

2.5. SIRIUSi-PWR-MCTS: Power supply for current transducers

2.5.1. Power Supply for Transducers

SIRIUSi-PWR-MCTS2 is a power supply unit for powering current transducers directly from Dewesoft instruments without any external power supply. SIRIUSi-PWR-MCTS2 can be built into SIRIUS compatible chassis or directly into R1, R2, R3, R4 or R8 data acquisition systems.

There are 2 versions of the power supply available. The 4 channel and the 8 channel HD models. The 4 channel version is able to deliver 20 W per channel, whereas the 8 channel can deliver 15 W per channel.

The power supply comes in the SIRIUSi modular and rack version chassis, making it one of the most compact power supplies on the market.



SIRIUSi-PWR-MCTS2 4 Channel



SIRIUSi-HD-PWR-MCTS2 8 Channel



SIRIUSir-PWR-MCTS2 4 Channel and SIRIUSir-HD-PWR-MCTS2 8 Channel

	SIRIUSi-PWR-MCTS2 / SIRIUSir-PWR-MCTS	SIRIUSi-HD-PWR-MCTS2 / SIRIUSir-HD-PWR-MCTS
Power supply	9 - 36 V DC	9 - 36 V DC
Max power consumption	85 W	85 W
Physical dimensions	265 x 140 x 65 mm	265 x 140 x 65 mm
Operating temperature	-20 °C to 50 °C	-20 °C to 50 °C
Storage temperature	-40 °C to 85 °C	-40 °C to 85 °C
Humidity (@ 60 °C)	95 % RH non-condensing	95 % RH non-condensing
Output	4 x Isolated Power supply (1500 V DC, 60 sec)	8 x Isolated Power supply (1500 V DC, 60 sec)
Output voltage	±15 V DC	±15 V DC
Maximum output per channel	20 W	20 W
Short circuit protection	indefinite (automatic recovery)	indefinite (automatic recovery)
Overload protection	150 % of lout max. typ	150 % of lout max. typ

SIRIUS PWR-MCTS2 power supply can be used with various Dewesoft devices. However, be sure to set the input channel to Differential input type in the software, if supported.

Amplifier - DSI-MCTS-400

General
Info
Connector
TEDS

Measurement **Current**

Range 2000 ⌵ mA

Low-pass filter AAF (zero-phase distortion) ⌵

Amplifier Short on

Amplifier - DSI-MCTS-400

General
Info
Connector
TEDS

MSI DaqCard

Name: DEMO-IOLITE-STG

Measurement: Voltage

Range: 10 V

LP filter: AAF (zero-phase distortion)* (HW: 20 kHz)

HP filter: DC

Input type: Differential

Short active: no

Excitation: 0 V

Excitation type: Unipolar

2.5.2. Connecting transducers to SIRIUS®

Zero-flux transducers and DC CLAMPS Fluxgate technology need SIRIUSi-PWR-MCTS power supply for operation.

Current transducer to MCTS

First connect the transducer (e.g. CT 1000) with the D9m-D9f-5M-MCTS cable to the SIRIUSi-PWR-MCTS slice to the Sensor 1 input:



Zero-Flux to MCTS connection

The D9m-D9f-5M-MCTS cable is a simple extension cable and can be used for all zero-flux transducers (100 A up to 2000 A).

MCTS to SIRIUS

Then take the corresponding DSI-MCTS-x-03M cable (where x must match the transducer: e.g. for the CT 500, you need the DSI-MCTS-500N-03M cable) and use Output 1 of the SIRIUSi-PWR-MCTS and connect it to the first LV input of the SIRIUSi-4xHS-HV,4xHS-LV slice:



MCTS to Sirius® connection

Multiple Transducers

When you have multiple Transducers you simply repeat the previous steps for each transducer. For example, when you use a three-phase system, in star connection, it will look like this:



Three-phase system in star connection



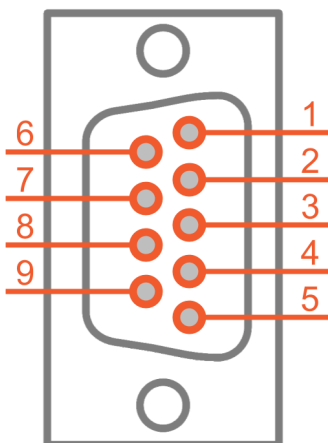
Hint

You will find how to connect voltage and current transducers to the system for different wiring configurations (DC, 1-phase, 2-phase, 3-phase delta-star-aron-V, etc.) in the DewesoftX® PRO training course "POWER ANALYSIS"

<https://training.dewesoft.com/online/course/power-analysis>

2.5.2.1. Connecting Transducer to SIRIUS®: Pinouts

Transducer connector pinout

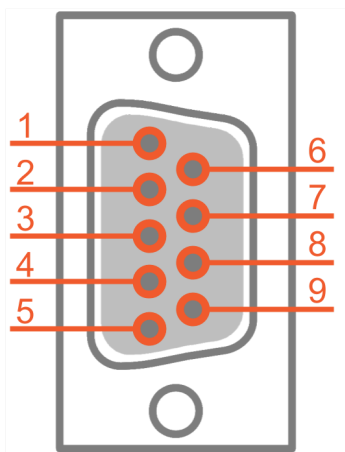


Output connector: pinout (DSUB-9 male)

Pin	Name	Description
1	RETURN	Return
2	NC	Not connected
3	Normal op. st.	Normal op. st.
4	GND	Ground
5	-Uc	-Supply
6	OUT	Output
7	NC	Not connected
8	Normal op. st.	Normal op. st.
9	+Uc	+Supply

SIRIUS-PWR-MCTS2 connectors pinout

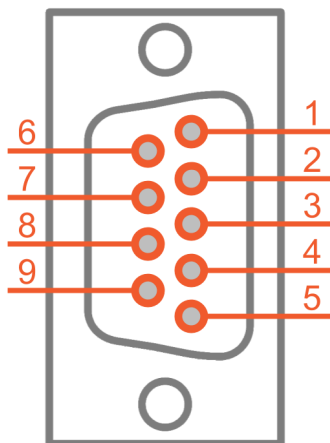
Sensor connector



Sensor connector: pinout (DSUB-9 female)

Pin	Name	Description
1	RETURN	Return
2	TEDS	TEDS
3	Normal op. st.	Normal op. st.
4	GND	Ground
5	-15 V	-15 V supply
6	OUT	Output
7	NC	Not connected
8	Normal op. st.	Normal op. st.
9	+15 V	+15 V supply

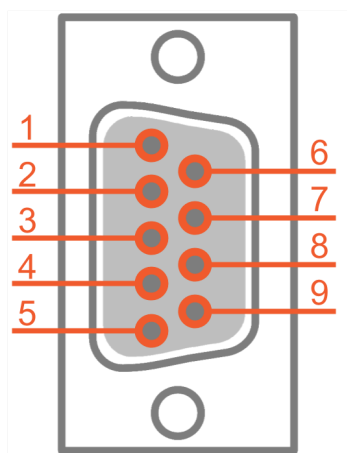
Output connector



Output connector: pinout (DSUB-9 male)

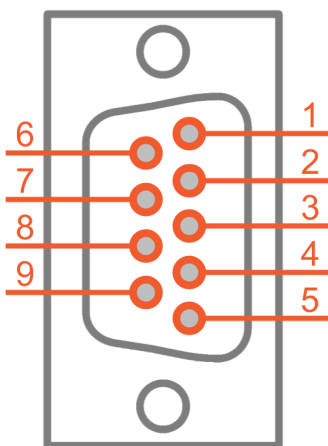
Pin	Name	Description
1	RETURN	Return
2	TEDS	TEDS
3	Normal op. st.	Normal op. st.
4	GND	Ground
5	NC	Not connected
6	OUT	Output
7	NC	Not connected
8	Normal op. st.	Normal op. st.
9	NC	Not connected

DSI-MCTS-x-03M cable pin-out



DSI-MCTS-x-03M connector: pinout (DSUB-9 female)

Pin	Name	Description
1	RETURN	Return
2	NC	Not connected
3	GND	Ground
4	GND	Ground
5	NC	Not connected
6	OUT	Output
7	NC	Not connected
8	Normal op. st.	Normal op. st.
9	NC	Not connected



DSI-MCTS-x-03M connector: pinout (DSUB-9 male)

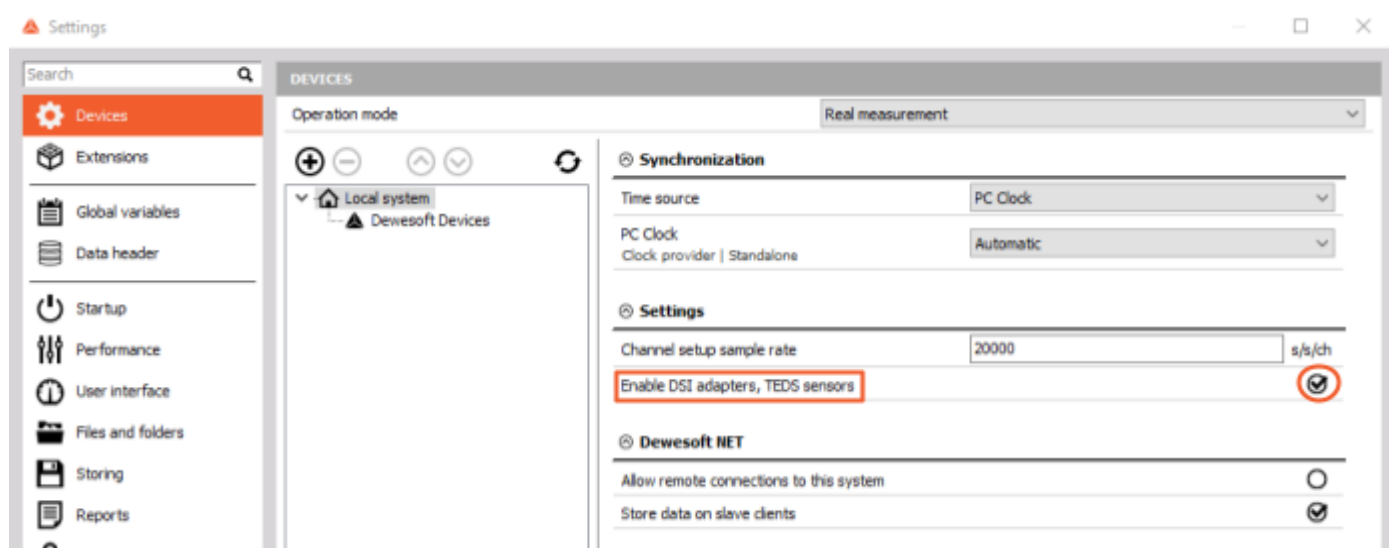
Pin	Name	Description
1	NC	Not connected
2	In+	In+
3	NC	Not connected
4	GND	Ground
5	Digital IO	Digital IO
6	NC	Not connected
7	In-	In-
8	NC	Not connected
9	TEDS	TEDS

2.5.2.2. DewesoftX® setup

The DSI-MCTS-x-03M cable has an integrated TEDS chip, which stores data about scaling, calibration etc. of the zero-flux transducer. If you connect this Shunt cable to the LV input of the Sirius® slice, the configuration data is read and applied to the DewesoftX® channel setup automatically.

Settings: TEDS feature

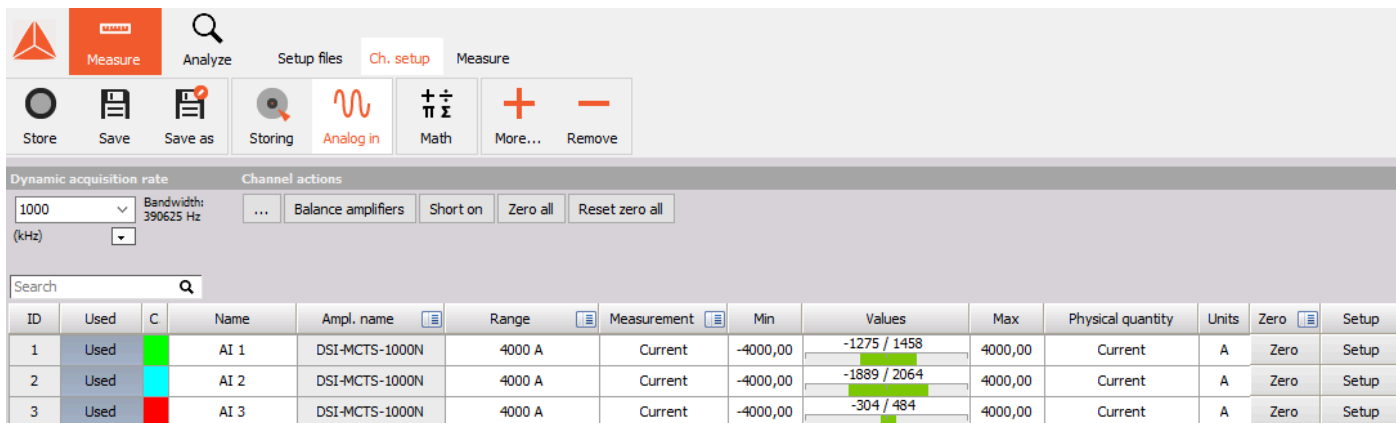
For the automatic setup to work, you must first activate this feature in the DewesoftX® settings. Please check that the “Enable DSI adapters, TEDS sensors” check-box is activated:



DewesoftX® TEDS setting

Channel Setup

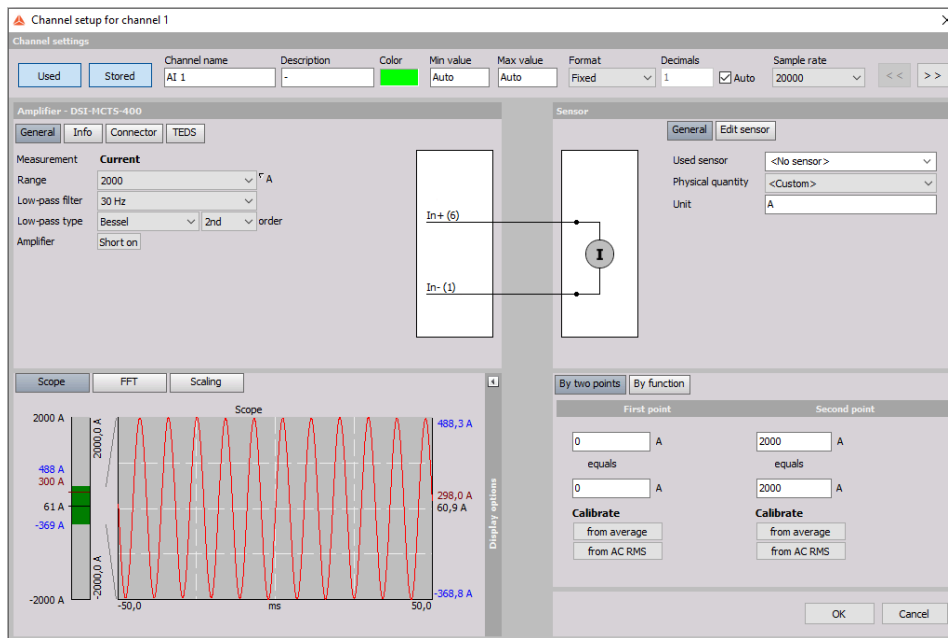
When the TEDS feature is activated, then the channel setup will immediately detect the sensor when you connect it (e.g. IN 1000-S) you will see the corresponding transducer in the Ampl.name column (e.g. DSI-MCTS-1000N). Also notice, that the type of measurement will be changed to Current:



ID	Used	C	Name	Ampl. name	Range	Measurement	Min	Values	Max	Physical quantity	Units	Zero	Setup
1	Used		AI 1	DSI-MCTS-1000N	4000 A	Current	-4000,00	-1275 / 1458	4000,00	Current	A	Zero	Setup
2	Used		AI 2	DSI-MCTS-1000N	4000 A	Current	-4000,00	-1889 / 2064	4000,00	Current	A	Zero	Setup
3	Used		AI 3	DSI-MCTS-1000N	4000 A	Current	-4000,00	-304 / 484	4000,00	Current	A	Zero	Setup

Ch. Setup: Analog in

Finally, open the Setup of the individual channels, and fine-tune the remaining setting: e.g. change the channel name, set a suitable measurement range, set a low-pass filter, ...



Channel setup