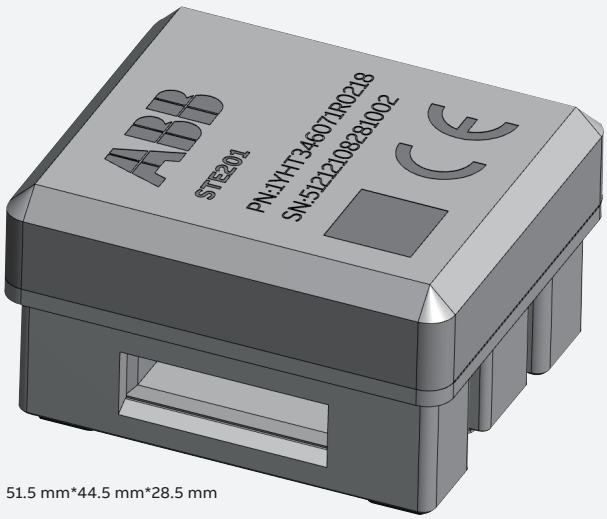
MONITORING AND DIAGNOSTIC PRODUCTS

ST_20_Wireless Temperature Sensor
TECHNICAL DATASHEET



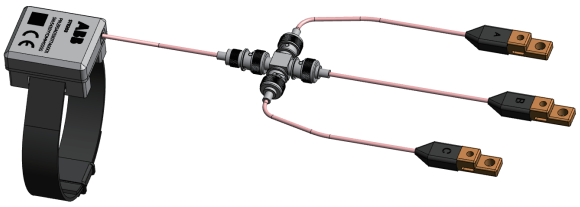
01 Dimension: 51.5 mm*44.5 mm*28.5 mm
Weight: 70 g

ST_20_ Temperature monitoring devices are key components in ABB's switchgear and apparatus monitoring & diagnostic solutions. The devices are battery-free, self-powered smart temperature sensors, using wireless communication technology for connecting to ABB's monitoring and diagnostics data concentrators. The sensor devices can be installed directly on high-voltage parts, inside medium-voltage switchgear.

STL201

STE201

STE202



STE203

Benefits and Features

- High performances
  - Measures temperatures from -40°C~125°C
  - ±0.5°C accuracy from -10°C to +85°C
  - Self-powered, minimum operating current 5 A
  - Direct contact, digital sensing probes
- Wireless communication
  - 2.4 GHz wireless connectivity
  - Unique period and frequency band division transmission technology to avoid crosstalk
- Easy installation
  - Non-intrusive
  - Suitable for various busbar/cable installations
  - No need of strap trimming and cutting

Supported concentrator

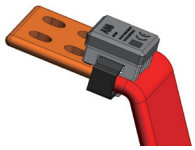
- MDC4
- MDC4-M
- MT585
- MDC600
- CMU

Applications

The sensor device can be installed directly on live or isolated switchgear parts.There are 5 variants according to different applications:

Installation notes

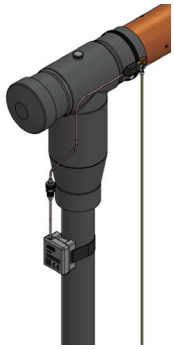
- The sensor probe needs to be in direct contact with the measured point.
- The strap needs to be tightened and fastened to prevent slipping off.



STL201

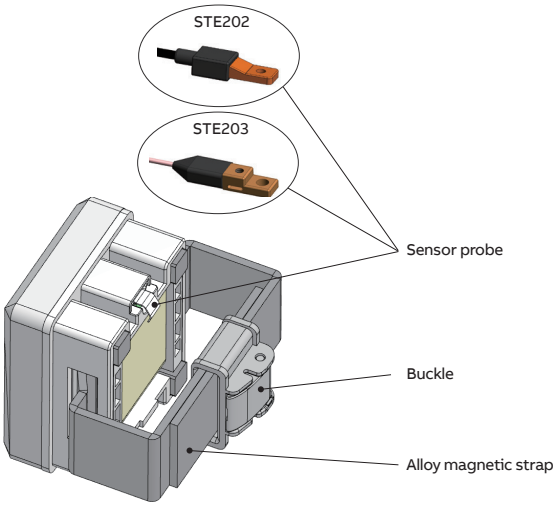
STE201

STE202



STE203-Outer Cone 1 in 1

STE203-Outer Cone 3 in 1



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Technical data

Measurement characteristics and communication

Description	Value
Measuring temperature range	-40...125°C
Accuracy within ambient air temperature for operation	±0.5°C between -10°C...85°C
	±1°C between -30°C...100°C
	±2°C outside the range.
Transmission cycle	About 12 s
Power emission	+5 dBm
Maximum distance between sensor and the access point	100 m in free field unobstructed
Number of channels	61
Operation frequency	2403 MHz…2480 MHz

Frequency and Channels

Chn	Freq (MHz)	Chn	Freq (MHz)	Chn	Freq (MHz)	Chn	Freq (MHz)	Chn	Freq (MHz)	Chn	Freq (MHz)	Chn	Freq (MHz)
0 [1]	2405	9	2432	18	2459	29	2407	38	2434	47	2461	57	2409
1	2408	10	2435	19	2462	30	2410	39	2437	48	2464	58	2412
2	2411	11	2438	20	2465	31	2413	40	2440	49	2467	59	2415
3	2414	12	2441	21	2468	32	2416	41	2443	50	2470	60	2418
4	2417	13	2444	22	2471	33	2419	42	2446	51	2473	61	2421
5	2420	14	2447	23	2474	34	2422	43	2449	52	2476	62	2424
6	2423	15	2450	24	2477	35	2425	44	2452	53	2479	63	2427
7	2426	16	2453	25	2480	36	2428	45	2455	55	2403		
8	2429	17	2456	28	2404	37	2431	46	2458	56	2406		

Power supply

Description	Value
Minimum starting current	<5 A
Voltage limit of the active part	40.5 kV
Current limit of the active part	5000 A
Withstand voltage level (50 Hz, 1 min) (2)	2 kV
Rated frequency	50/60 Hz

Environmental conditions

Description	Value	
Operating temperature range	STL201/STE201/STE202	-40...115°C
	STE203	-40...100°C
Environment humidity	20...85%, non-condensing	
Atmospheric pressure	86...106 kPa	
Operating altitude	0…5000 m (3)	
Transport and storage temperature range	-40...70°C	

EMC compliance

Description	Reference
EMC directive	2014/30/EU
Standard	EN 301 489-1 V2.2.3
	EN 301 489-17 V3.1.1

Radio equipment conformance

Description	Reference
RE directive	2014/53/EU
Standard	EN 300 328 V2.2.2

Electromagnetic compatibility tests

Description	Test levels	Reference
Resistance to electrostatic discharge	2-4 kV (Contact)	EN/IEC 61000-4-2
	2-4-8 kV (Air)	EN/IEC 61000-4-2
Resistance to electromagnetic fields	10 V/m (80 MHz...2.7 GHz)	EN/IEC 61000-4-3
Electrical fast transient/burst immunity	4 kV 5 kHz & 100 kHZ	EN/IEC 61000-4-4
Resistance to conducted disturbances, induced by radio frequency fields	10 V (0.15...80 MHz)	EN/IEC 61000-4-6
Power frequency magnetic field immunity	300 A/m Pulse	EN/IEC 61000-4-8
	30 A/m Continue	EN/IEC 61000-4-8
Pulse magnetic field immunity	1000 A/m Pulls	EN/IEC 61000-4-9
Damped oscillatory magnetic field immunity	100 A/m (0.1 & 1 MHz)	EN/IEC 61000-4-10
Damped oscillatory wave immunity	2.5 kV (CM-100 kHz & 1 MHz)	EN/IEC 61000-4-18
	1 kV (DM-100 kHz & 1 MHz)	EN/IEC 61000-4-18

Note:
(1) Chn0 is only for test.
(3) Only for sensors, need re-evaluation for applications.
(2) Only for STE202/STE203, test between probe and strap.

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