

TECHNICAL REFERENCE MANUAL

DSI ADAPTERS V25-3



2.3.1. Features of DSI adapters:

- **EXTEND ANALOG INPUTS:** DSI adapters are compatible with any Dewesoft amplifier with a DSUB-9 analog input, independent of the product family. They will fit SIRIUS DAQ system, KRYPTON DAQ modules, IOLITE DAQ and Control System, MINITAURS or DEWE-43 DAQ instrument.
- **PLUG-AND-PLAY WITH TEDS:** All DSI adapters have a TEDS chip built-in for automatic sensor detection and plug-and-play setup. Just connect the sensor to the DSI adapter and DSI adapter to one of our DSUB-9 analog inputs and everything from scaling, units, calibration data, etc. will be configured automatically.
- **COMPACT AND RUGGED:** All electronics are built into small and rugged DSUB-9 aluminum housing with screw connectors to firmly screw adapters to the analog input channel.



Hint

When isolation is required, you must use the DSI-adapters on isolated DewesoftX® devices: e.g. Sirius modules.

All DSI-adapters are the size of a DSUB-9 housing, which contains the electronics as well as the sensor connector. The miniature electronics of each DSI sensor also contain a TEDS chip in which the identification, calibration and configuration data of the DSI are stored. TEDS data are read automatically by the DewesoftX® software and are immediately applied to the channel setup.



Hint

When using DSI® adapters, DewesoftX® can read the TEDS information of the adapter and also the TEDS information of any sensors that are connected to the adapter (the old MSI adapters could not read the TEDS of the connected sensor).

*The Bridge Completion Adapters are available in a separate [technical reference manual](#).

2.4. DSI: General Specifications

Connectors	
DAQ interface connector	DB9 Male
Sensor connector	See individual adapter specification
Environmental	
Operating Temperature	-10 to 60 °C
Storage Temperature	-40 to 85 °C
Humidity	5 to 95 % RH non-condensing at 50 °C
IP rating	IP50
RFI susceptibility	±0.5 % span error at 400 MHz, 5 W, 3 m
Shock & Vibration	Vibration sweep sinus (EN 60068-2-6:2008) Vibration random (EN 60721-3-2: 1997 - Class 2M2) Shock (EN 60068-2-27:2009) MIL-STD-810D

2.4.1. Calibration

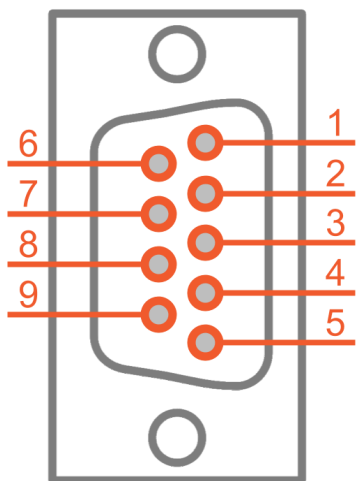
The DSI-adapters are calibrated at 23 °C ± 3 °C and meet their specifications when leaving the factory. The time interval for calibration depends on environmental conditions. A two year calibration interval is recommended.



Important

Total measurement accuracy depends on the adapter accuracy and host amplifier accuracy!

2.4.2. DSI: Pin-out



DSI connector: pin-out (DSUB-9 male)

Pin	Name	Description
1	Exc +	Excitation +
2	In+	Input +
3	Sns-	Sense -
4	GND	Ground
5	N.C.	Not connected
6	Sns+	Sense +
7	In-	Input -
8	Exc-	Excitation -
9	TEDS	TEDS

2.4.3. Environmental



Warning

All DSI® specifications within this manual are valid at 25 °C.
All DSI-adapters are produced according to ISO 9001 and ISO 14001.

2.4.4. DSI adapters / TEDS sensor support

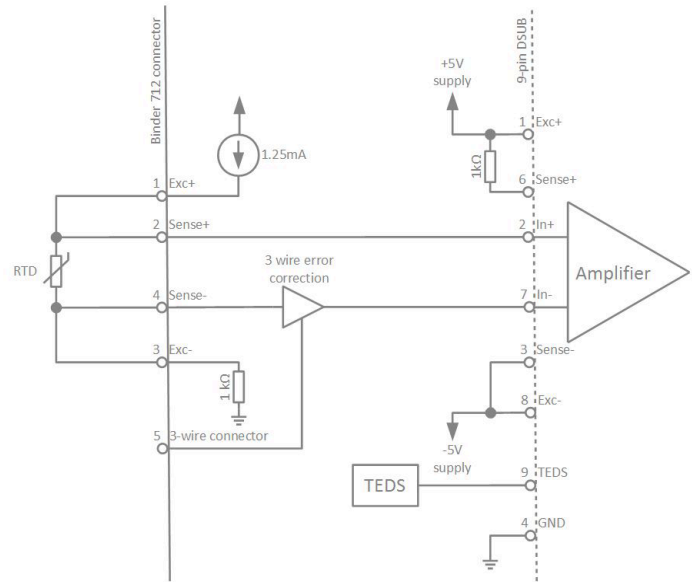
Since there is an inbuilt TEDS device in the adapter itself and if ☒ DSI adapters/TEDS sensors under hardware setup are selected, adapter will be recognised and proper EXC. Voltage will be set automatically.

Please check if you are using the latest software where LVDT Adapter is supported.

2.7. DSI-RTD/ DSI-RTD-LIS4-TNC



DSI-RTD



Basic circuit design of DSI-RTD



Note

There is also DSI-RTD-LIS4-TNC available with Lemo LIS4 input connector available.

2.7.1. DSI-RTD Specifications

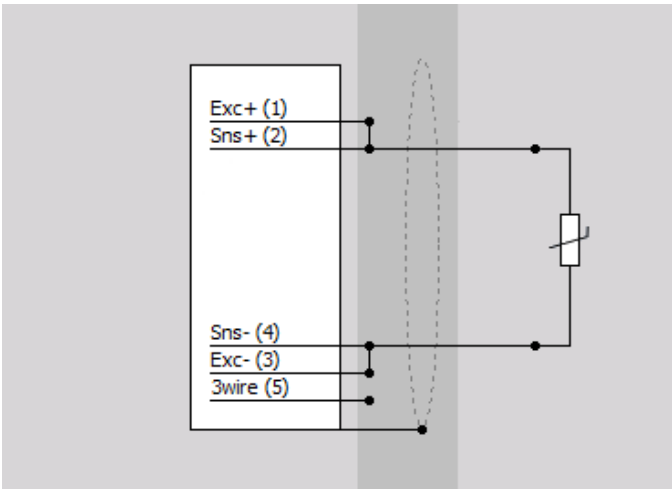
Inputs specifications	
Sensor connector	5-pin BINDER connector series 712 09 0416 00 05 M9 socket, mates with 99 0413 00 05 M9 cable plug
Supported sensors	Resistance: Pt100, Pt200, Pt500, Pt1000, Pt2000
Temperature range	-200 °C to 850 °C
Input offset	50 µV
Constant current	1.25 mA
Constant current accuracy	±0.02 % from calibrated value
Constant current drift	22 ppm/ °C
Linearisation	Through software according to sensor type
Connection types	2-, 3- or 4-wire
Bandwidth (-3 dB)	10 kHz (limited by bandwidth of host amplifier)
Input configuration	Isolated (max. 350 VDC) when using with isolated SIRIUSi modules, else differential
Typ. noise: 100 Hz bandwidth	0.03 °C
Input configuration	Isolated (max. 350 VDC) when using with isolated SIRIUSi modules, else differential
Amplifier settings	Automatically selected by software - Measurement: Voltage - Range: ±0.1 V to ±10 V - Excitation: 10 V

DSI-RTD Accuracy:

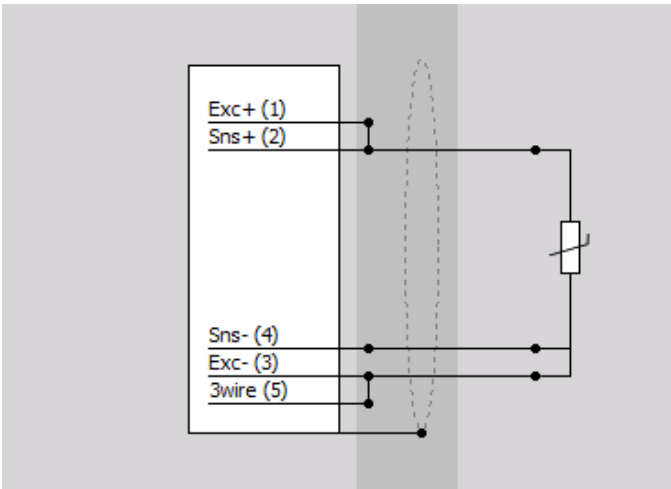
Host amplifier			SIRIUSx LVv2 / STGv2 / HS-LV / HS-STG DEWE-43A MINITAURs	SIRIUSx STGMv2 / HD-LV / HD-STG KRYPTON STG	SIRIUSx Multi / STGM
Resistance Range		80 Ω	±0.05 % of reading ±120 mΩ	±0.05 % of reading ±120 mΩ	±0.05 % of reading ±200 mΩ
		800 Ω	±0.05 % of reading ±200 mΩ	±0.05 % of reading ±200 mΩ	±0.05 % of reading ±840 mΩ
		6 kΩ	±0.05 % of reading ±840 mΩ	±0.05 % of reading ±1500 mΩ	±0.05 % of reading ±8 Ω
DIN	Sensor	Range	Temperature		
EN 60751	Pt100	-200 to 850°C	±0.1 % of reading ±0.69 °C	±0.1 % of reading ±0.69 °C	±0.1 % of reading ±2.5 °C
EN 60751	Pt200	-200 to 850°C	±0.1 % of reading ±0.44 °C	±0.1 % of reading ±0.44 °C	±0.1 % of reading ±1.2 °C
EN 60751	Pt500	-200 to 850°C	±0.1 % of reading ±0.61 °C	±0.1 % of reading ±1 °C	±0.1 % of reading ±4 °C
		-200 to 150°C	±0.1 % of reading ±0.28 °C	±0.1 % of reading ±0.28 °C	±0.1 % of reading ±1.2 °C
EN 60751	Pt1000	-200 to 850°C	±0.1 % of reading ±0.39 °C	±0.1 % of reading ±0.8 °C	±0.1 % of reading ±3 °C
EN 60751	Pt2000	-200 to 550°C	±0.1 % of reading ±0.29 °C	±0.1 % of reading ±0.5 °C	±0.1 % of reading ±1.5 °C

2.7.2. DSI-RTD Input Connection

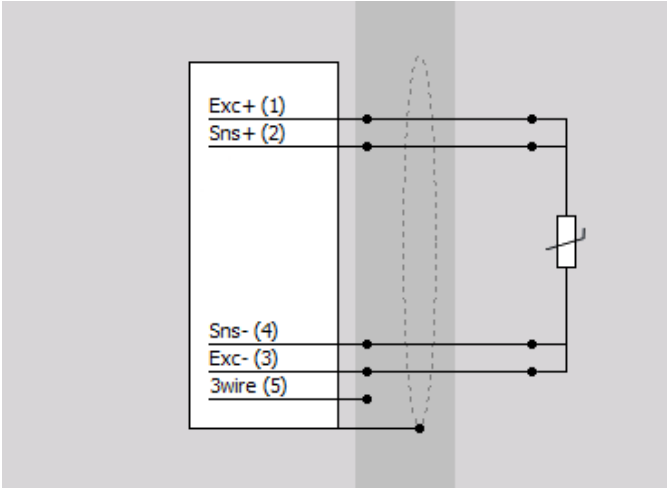
2-wire sensor connection



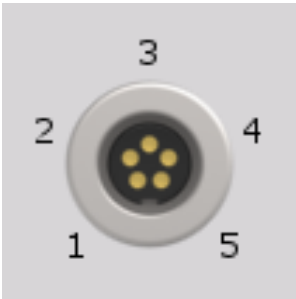
3-wire sensor connection



4-wire sensor connection



2.7.3. DSI-RTD Binder connector pinout



Binder 5-pin (female)

Pin	Name	Description
1	Exc+	Excitation+
2	Sns+	Sense+
3	Exc-	Excitation-
4	Sns-	Sense-
5	3-wire	3-wire connection

DSI-RTD:
Connector on device: 09 0416 00 05 M9 socket
Mating connector: 99 0413 00 05 M9 cable plug

DSI-RTD-LIS4-TNC:
Connector on device: ERA.IS.304.CLL
Mating connector: FFA.IS.304.CLACxxx