

TEMPERATURE CONVERTERS – RS 485



DESCRIPTION AND APPLICATION

ST 485x and STD 485x converters are intended for converting the signal of Pt 1000/3850 resistance-type temperature sensing elements to the digital signal of RS485 serial bus. The standard temperature range is -50 to 150°C. Communication inputs are protected to overvoltage. In case the module is placed as terminal on the line, a terminating resistor can be attached to the wiring by shorting the contacts (the switch SW placed next to terminals for communication lines connection). All settings are stored in EEPROM memory. The electronic module is equipped with the WATCHDOG circuit, which safeguards proper program functioning in the microprocessor. These converters can be utilised in any control system compatible with communication protocol ADAM 4000, ADVANTECH and MODBUS RTU. Easy mounting of the converters is ensured by the unique “S head” design invented by Sensit s.r.o. The converters are designed to be operated in a chemically non-aggressive environment. The converters are made in three basic variants:

1. **ST 485A** – with a simple ASCII communication protocol corresponds with ADAM 4000 modules by ADVANTECH company. Thus, standard drivers for ADAM modules can be used in various control programmes. For easier operation, the green LED indicates if power supply is on and the red LED indicates that the module is communicating. the SD 1x0 module is provided by the INIT shorting jumper on its printed circuit board. If it is shorted when power is switched on, the module communicates on 00 address with 9600 Bd transfer speed without checksum.
2. **ST 485B** – the command structure corresponds with the ARION communication protocol, which is used among control systems by Amit company.
3. **ST 485C** – the command structure corresponds with the ModBus communication protocol.



DECLARATION, CERTIFICATES, CALIBRATION

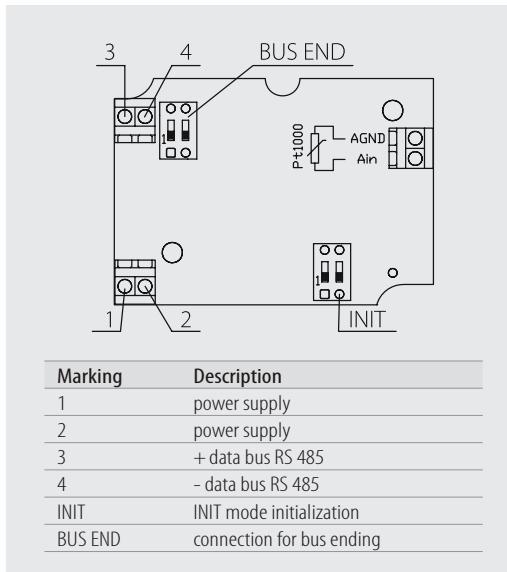
EC Declaration of Conformity – in accordance with Act No. 22/1997 Coll. as amended for sensors with an RS 485 output.

Calibration – we perform standard calibration of resistance temperature sensors in accordance with EN ISO/IEC 17025 standard in the temperature range of the stated type of sensor.

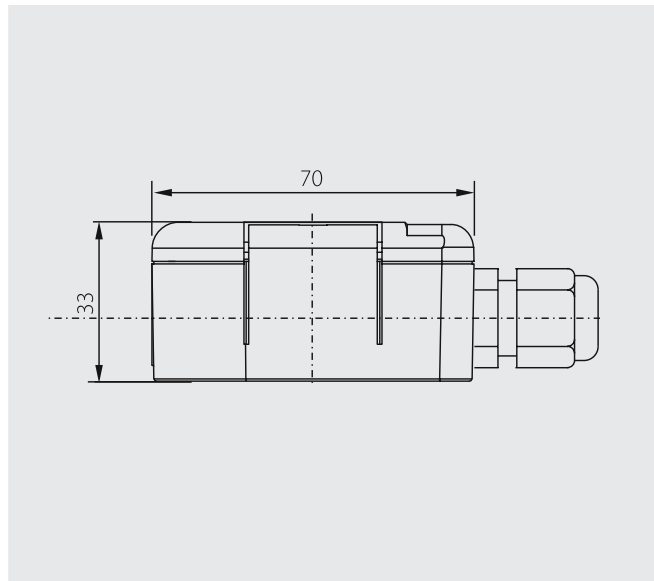
SPECIFICATIONS

Converter type	ST 485A STD 485A	ST 485B STD 485B	ST 485C STD 485C
Input signal	Pt 1000/3850		
Power supply	10 to 35 V DC (unstabilized) 14 to 24 V AC		
Power consumption	max. 1000 mW		
Measuring range	-50 až 150 °C		
Communication properties	communication via RS 485, maximum segment length is 1200 m, asynchronous transfer		
	transfer speeds 1200, 2400, 4800, 9600, 19200 Bd	transfer speeds 9600, 19200, 38400, 57600 Bd – DIP switch	preset transfer speed 9600 Bd optional transfer speeds 1200, 2400, 4800, 19200, 57600, 115200 Bd – DIP switch
	256 modules / 1 serial port	63 modules / 1 serial port	247 modules / 1 serial port
	protocol consistent with ADAM modules	protocol ARION	protocol ModBus 1 stop bit, without parity
Accuracy of electronics	0.05 %		
Accuracy of sensing element	± 0.5 °C		
Resolution	0.01 °C		
Ingress protection	IP 65 according to EN 60 529		
Recommended wire cross section	0.14 to 1.5 mm ²		
Material of the sensor stem	stainless steel 1.4301		
Material of the connection head	POLYAMID		
Working conditions	ambient temperature: -10 až 70 °C		
	relative humidity: max. 85 % (at the ambient temperature 25 °C)		
	atmospheric pressure: 87 to 107 kPa		
Mass	0.2 kg		

■ WIRING DIAGRAM



■ DIMENSIONAL DRAFT



■ CONVERTER INSTALLATION AND SERVICING

Before connecting the supply lead-in cable, lift off the lid of the plastic connection head by means of a flat screwdriver. The lead-in cable is connected to the terminals according to the wiring diagram through the loosened grommet. The recommended wire cross section is determined by the type of terminals and is quoted in the table. To insure the ingress protection value of IP 65, the grommet has to be tightened and the lid has to be put on after connecting the lead-in cable.

In case the lead-in cable is laid in the vicinity of high voltage conductors or those supplying equipment creating disturbing electromagnetic field (e.g. inductive load equipment), a shielded cable should be used. After installing and connecting the converter to the sequential evaluating electrical equipment the sensor is ready to use. The converter does not require any special servicing or maintenance. The device can be operated in any working position, but the grommet must not be directed upwards.