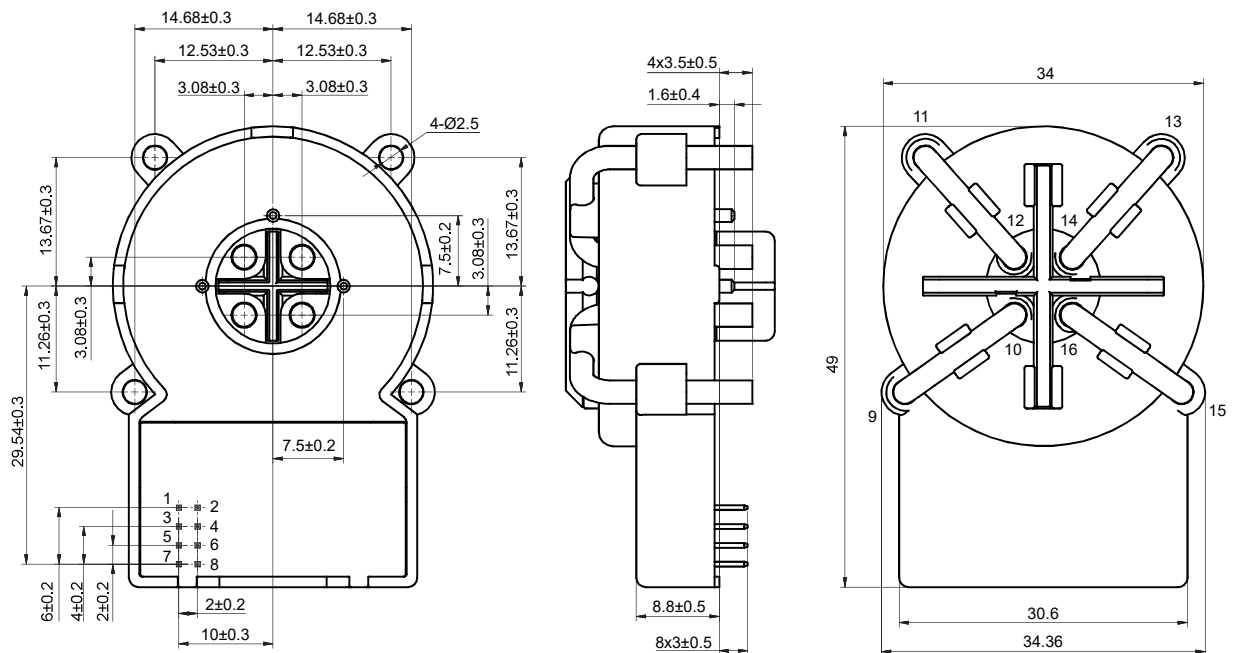
Product Part NO.	HFCF CF: Fluxgate current sensor	-F	12	D	-S	5	-□	(XXX)
Working Principle	F: For leakage							
Sequence number	12: 12							
Output method	D: Digital signal							
Operating Voltage Mode	S: Single power supply							
Typical operating voltage	5: 5V							
Programming Code	1: RDC-PD 2: RDC-MD 3: CCID20							
Special code¹⁾	XXX: Customer special requirement							

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

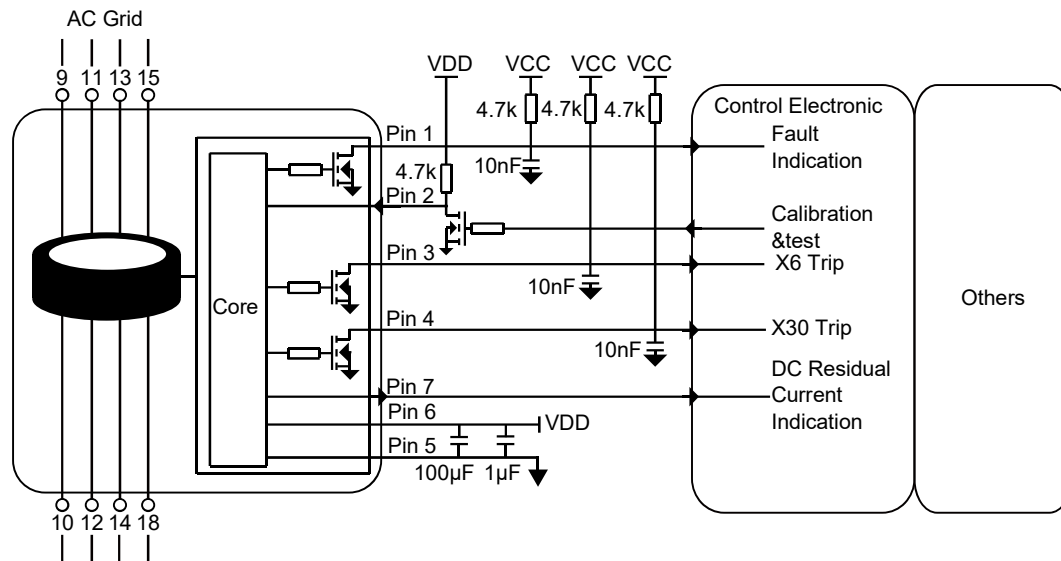
OUTLINE DIMENSIONS, WIRING DIAGRAM, TIMING DIAGRAM

Unit: mm

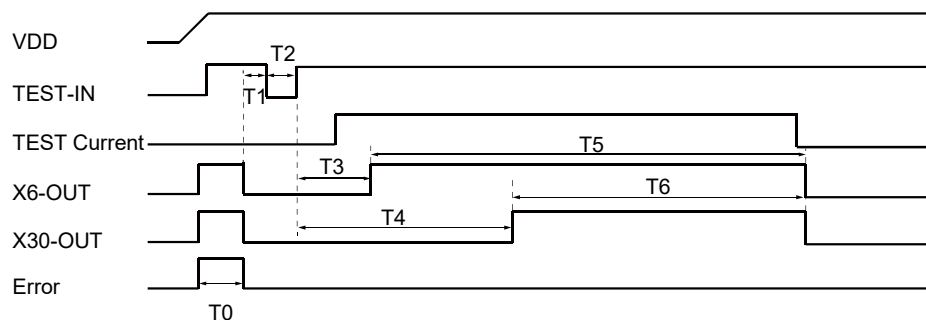
Outline Dimensions



Wiring Diagram



Timing Diagram



- Notes:**
- 1) VDD building up time should be $\leq 15\text{ms}$.
 - 2) T0 as the waiting time for system stabilization, $T0 \approx 270\text{ms}$.
 - 3) T1 as the waiting time, it is suggested $T1 \geq 100\text{ms}$.
 - 4) T2 as the calibration and self-test order time, it is suggested $50\text{ms} \leq T2 \leq 100\text{ms}$.
 - 5) T3 as the waiting time for the self-test DC, $T3 \approx 200\text{ms}$, it is suggested to read X6-OUT after 300ms.
 - 6) T4 as the waiting time for the self-test AC, $T4 \approx 690\text{ms}$, it is suggested to read X30-OUT after 300ms.
 - 7) T5 as the DC self-test indication duration time, $T5 \approx 1580\text{ms}$.
 - 8) T6 as the AC self-test indication duration time, $T6 \approx 1090\text{ms}$.
 - 9) During the self-test procedure, the main circuit must be cut-off to ensure no residual current flowing. After X6-OUT and X30-OUT self-test finished, normal residual current tripping logic can be started.

NOTES:

- 1) To avoid using current transformer under strong magnetic field, the external magnetic field will cause the accuracy of current transformer to change.
- 2) We could not evaluate all the performance and all the parameters for every possible application field and environment. Thus the user should be in a right position to choose the suitable produce for their own application. If there is any query, please contact HKG for the technical service. However, it is the user's responsibility to determine which product should be used only.
- 3) Operating temperature range in this specification refers to the maximum tolerable temperature range under specific load conditions.
- 4) To maintain the performances of current transformers, please do not make the current transformer drop or be shocked strongly.
- 5) All the performance data listed in the datasheet are the initial values tested under standard testing condition.
- 6) HKG reserves the right to change the product, the customer should confirm this specification before placing the order for the first time, may request us to provide the new specification if necessary.