

FG-R05-3A AC & DC Residual Current Sensors

Overview

The FG sensor is a high-sensitivity AC and DC leakage current sensor with individual open drain alarms and an analog output for leakage current indication. In addition, its integrated test coil can be initiated by a test input to perform a functional alarm test.

Benefits

- Open-loop, fluxgate-based current sensor
- Digital output of fault detection
- Conforms to IEC62752:2016/A1:2018
- Conform to UL 2231-2
- RoHS compliant

Electrical Characteristics

- Power supply 5 V
- Primary nominal current 80/40 A
- Current consumption 13 mA
- DC fault detection current 6 mA
- AC fault detection current = 20 mA
- Operation up to +105°C
- High precision by flux gate method
- PCB mount with small mounting area



Specifications

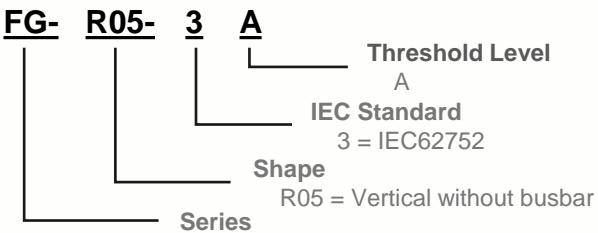
Performance Characteristics	
Primary Rated Voltage	250 V
Primary Nominal Current	80/40 A maximum (1 phase/3 phase)
Supply Voltage Range	4.75 – 5.25 V (5 V typical)
Maximum Input Voltage of Digital Output	Supply voltage + 0.3 V
Input Voltage Range of TEST (LOW)	0.0 – 0.6 V
Input Voltage Range of TEST (HIGH)	2.5 V - supply voltage
Maximum Current of Digital Output	10 mA
Current Consumption	13 mA (at measurement 0 mA)
Operating Temperature Range	-40°C to +105°C
Storage Temperature Range	-40°C to +105°C

Parameter	Specification
Dimension	38.5 x 31.5 x 13.5 mm (maximum)
Inner Diameter	Φ 12.6 mm (typical)
Mass	18 g (typical)

Threshold Level	Value	Compliant with
A	AC 20 mA	IEC62752

[Datasheet Link](#)

Part Number System



Applications

- In-cable control and protection devices (IC-CPD) | EV charging cable IEC62752
- Wallbox charging station

FG-R05 AC & DC Residual Current Sensors

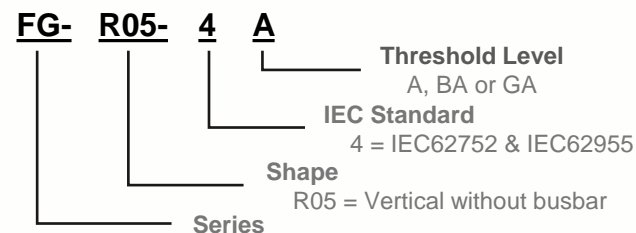
Overview

The FG sensor is a high-sensitivity AC and DC leakage current sensor with individual open drain alarms and an analog output for leakage current indication. In addition, its integrated test coil can be initiated by a test input to perform a functional alarm test.

Benefits

- Open-loop, fluxgate-based current sensor
- Digital output of fault detection
- 3,000 A surge current capability
- Conforms to IEC62752:2016/A1:2018
- Conforms to IEC62955:2018 ¹
- Conform to UL 2231-2
- AEC-Q level of testing
- Composed of AEC-Q certified parts
- RoHS compliant, ASIL_B

Part Number System



¹ Conditional and dependent on the circuit/system designed as explained in the Recommended Circuit section of the datasheet.

Electrical Characteristics

- Power supply 5 V
- Primary nominal current 80/40 A
- Current consumption 13 mA
- Operation up to +105°C
- High precision by flux gate method
- PCB mount with small mounting area

Specifications

Performance Characteristics	
Primary Rated Voltage	250 V
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Maximum Current of Digital Output	10 mA
Current Consumption	13 mA (at measurement 0 mA)
Operating Temperature Range	-40°C to +105°C
Storage Temperature Range	-40°C to +105°C

Threshold Level	Value	Compliant with
A	DC 6 mA AC 20 mA	IEC62752, IEC62955, UL2231-2 (CCID20)
BA	DC 6 mA AC 30 mA	IEC62752, IEC62955
GA	AC 5 mA AC 20 mA	UL2231-2 (CCID5, CCID20)



Parameter	Specification
Dimension	38.5 x 31.5 x 13.5 mm (maximum)
Inner Diameter	Φ 12.6 mm (typical)
Mass	18 g (typical)



Other mechanical shapes available



FG-R04



FG-R01



FG-R02

Applications

- EV charging cable ICCPD
- Wallbox charging station
- On board charger

[Datasheet Link](#)

FG-R04 AC & DC Residual Current Sensors

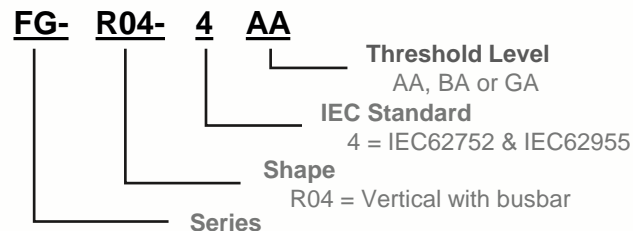
Overview

The FG sensor is a high-sensitivity AC and DC leakage current sensor with individual open drain alarms and an analog output for leakage current indication. In addition, its integrated test coil can be initiated by a test input to perform a functional alarm test.

Benefits

- Open-loop, fluxgate-based current sensor
- Digital output of fault detection
- 3,000 A surge current capability
- Conforms to IEC62752:2016/A1:2018
- Conforms to IEC62955:2018 ¹
- Conform to UL 2231-2
- AEC-Q level of testing
- Composed of AEC-Q certified parts
- RoHS compliant, ASIL_B

Part Number System



¹ Conditional and dependent on the circuit/system designed as explained in the Recommended Circuit section of the datasheet.

Electrical Characteristics

- Power supply 5 V
- Primary nominal current 80/40 A
- Current consumption 13 mA
- Operation up to +105°C
- High precision by flux gate method
- PCB mount with small mounting area

Specifications

Performance Characteristics	
Primary Rated Voltage	250 V
Primary Nominal Current	40 A maximum / busbar
Supply Voltage Range	4.75 – 5.25 V (5 V typical)
Maximum Input Voltage of Digital Output	Supply voltage + 0.3 V
Input Voltage Range of TEST (LOW)	0.0 – 0.6 V
Input Voltage Range of TEST (HIGH)	2.5 V - supply voltage
Maximum Current of Digital Output	10 mA
Current Consumption	13 mA (at measurement 0 mA)
Operating Temperature Range	-40°C to +105°C
Storage Temperature Range	-40°C to +105°C

Threshold Level	Value	Compliant with
AA	DC 6 mA AC 20 mA	IEC62752, IEC62955, UL2231-2 (CCID20)
BA	DC 6 mA AC 30 mA	IEC62752, IEC62955
GA	AC 5 mA AC 20 mA	UL2231-2 (CCID5, CCID20)



Parameter	Specification
Dimension	43.6 x 27.3 x 31 mm (maximum)
Inner Diameter	Φ 2.5 mm (typical)
Mass	32 g (typical)



Other mechanical shapes available



FG-R05



FG-R01



FG-R02

Applications

- EV charging cable ICCPD
- Wallbox charging station
- On board charger

[Datasheet Link](#)

FG-R01 AC & DC Residual Current Sensors

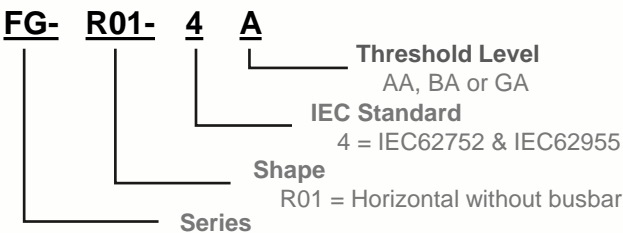
Overview

The FG sensor is a high-sensitivity AC and DC leakage current sensor with individual open drain alarms and an analog output for leakage current indication. In addition, its integrated test coil can be initiated by a test input to perform a functional alarm test.

Benefits

- Open-loop, fluxgate-based current sensor
- Digital output of fault detection
- 3,000 A surge current capability
- Conforms to IEC62752:2016/A1:2018
- Conforms to IEC62955:2018 ¹
- Conform to UL 2231-2
- AEC-Q level of testing
- Composed of AEC-Q certified parts
- RoHS compliant, ASIL_B

Part Number System



¹ Conditional and dependent on the circuit/system designed as explained in the Recommended Circuit section of the datasheet.

Electrical Characteristics

- Power supply 5 V
- Primary nominal current 80/40 A
- Current consumption 13 mA
- Operation up to +105°C
- High precision by flux gate method
- PCB mount with small mounting area

Specifications

Performance Characteristics	
Primary Rated Voltage	250 V
Primary Nominal Current	80/40 A maximum (1 phase/3 phase)
Supply Voltage Range	4.75 – 5.25 V (5 V typical)
Maximum Input Voltage of Digital Output	Supply voltage + 0.3 V
Input Voltage Range of TEST (LOW)	0.0 – 0.6 V
Input Voltage Range of TEST (HIGH)	2.5 V - supply voltage
Maximum Current of Digital Output	10 mA
Current Consumption	13 mA (at measurement 0 mA)
Operating Temperature Range	-40°C to +105°C
Storage Temperature Range	-40°C to +105°C

Threshold Level	Value	Compliant with
A	DC 6 mA AC 20 mA	IEC62752, IEC62955, UL2231-2 (CCID20)
BA	DC 6 mA AC 30 mA	IEC62752, IEC62955
GA	AC 5 mA AC 20 mA	UL2231-2 (CCID5, CCID20)



Parameter	Specification
Dimension	49.9 x 34.5 x 11.6 mm (maximum)
Inner Diameter	Φ 13.5 mm (typical)
Mass	20 g (typical)



Other mechanical shapes available



FG-R05



FG-R04



FG-R02

Applications

- EV charging cable ICCPD
- Wallbox charging station
- On board charger

[Datasheet Link](#)

FG-R02 AC & DC Residual Current Sensors

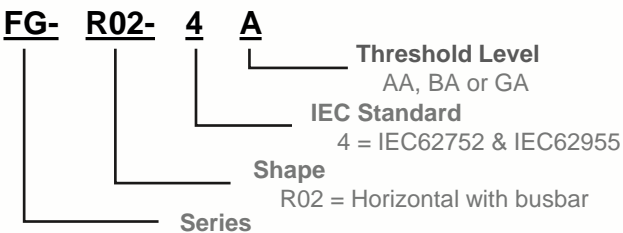
Overview

The FG sensor is a high-sensitivity AC and DC leakage current sensor with individual open drain alarms and an analog output for leakage current indication. In addition, its integrated test coil can be initiated by a test input to perform a functional alarm test.

Benefits

- Open-loop, fluxgate-based current sensor
- Digital output of fault detection
- 3,000 A surge current capability
- Conforms to IEC62752:2016/A1:2018
- Conforms to IEC62955:2018 ¹
- Conform to UL 2231-2
- AEC-Q level of testing
- Composed of AEC-Q certified parts
- RoHS compliant, ASIL_B

Part Number System



¹ Conditional and dependent on the circuit/system designed as explained in the Recommended Circuit section of the datasheet.

Electrical Characteristics

- Power supply 5 V
- Primary nominal current 80/40 A
- Current consumption 13 mA
- Operation up to +105°C
- High precision by flux gate method
- PCB mount with small mounting area

Specifications

Performance Characteristics	
Primary Rated Voltage	250 V
Primary Nominal Current	40 A maximum / busbar
Supply Voltage Range	4.75 – 5.25 V (5 V typical)
Maximum Input Voltage of Digital Output	Supply voltage + 0.3 V
Input Voltage Range of TEST (LOW)	0.0 – 0.6 V
Input Voltage Range of TEST (HIGH)	2.5 V - supply voltage
Maximum Current of Digital Output	10 mA
Current Consumption	13 mA (at measurement 0 mA)
Operating Temperature Range	-40°C to +105°C
Storage Temperature Range	-40°C to +105°C

Threshold Level	Value	Compliant with
A	DC 6 mA AC 20 mA	IEC62752, IEC62955, UL2231-2 (CCID20)
BA	DC 6 mA AC 30 mA	IEC62752, IEC62955
GA	AC 5 mA AC 20 mA	UL2231-2 (CCID5, CCID20)



Parameter	Specification
Dimension	49.1 x 34.5 x 15.8 mm (maximum)
Inner Diameter	Φ 2.5 mm (typical)
Mass	30 g (typical)



Other mechanical shapes available



FG-R05



FG-R04



FG-R01

Applications

- EV charging cable ICCPD
- Wallbox charging station
- On board charger

[Datasheet Link](#)