

SMA201 Smart Angle Sensor

TECHNICAL DATASHEET



Dimension: 74.5 mm*54.5 mm*25 mm
Weight: 70 g

SMA201-hall angle sensor is a key component in ABB's switchgear and apparatus monitoring & diagnostic solutions. The sensor device is installed in the circuit breaker to measure the rotation angle of the main shaft. This device utilizes a separate magnet attached to the rotating shaft to be measured. The orientation of the magnetic field is measured based on the Hall effect principle and an analog voltage representing the angle is sent to an AD converter, and then via RS485 communication to ABB's monitoring and diagnostics data concentrators, where the data will be analyzed.

Benefits and Features

- Fully touchless - no shaft or seals to wear
- Simple mounting
- Unlimited mechanical lifetime

Terminal definition

Pin	Function	Colour
1	VIN (9-28 VDC)	Brown
2	RS485 A+	Gray
3	RS485 B-	Black
4	GND	Blue
5	PE	(Shield)

* For more information, please refer to the drawing 1YHT346006R0201.

Technical data

Measurement characteristics and communication

Description	Value
Measuring range	0...120°
Accuracy	±2.5% or ±0.5°
Resolution	0.1°
Communication protocol	Modbus RTU (RS485)

Power supply

Description	Value
Voltage input	DC 12 V±10%
Power consumption	0.3 W Max
Withstand voltage level (50 Hz, 1 min)	500 V

Environmental conditions

Description	Value
Operating temperature range	-25...55°C
Environment humidity	20...85%, non-condensing 86...106 kPa
Atmospheric pressure	86...106 kPa
Operating altitude	0...5000 m
Transport and storage temperature range	-25...70°C

Electromagnetic compatibility tests

Description	Test levels	Reference
Resistance to electromagnetic fields	10 V/m (80 MHz...2.7 GHz)	EN/IEC 61000-4-3
Resistance to electrostatic discharge	2-4-8 kV (Air)	EN/IEC 61000-4-2
Resistance to conducted disturbances, induced by radio frequency fields	10 V (0.15...80 MHz)	EN/IEC 61000-4-6
Electrical fast transient/burst immunity	2 kV 5 kHz & 100 kHz	EN/IEC 61000-4-4
Damped oscillatory wave immunity	2.5 kV (CM-100 kHz & 1 MHz)	EN/IEC 61000-4-18
	1 kV (DM-100 kHz & 1 MHz)	
Surge immunity	0.5-1-2 kV Line-earth	EN/IEC 61000-4-5
	0.5-1 kV Line-line	
Power frequency magnetic field immunity	300 A/m Pulse	EN/IEC 61000-4-8
	30 A/m Continue	
Pulse magnetic field immunity	1000 A/m Pulse	EN/IEC 61000-4-9
Damped oscillatory magnetic field immunity	100 A/m	EN/IEC 61000-4-10