

TECHNICAL REFERENCE MANUAL

V26-2



2. About this document

This is the user's manual for SIRIUS X DAQ, a high-end module with up to 200 kS/s sample rate, easy and flexible connectivity and a high channel count.

The manual is divided into several chapters. You will find:

- A detailed description of the SIRIUS X devices
- A description of the connection variants and the pin assignments on the inputs and outputs
- A comprehensive introduction to the configuration of the modules using DewesoftX®
- Detailed technical data: Specifications, etc.

2.1. Legend

The following symbols and formats will be used throughout the document.



Important

It gives you important information about the subject.
Please read carefully!



Hint

It gives you a hint or provides additional information about a subject.



Example

Gives you an example of a specific subject.

2.2. Online versions

2.2.1. Device Technical Reference Manual

The most recent version of this manual can be downloaded from our homepage:

<https://dewesoft.com/download/manuals>

In the *Hardware Manuals* section click the download link for the *Device® technical reference manual*.

2.2.2. DEWESoft® User Manual

The DEWESoft® User Manual document provides basics and additional information and examples for working with DEWESoft® and certain parts of the program.

The latest version of the DEWESoft® tutorials can be found here:

<https://dewesoft.com/download/manuals>

In the *Software Manuals* section click the download link of the DEWESoft X User Manual entry.

3.2. Connecting SIRIUS X

In this chapter, you can see the basic instructions for connecting SIRIUS X devices over RJ-45 Ethernet connection. Connection via 3.0 USB is supported with DewesoftX version 2025.2 and newer.

Advanced connections are described in the following chapters.

3.2.1. Power supply

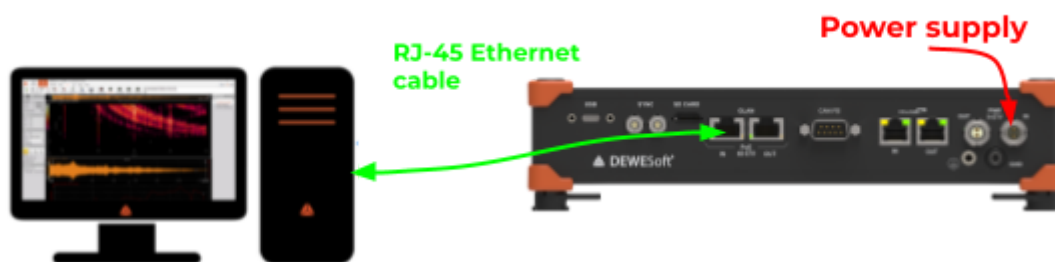
The power supply needed for this device should work within the power supply range required in the technical specifications.

In order for the active Power over Ethernet to work at least input voltage of 48 V is needed.

3.2.2. Connection over EtherNET

First, connect the power supply cable to the PWR IN 2-pin LEMO 1B male connector. Then connect the Ethernet Cable with the RJ-45 connector to the appropriate GLAN connector on the back of the device. Finally, connect the other side of the ethernet cable to the LAN port of the PC.

When the connection is established over ethernet the device is automatically added only if connected directly to PC, if any switch is in between you will need to add the device manually. When the device is added also all the RT features and modules in DewesoftX will be available, when supported.



Connection over Ethernet

3.2.2.1. Ethernet configuration on the PC

A SIRIUS X can work in two different operation modes.

SIRIUS X will be properly connected to DewesoftX software when the IP address of the device and the IP address of the network card, where the device is connected, are in the same subnet.

Warning

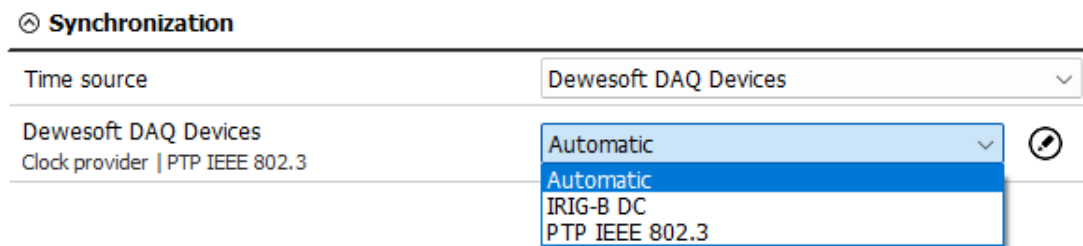


As a network device with DHCP enabled it can use dynamic IP assignment. The DHCP server has to be running to locate the device with DewesoftX software. When a DHCP-enabled device is connected to a network without a DHCP server, the device has no IP address configuration and it is unreachable over the network.

3.3. Synchronization

Before measurement you need to set the synchronization for the used system. The synchronization is set in HW settings under the Local system. When only one SIRIUS X device is connected, the synchronization can be set as “Standalone”.

When you have more than one device connected in system configuration, you can either choose between External time synchronization or you can choose SIRIUS X device to be a master synchronization source.



Synchronization options

As an external source the SIRIUS X device accepts the following synchronization signals:

- PPS
- PTPv2 (IEEE 802.3)*
- IRIG-B-DC

The SIRIUS X device can generate (can be a master source for other devices) the following signals (For both options to be enabled please use the latest FW on the web-page):

- PTPv2 (IEEE 802.3)*
- IRIG-B-DC



Important

*SIRIUS X supports PTPv2 IEEE 802.3 which is only compatible with X-line devices (SIRIUS X, IOLITE X). Compatibility with other lines (OBSIDIAN, SIRIUS-XHS) will be available when openDAQ will be supported on all the product lines.

3.3.1. System configuration with multiple devices synchronized with PTPv2

The SIRIUS X can work in two different configurations; as a PTP master or PTP slave. SIRIUS X device does not support the free mode option of the PTPv2 synchronization, where the devices decide which device is the master clock and which are then set in slave mode.

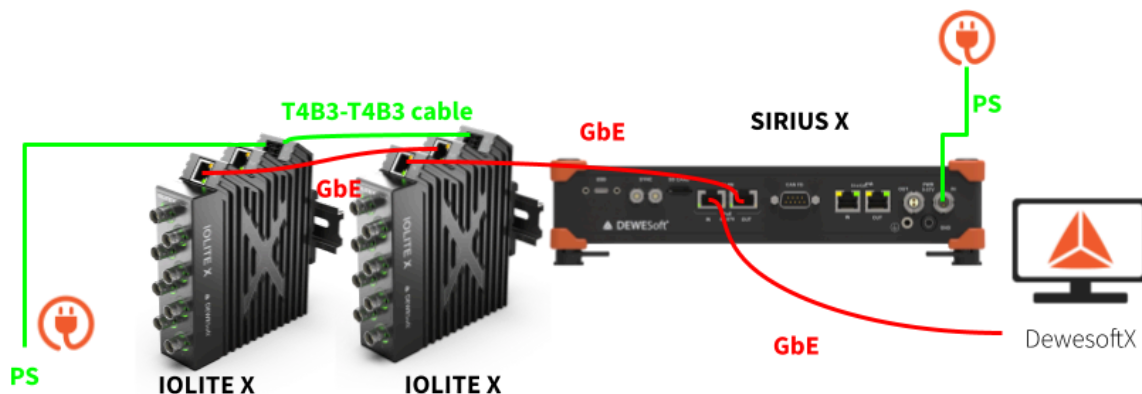
When the device is a PTP master, its synchronization settings must be set to “PTP out”. When there is another PTP master in the measurement chain, the device can become a PTP slave, with synchronization settings set to “PTP in”.



Connecting two SIRIUS X modules over EtherNET with PTP synchronization and without PoE connection



Connecting two SIRIUS X modules over EtherNET with PTP synchronization and with PoE connection



System configuration of IOLITE X and SIRIUS X over EtherNET with PTP synchronization and without PoE connection

4.2. System specifications

SIRIUS X	
GLAN	
Data interface	Ethernet 1 GbE incl. IEEE1588v2 synchronization (PTP IEEE 802.3)
Sync Accuracy	100 ns
Bus connectors	Ethernet RJ45, single cable for data, power and sync, daisy chainable
Power over Ethernet	48-57 V DC (max. 90W)
Max. cable length between devices	100 m
CAN bus	
Number of ports	2
Interface type	CAN 2.0B, up to 1 MBit/s CAN-FD, up to 8 Mbit/s
Special applications	CCP, OBDII, J1939, CAN RT output
Galvanic isolation	Isolated
Bus pin fault protection	±36 V
ESD protection	8 kV
IRIG Synchronisation	
Sync Connectors	4-pin LEMO 00 Series female
Sync Accuracy	100 ns
Max. Sync-cable length	200 m (IRIG)
Level (Input/Output)	TTL compatible
Max. Output Current	±24 mA (±50 mA for 1 sec)
Other interfaces	
USB	USB-C 3.0 Type (See 1)
EtherCAT	Secondary bus/RT out connection to 3rd party EtherCAT master (See 2)
Internals	
CPU type	ARM
Operating system	Linux
Software	Dewesoft RT
Device protocols	openDAQ, OPC-UA
Power	
Power Supply	9 - 57 V DC
Power consumption	*Configuration dependent
Power supply connector	2-pin LEMO 1B Series male
Power Out	Input supply on 2-pin LEMO 1B Series female
Environmental	
Operating Temperature	-10 to 50 °C (optional -40 to 85 °C)

Storage Temperature	-40 to 85 °C
Humidity	5 to 95 % RH non condensing @ 60 °C
IP rating	IP40
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
Physical	
Cooling	Fan-based, fanless ("f" designation) (See 3)
Dimensions	266 mm x 149 mm x 55 mm
Rev: 1712304000	
1) Currently, this functionality is available with firmware 2025.2 or newer. 2) EtherCAT functionality is currently not supported. 3) Fanless options of actively cooled units must not be stacked.	

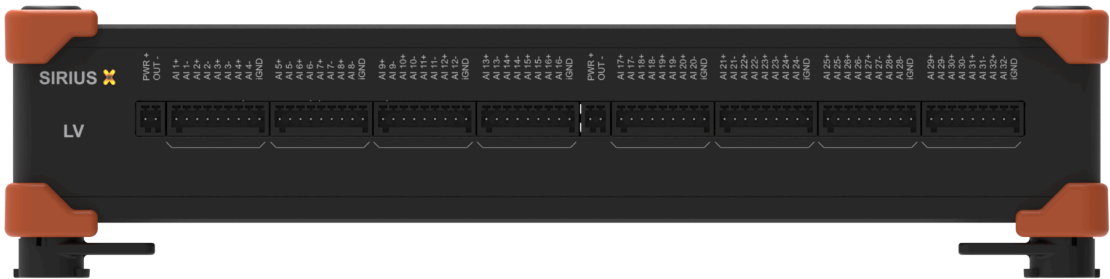


Important

*SIRIUS X supports PTPv2 IEEE 802.3 which is only compatible with X-line devices (SIRIUS X, IOLITE X).

4.2.1. Modular system specification

A single SIRIUS X slice can have up to 32 measurement channels.



SIRIUS X

4.3.3. Active cooling / Fanless units

SIRIUS X devices with power consumption exceeding 20 W feature an active fan-based cooling system. This active cooling setup ensures optimal thermal performance and long-term measurement reliability, particularly in multi-device stacked configurations where passive heat dissipation is insufficient.

Product nomenclature:

- Default (actively cooled) units: Active cooling is the standard hardware configuration for high-power SIRIUS® X units (e.g., SIRIUSi-X-8xUNI, SIRIUS-X-16xUNI, SIRIUS-X-16xLVe)
- Optional fanless units: For noise-sensitive environments, optional fanless (passively cooled) variants are designated with an “f” prefix in the product name (e.g., SIRIUSif-X-8xUNI, SIRIUSf-X-16xUNI, SIRIUSf-X-16xLVe)
- Standard fanless units: Lower-power units that are passively cooled by default use the “-f” suffix in their product name (e.g., SIRIUSf-X-16xACC, SIRIUSf-X-16xSTGS, SIRIUSf-X-32xLV)



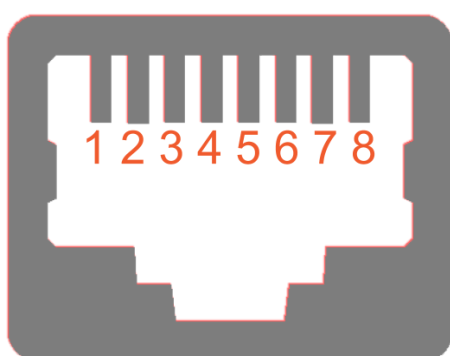
Important

Fanless (passively cooled) variants of default actively cooled units must not be stacked on top of each other to prevent overheating.

4.4. Connectors

4.4.1. General

4.4.1.1. GLAN Connector (Data, Sync, PWR)



Connector: pin-out (RJ45 female)

Pin	Name	Description
1	P1_p	Pair 3 +
2	P1_n	Pair 3 -
3	P2_p	Pair 2 +
4	P2_n	Pair 1 -
5	P3_p	Pair 1 +
6	P3_n	Pair 2 -
7	P4_p	Pair 4 +
8	P4_n	Pair 4 -

4.4.1.2. USB Connector

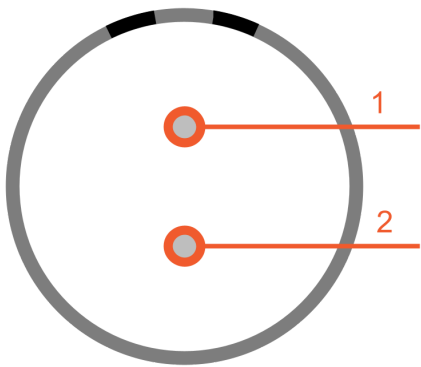
With X devices type USB-C connector is used. **USB 3.0** has a maximum signaling rate of 5 Gbit/s.



USB-C connector on the device

4.4.1.3. Power in connector

Standard locking, available on Demo units and devices ordered before May 2025.

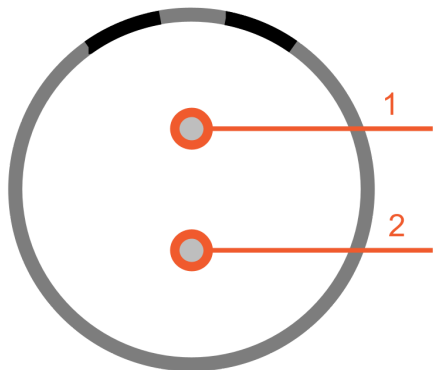


Pin	Name	Description
1	V +	Supply
2	V -	Ground

Power in connector: pin-out (2-pin LEMO male)

Power In connector (on the device): EXJ.1B.302.HLD
Mating connector (for the cable): FGJ.1B.302.CLLD52Z

New locking, available on devices ordered after May 2025.



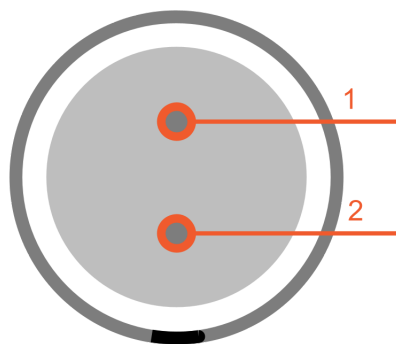
Pin	Name	Description
1	V +	Supply
2	V -	Ground

Power in connector: pin-out (2-pin LEMO male)

Power In connector (on the device): EXJ.1B.302.YLD
Mating connector (for the cable): FGL.1B.302.CLLD62Z **or** FGJ.1B.302.CLLD42Z

4.4.1.5. Power out connector

Standard locking, available on Demo units and devices ordered before May 2025.



Pin	Name	Description
1	V+	Supply
2	V-	Ground

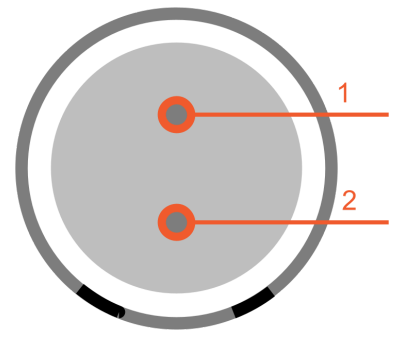
Power out connector: pin-out (2-pin LEMO female)

Power Out connector (on the device): EXG.1B.302.HLN
Mating connector (for the cable): FGG.1B.302.CLAD52Z

The Power Out power plug can be used to daisy-chain several devices together.

Daisy chain cable: **L1B2m-L1B2f**

New locking, available on devices ordered after May 2025.



Pin	Name	Description
1	V+	Supply
2	V-	Ground

Power out connector: pin-out (2-pin LEMO female)

Power Out connector (on the device): EXB.1B.302.HLN
Mating connector (for the cable): FGL.1B.302.CLLD62Z

The Power Out power plug can be used to daisy-chain several devices together.

Daisy chain cable: **L1B2mB-L1B2fL**



Standard locking



New locking



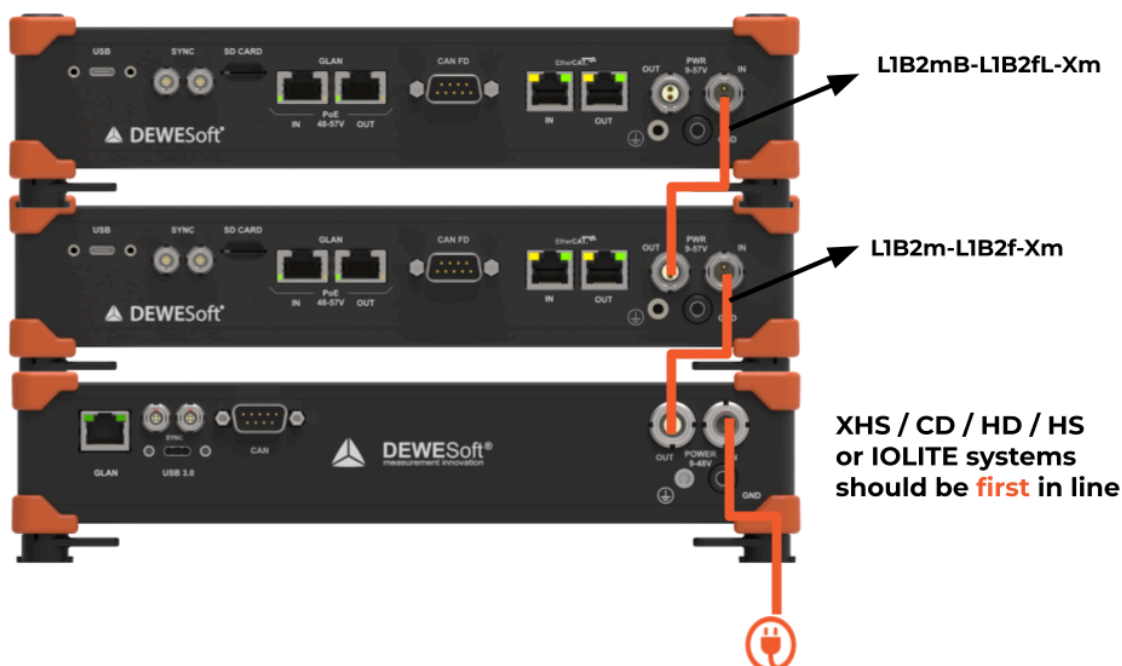
Important

Scope of supply of SIRIUS X as of May 2025 includes PS-220W-L1B2fL-56V which fits only to the upgraded SIRIUS X chassis in order to avoid any damage to any other Dewesoft devices. The upgraded SIRIUS X chassis is compatible with all Dewesoft power supplies with 2-pin L1B Lemo connector.



Important

If you are using power supply that is less than 56 V (e.g. Dewesoft standard 24V power supply with 2-pin L1B Lemo) and would like to power chain multiple devices, the SIRIUS X devices should be last in line in order to be able to fit the power daisy chain cable in both chassis (L1B2mB-L1B2fL). See image below.



Dewesoft Power supply with 2-pin L1B2f connector
(e.g. PS-120W-L1B2f)

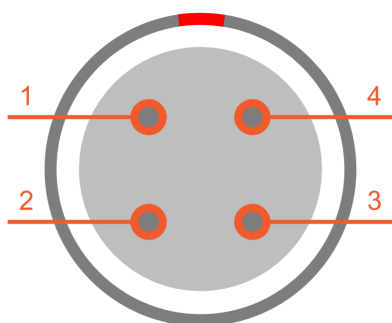
4.4.1.7. SYNC connector



Sync cable

Currently, the sync connectors are required when you want to use SIRIUS X and SIRIUS DualCore, HD or HS slices for the same measurement. The signal that is transferred over this cable makes sure that the measurement data of the different slices are perfectly synchronized to each other.

There are two connectors on the device. Note that there is no distinction between the IN and OUT – it does not matter which connector you use.



Sync connector: pin-out (4-pin LEMO female)

Pin	Name	Description
1	CLK	Clock
2	Trigg	Trigger
3	GPS-PPS	GPS - PPS
4	DGND	Digital Ground

Interface connector: EEG.00.304.CLL

Mating connector: FGG.00.304.CLAD27Z

Important



When IRIG-synchronization is used, the IRIG differential signals are on pins 1, 2.

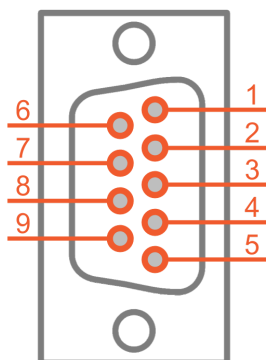
When Clock / Trigger is used, the signals are on pins 1, 2.

When PPS-GPS synchronization is used, the PPS signal is on pin 3.

4.4.1.8. CAN-FD connector

A Controller Area Network (CAN-FD bus) is a vehicle bus standard often used in automotive applications. SIRIUS X slices have a CAN-FD connector on the back side.

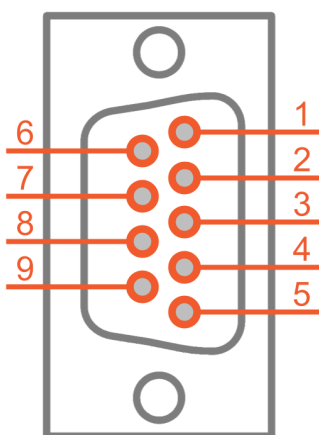
Single CAN, available on Demo units and devices ordered before May 2025.



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

Pin	Name	Description
1	+5V	5 V supply max. current: 200 mA
2	CAN_LOW	CAN low
3	DGND	Digital Ground
4	RES	Reserved
5	RES	Reserved
6	DGND	Digital Ground
7	CAN_HIGH	CAN high
8	RES	Reserved
9	+12V	12 V supply max. current: 100 mA

Dual CAN, available on devices ordered after May 2025.



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

Pin	Name	Description
1	CAN2 LOW	CAN Low for Second Bus
2	CAN1 LOW	CAN Low for First Bus
3	GND	Isolated Digital Ground
4	+5V	Isolated 5 V supply max. current: 200 mA
5	NC	Not connected
6	GND	Isolated Digital Ground
7	CAN1 HIGH	CAN High for First Bus
8	CAN2 HIGH	CAN High for Second Bus
9	+12V	Isolated 12 V supply max. current: 100 mA

4.4.1.9. GND connector

For most measurements, it is highly recommended to ground the SIRIUS®. The GND connector is a 4mm banana connector. Use protective Earth (ground) M4 screw insert for permanent safety ground bond, marked with .



Warning

To comply with IEC 61010-1 requirements, a low-impedance connection between the Protective Earth (PE) terminal and safety ground is mandatory. This connection must be secured before energizing any High Voltage (HV) modules or hazardous live circuits.



Important

Within this document please find chapters:

Safety instructions

DEWESoft DAQ System, Safety Technical Reference Manual



Caution, risk of electric shock

- Product safety isolation relies on reliable safety ground connection.
- Before any other cable attachment please connect product safety ground first to the system safety ground.
- When removing the product, safety ground connection shall be removed last.
- Not grounding the product reduces safety isolation of the product and can lead to electrical shock in case of product malfunction.

5.3. X UNI

The UNI modules are universal amplifiers designed for a wide range of sensor inputs including voltage, strain gauge, IEPE, temperature (RTD) and current.

The SIRIUS X product family includes two types of universal (UNI) modules: 8-channel fully isolated (Ch-Ch and Ch-GND) and 16-channel channel-to-ground isolated modules.

5.3.1. X UNI: Specifications

5.3.1.1. X 8xUNI: Specifications

Analog inputs		SIRIUSi X 8xUNI			
Input type		Voltage Full / Half / Quarter bridge strain (120 Ω and 350 Ω) Potentiometer, RTD, Resistance Current (ext. Shunt) IEPE			
Number of channels		8			
ADC Type		24-bit, delta-sigma with anti-aliasing filter (-3 dB @ 400 kHz)			
Sampling Rate		Simultaneous 500 kS/s per channel (software-selectable)			
Voltage mode					
Voltage Ranges		±100 V	±10 V	±1 V	±0.1 V
Input Accuracy	DC	±0.03 % of reading ±0.02 % of range			
Noise floor, Typ.	100 S/s / 1 kS/s / 10 kS/s / 100 kS/s / 500 kS/s	-135 dB / -127 dB / -117 dB / -108 dB / -99 dB	-137 dB / -128 dB / -118 dB / -109 dB / -103 dB	-134 dB / -125 dB / -116 dB / -106 dB / -99 dB	-116 dB / -108 dB / -99 dB / -90 dB / -81 dB
Dynamic Range, Typ.		-151 dB	-152 dB	-148 dB	-131 dB
CMR, Typ. -1 dBFS sine wave @ 50 Hz / 400 Hz / 1 kHz	10 kS/s	81 dB / 63 dB / 55 dB	85 dB / 85 dB / 85 dB	105 dB / 105 dB / 102 dB	99 dB / 99 dB / 98 dB
Gain Linearity		±0.01 %			
Gain Drift		Typical 10 ppm/K Max. 40 ppm/K			
Offset Drift		Typical 0.3 μV/K + 2 ppm of range/K Max 0.8 μV/K + 10 ppm of range/K			
Channel Cross talk typ. @ 1 kHz		-104 dB	-153 dB	-150 dB	-131 dB
Input Coupling		DC, AC 0.15 Hz			
Input Impedance		2 MΩ between IN+ and IN-	>1 GΩ between IN+ and IN-		
Max. Common Mode Voltage		±120 V	±12 V		
Overvoltage Protection		±200 V, continuous	±100 V continuous / ±200 V peak (10 ms)		
Current mode (internal shunt)					
Ranges		20 mA		2 mA	

Input Accuracy	±0.03 % of reading, ±0.02 % of range, ±2.1 µA		
Internal Shunt Resistor	47 Ω		
Excitation Voltage			
Excitation Voltage	Free programmable (16-bit DAC)		
Predefined levels	1, 2.5, 5, 10, 12, 15, 20, 24 V		
Accuracy	±0.05 % ±2 mV		
Drift	±10 ppm/K ±100 µV/K		
Load stability	< 0.01 %		
Noise @ 10 V / 350 Ω	<150 µVrms @ 10 kS/s		
Line regulation over 20 Ω of change	<0.005 % @ 120 Ω load		
Sense Impedance to Exc / to GND	100 kΩ / >100 MΩ		
Current limit	100 mA (max. 800 mW)		
Protection	Continuous short to ground		
Excitation Current			
Excitation Current	Free programmable (16-bit DAC)		
Predefined levels	0.1, 1, 2, 5, 10, 20, 60 mA		
Ranges	0.1 - 1 mA	>1 - 20 mA	>20 - 100 mA
Accuracy	±0.2 % ±0.5 µA	±0.15 % ±2 µA	±0.1 % ±10 µA
Drift Typical	±5 ppm/K ± 5 nA/K	±10 ppm/K ± 10 nA/K	±40ppm/K ± 200 nA/K
Compliance voltage	24 V, max. 800 mW		
Output Impedance	>100 MΩ		
Bridge Connection Types			
Bridge types	Full / Half / Quarter bridge (3-wire or 4-wire) / Quarter Constant Current (2-wire or 4-wire)		
Ranges	2 - 1000 mV/V free programmable		
Internal Bridge Completion	½ bridge and ¼ bridge 120 Ω and 350 Ω		
Typ. Bridge Completion Accuracy	0.05 %; TCR: 2 ppm/K		
Internal Shunt Resistor	100 kΩ, software selectable		
Typ. Shunt Resistor Accuracy	0.05 %; TCR: 10 ppm/K		
Input Short, Sensor Offset Adjust	Software selectable		
IEPE mode			
IEPE Current	Free programmable (16-bit DAC)		
Predefined levels	2, 4, 8, 12, 16 and 20 mA		
Compliance voltage	24V		
Output Impedance	>100 kΩ		
Sensor detection	Shortcut: <4 V; Open: >19 V		
Additional Specifications			
Modular	SIRIUSi X 8xUNI		
Input connector	D-SUB9		
Isolation voltage	CH - GND and CH - CH isolated, CAT II 250V		

TEDs support		Standard + DSI® adapters	
Power supply		9 - 57 V DC Power over Ethernet: 48 - 57 V DC (PoE++ power delivery)	
Power consumption	Lemo 24 V / 57 V	Excitation OFF: Excitation 0.8 W / Ch:	12.1 W / 14.4 W 27.4 W / 30 W
	PoE 48 V / 57 V	Excitation OFF: Excitation 0.8 W / Ch:	14.7 W / 15.3 W 34.6 W / 35.3 W
Weight		1965 g	
Slice Dimensions		266 mm x 149 mm x 55 mm	
Rack		SIRIUSir X 8xUNI	
Input connector		D-SUB9	
Isolation voltage		CH - GND and CH - CH isolated Secondary circuits CAT II 150V	
TEDs support		Standard + DSI® adapters	
Power supply		12 - 48 V DC	
Power consumption	LEMO @Typ. 24 V / Max. 48 V	Voltage mode: Typ. 10.4 W / Max.11.5 W Voltage mode with load: Typ. 25.9 W / Max. 27.6 W (Load: 0.8W per channel)	
Weight		1100 g	
Slice Dimensions		266 mm x 143 mm x 45 mm	

5.3.1.2. X 16xUNI: Specifications

Analog inputs		SIRIUS-X-16xUNI			
Input type		Voltage Full/Half/Quarter bridge strain (120 Ω and 350 Ω) IEPE Potentiometer, RTD, Resistance Current (ext. and int. Shunt)			
Number of channels		16			
ADC Type		24-bit delta-sigma with anti-aliasing filter (-3 dB @ 160 kHz) Butterworth 2nd order			
Sampling Rate		Simultaneous 200 kS/sec per channel (software-selectable)			
Voltage mode					
Voltage Ranges		±100 V	±10 V	±1 V	±0.1 V
Input Accuracy	DC	±0.03 % of reading ±0.02 % of range			
Noise floor, Typ.	10 kS/s / 100 kS/s / 200 kS/s	115 dB / 105 dB / 104 dB	116 dB / 106 dB / 105 dB	114 dB / 105 dB / 103 dB	100 dB / 90 dB / 86 dB
Dynamic Range, Typ.	10 kS/s / 100 kS/s / 200 kS/s	-152 dB / -152 dB / -152 dB	-150 dB / -153 dB / -153 dB	-150 dB / -151 dB / -152 dB	-137 dB / -137 dB / -137 dB
CMR, Typ. 0 dBFS sine wave @ 50 Hz / 400 Hz / 1 kHz	200 kS/s	85 dB / 69 dB / 60 dB	85 dB / 85 dB / 85 dB	105 dB / 105 dB / 102 dB	113 dB / 110 dB / 104 dB
THD, Typ. -1 dBFS sine wave @ 1 kHz	200 kS/s	-91 dB	-101 dB	-100 dB	-107 dB

Gain Linearity	< 0.02 %			
Gain Drift	Typ. 10 ppm/K, max. 40 ppm/K			
Offset Drift	Typ. 0.3 μV/K + 2 ppm of range/K, max. 0.8 μV/K + 10 ppm of range/K			
Channel Cross talk typ. @ 1 kHz / 10 kHz	-100 dB / -86 dB	-135 dB / -120 dB	-135 dB / -120 dB	-119 dB / -110 dB
Input Coupling	DC, AC 0.15 Hz (1 Hz, 3 Hz, 5 Hz, 10 Hz, 20 Hz - software-selectable)			
Input Impedance	2 MΩ between IN+ and IN-	>1 GΩ between IN+ and IN-		
Max. Common Mode Voltage	±120 V	±12 V		
Overvoltage Protection	±200 V continuously	±100 V continuously / 200 Vpeak for 10 ms		
Analog input performance				
Sample rate	SR ≤ 2 kS/s		SR > 2 kS/s	
Bandwidth (-3 dB)	0.489*fs		0.433*fs	
Alias-free Bandwidth	DC to 0.44*fs		DC to 0.499*fs	
Alias Rejection	-105 dB (all sample rates)			
Delay Through ADC	34 / fs			
Oversampling	32			
Current mode (internal shunt)				
Ranges	20 mA		2 mA	
Input Accuracy	±0.03 % of reading, ±0.02 % of range, ±2.1 μA			
Internal Shunt Resistor	47 Ω			
Protection	Typ. trip current: I _{max} ≥ 31 mA; auto retry on 800 ms (clamp voltage 33 V)			
Excitation Voltage				
Excitation Voltage	Free programmable (16-bit DAC)			
Predefined levels	24 V DC			
Accuracy	±0.05 % ±2 mV			
Drift	±10 ppm/K ±100 μV/K			
Load stability	0 % to 100 % load <0.01 %			
Noise @ 10 V / 350 Ω	<150 μVrms @ 10 kS/s			
Line regulation over 20 Ω of change	<0.005 % @ 120 Ω load			
Sense Impedance to Exc / to GND	100 kΩ / >100 MΩ			
Current limit	100 mA (max. 800 mW)			
Protection	Continuous short to ground			
Excitation Current				
Excitation Current	Free programmable (16-bit DAC)			
Predefined levels	0.1, 1, 2, 5, 10, 20, 60 and 100 mA DC			
Ranges	0.1 - 1 mA	>1 - 20 mA	>20 - 100 mA	
Accuracy	±0.2 % ±0.5 μA	±0.15 % ±2 μA	±0.01 % ±40 μA	
Drift Typical	5 ppm/K	10 ppm/K	25 ppm/K	
Compliance voltage	24 V, max. 600 mW			
Output Impedance	>100 MΩ			

Bridge Connection Types		
Bridge types		Full / Half / Quarter bridge (3-wire or 4-wire) / Quarter Constant Current (2-wire or 4-wire)
Ranges		2 - 1000 mV/V free programmable
Internal Bridge Completion		Half and Quarter bridge 120 Ω and 350 Ω
Typ. Bridge Completion Accuracy		0.05 %; TCR: 2 ppm/K (others on request)
Internal Shunt Resistor		100 kΩ, software selectable (others on request)
Typ. Shunt Resistor Accuracy		0.05 %; TCR: 10 ppm/K (others on request)
Input Short, Sensor Offset Adjust		Software selectable
IEPE mode		
IEPE Current		Free programmable (16-bit DAC)
Predefined levels		2, 4, 8, 12, 16 or 20 mA
Compliance voltage		25 V
Output Impedance		>100 kΩ
Sensor detection		Shortcut: <4 V; Open: >19 V
Additional Specifications		
Modular		SIRIUS X 16xUNI
Input connector		D-SUB9
Isolation voltage		250 Vpeak channel to ground (functional isolation)
TEDs support		Standard + DSI® adapters
Power supply		9 - 57 V DC, Power over Ethernet: 48 - 57 V DC (PoE++ power delivery)
Power consumption	Lemo @Typ. 24 V / MAX. 56 V	Voltage mode: Typ. 15.6 W / Max. 19 W Voltage mode with load: Typ. 45 W / Max. 49 W (Load: 0.8W per channel)
	PoE @Min. 48 V / MAX. 56 V	Voltage mode: Typ. 18.5 W / Max. 19.5 W Voltage mode with load: Typ. 48.2 W / Max. 49.5 W (Load: 0.8W per channel)
Weight		2140 g
Slice Dimensions		266 mm x 149 mm x 55 mm
Rack		SIRIUSr X 16xUNI
Input connector		D-SUB9
Isolation voltage		250 Vpeak channel to ground (functional isolation)
TEDs support		Standard + DSI® adapters
Power supply		12 - 48 V DC
Power consumption	@Typ. 24 V / MAX. 48 V	Voltage mode: Typ. 14.3 W / Max.18 W Voltage mode with load: Typ. 46.5 W / Max. 50 W (Load: 0.8W per channel)
Weight		1240 g
Slice Dimensions		266 mm x 143 mm x 45 mm

5.3.2. X UNI: Connectors

5.3.2.1. X UNI: DSUB9 Connector



SIRIUSi-X-8xUNI



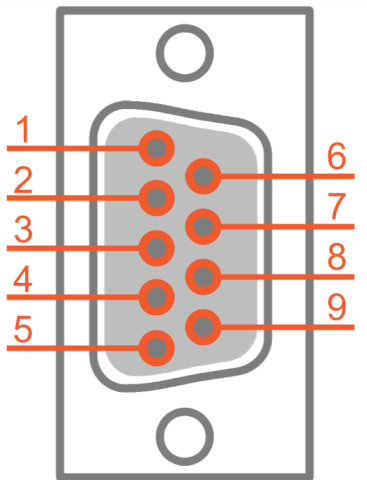
SIRIUS-X-16xUNI



SIRIUS X 8xUNI slice



SIRIUS X 16xUNI slice



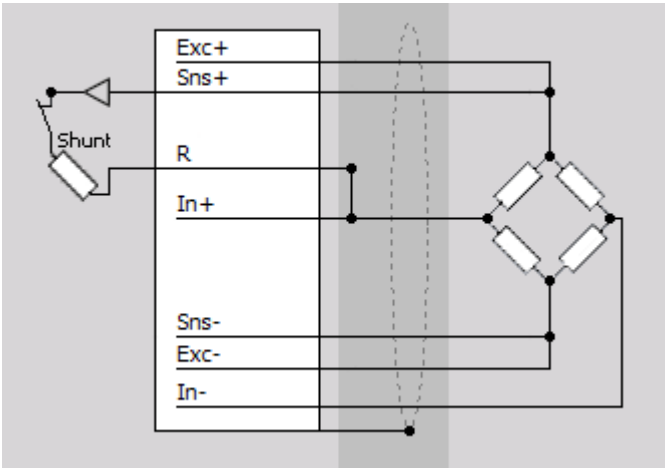
X UNI connector: pin-out (DSUB-9 female)

Pin	Name	Description
1	Exc+	Excitation+
2	In+	Input+
3	Sns-	Sense-
4	iGND	Isolated ground
5	R+	¼ Bridge / Shunt
6	Sns+	Sense+
7	In-	Input-
8	Exc-	Excitation-
9	TEDS	TEDS

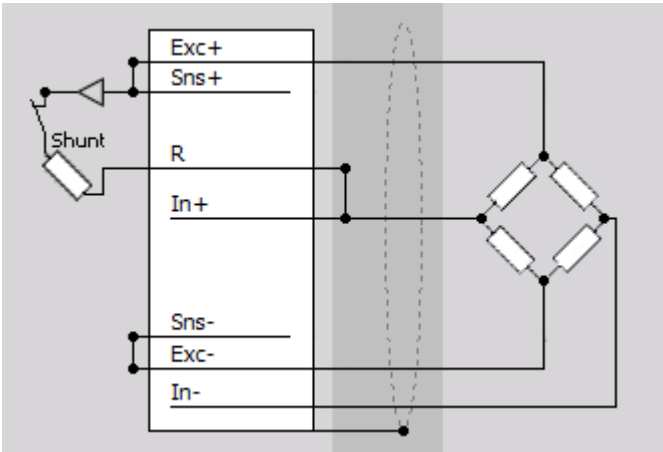
5.3.2.1.1. X UNI: DSUB9: Schematics

Bridge

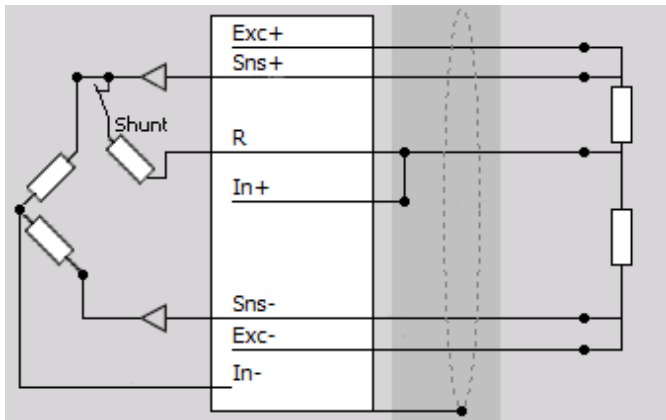
Full bridge (6-wire)



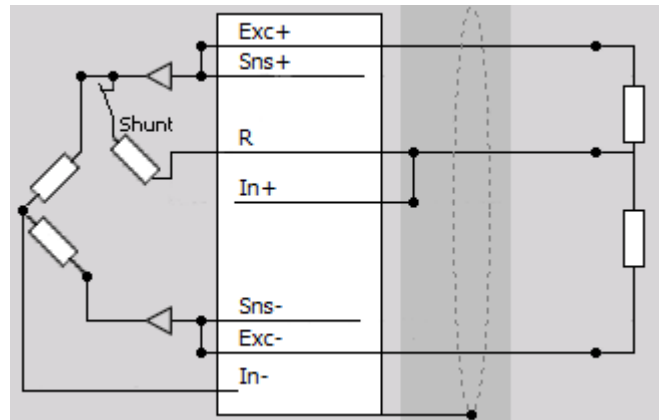
Full bridge (4-wire)



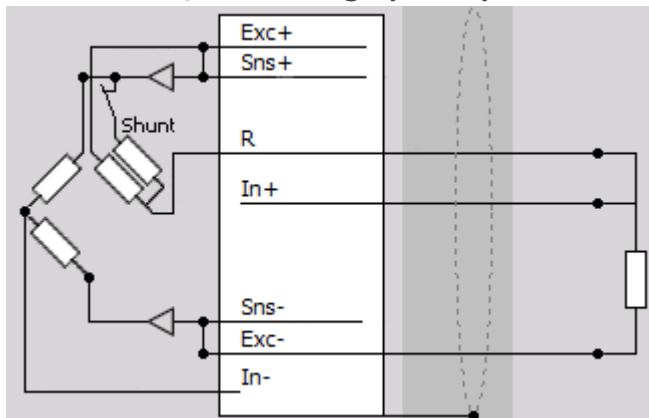
Half bridge (5-wire)



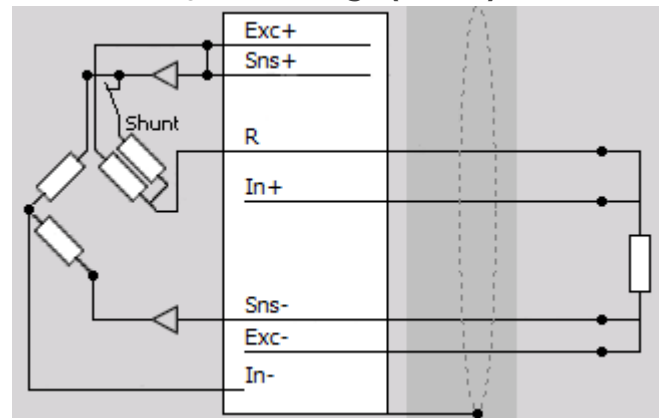
Half bridge (3-wire)



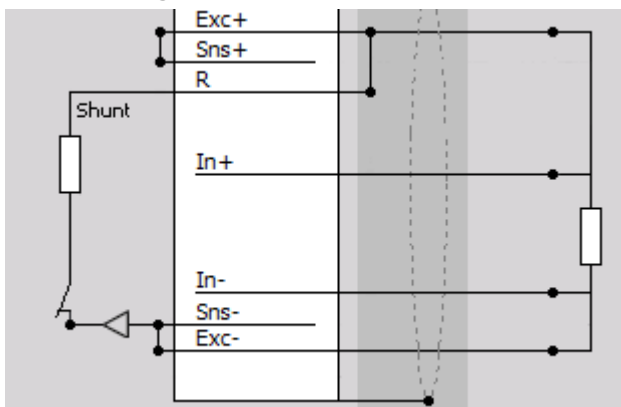
Quarter bridge (3-wire)



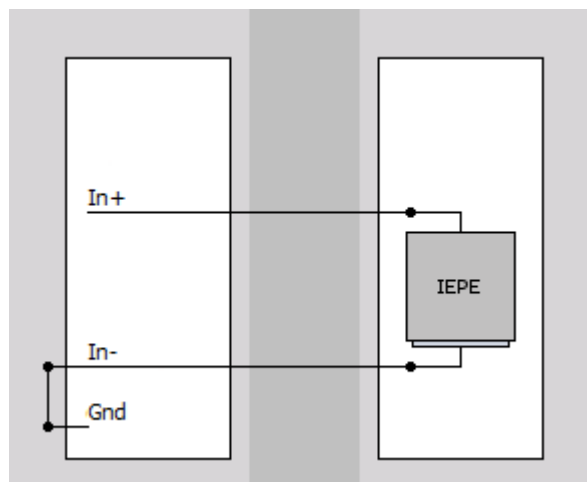
Quarter bridge (4-wire)



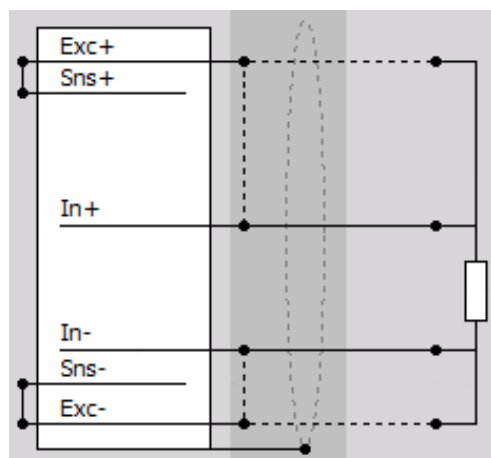
Quarter Bridge CC



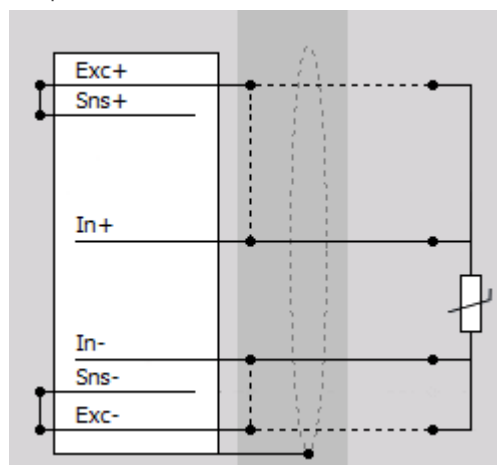
IEPE mode



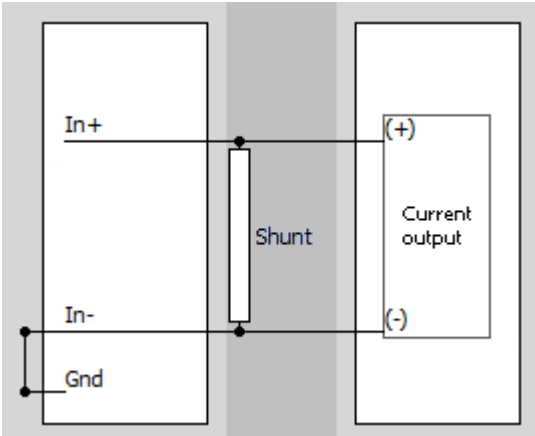
Resistance



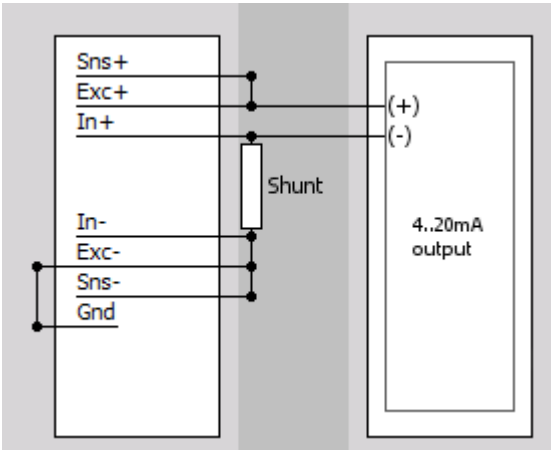
Temperature



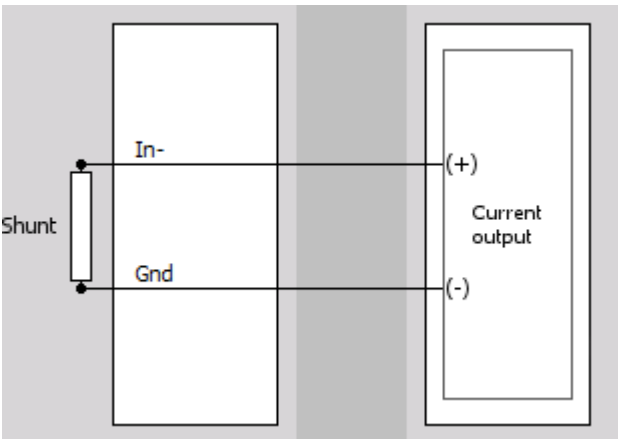
Current external shunt



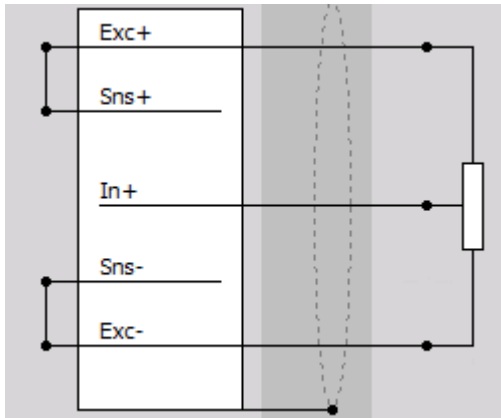
Current loop powered



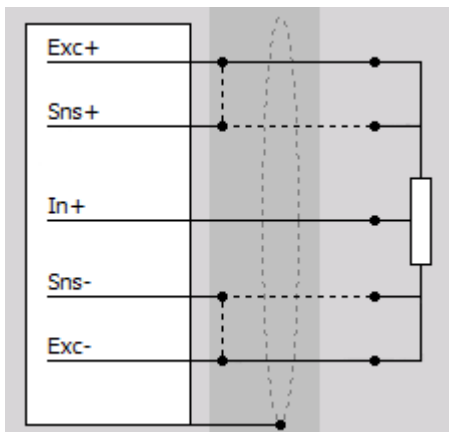
Internal shunt



Potentiometer 2W



Potentiometer 4W



6. Accessories

Optional SIRIUS X Accessories and Sensors (e.g. DSI®-adapters, Battery Packs, Current Clamps, etc.) can be found in separate documents depending on the functionality, which are available for download from our homepage:

<https://dewesoft.com/download/manuals>

7. Warranty information

Notice

The information contained in this document is subject to change without notice.

Note:

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The copy of the specific warranty terms applicable to your Dewesoft product and replacement parts can be obtained from your local sales and service office. To find a local dealer for your country, please visit <https://dewesoft.com/support/distributors>.

7.1. Calibration

Every instrument needs to be calibrated at regular intervals. The standard norm across nearly every industry is annual calibration. Before your Dewesoft data acquisition system is delivered, it is calibrated. Detailed calibration reports for your Dewesoft system can be requested. We retain them for at least one year, after system delivery.

7.2. Support

Dewesoft has a team of people ready to assist you if you have any questions or any technical difficulties regarding the system. For any support please contact your local distributor first or Dewesoft directly.

Dewesoft d.o.o.
Gabrsko 11a
1420 Trbovlje Slovenia

Europe Tel.: +386 356 25 300

Web: <http://www.dewesoft.com>

Email: support@dewesoft.com

The telephone hotline is available Monday to Friday from 07:00 to 16:00 CET (GMT +1:00)

7.3. Service/repair

The team of Dewesoft also performs any kinds of repairs to your system to assure a safe and proper operation in the future. For information regarding service and repairs please contact your local distributor first or Dewesoft directly on <https://dewesoft.com/support/rma-service>.

7.4. Restricted Rights

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8. Safety instructions

Your safety is our primary concern! Please be safe!

8.1. Safety symbols in the manual

Safety reference manual for the IOLITE Data Acquisition Devices can be found in <https://dewesoft.com/download> section. Search for keyword: **Safety technical reference manual**



Warning

Calls attention to a procedure, practice, or condition that could cause the body injury or death



Caution

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

8.2. General Safety Instructions



Warning

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Dewesoft d.o.o. assumes no liability for the customer's failure to comply with these requirements.

All accessories shown in this document are available as an option and will not be shipped as standard parts.

8.2.1. Environmental Considerations

The product is an electronic instrument designed with consideration for environmental impact during its design and use phase. The materials and components used comply with the requirements of the RoHS Directive (2011/65/EU) and the REACH Regulation (EC No. 1907/2006), with no intentional use of restricted or prohibited hazardous substances. During normal operation, the product does not generate direct environmental emissions and features low power consumption. The device is designed for long-term use and serviceability, supporting an extended product lifetime. The product enclosure is made of aluminum, and selected components of the product are suitable for material recycling.

8.2.2. Product End-of-Life Handling

At the end of its service life, the product shall not be disposed of as unsorted municipal waste and shall be collected separately in accordance with the WEEE Directive (2012/19/EU).



The crossed-out wheeled bin symbol on the product, packaging, or accompanying documentation indicates that the equipment must be returned to an authorized collection point for waste electrical and electronic equipment. Recycling, recovery, and disposal activities shall be carried out by authorized operators in compliance with applicable local, national, and EU environmental regulations.

For proper treatment, recovery and recycling of old products and batteries, please take them to applicable collection points in accordance with your national legislation. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

8.2.3. General safety and hazard warnings for all Dewesoft systems

Safety of the operator and the unit depend on following these rules.

- Use this system under the terms of the specifications only to avoid any possible danger.
- Read your manual before operating the system.
- Observe local laws when using the instrument.
- DO NOT touch internal wiring!
- DO NOT use higher supply voltage than specified!
- Use only original plugs and cables for harnessing.
- You may not connect higher voltages than rated to any connectors.
- The power cable and connector serve as Power-Breaker. The cable must not exceed 3 meters, the disconnect function must be possible without tools.
- Maintenance must be executed by qualified staff only.
- During the use of the system, it might be possible to access other parts of a more comprehensive system. Please read and follow the safety instructions provided in the manuals of all other components regarding warning and security advice for using the system.
- With this product, only use the power cable delivered or defined for the host country.
- DO NOT connect or disconnect sensors, probes or test leads, as these parts are connected to a voltage supply unit.
- Ground the equipment: For Safety Class I equipment (equipment having a protective earth terminal), a non-interruptible safety earth ground must be provided from the mains power source to the product input wiring terminals.
- Please note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, please read the corresponding specifications in the product manual carefully.
- The inputs must not, unless otherwise noted (CATx identification), be connected to the main circuit of category II, III and IV.
- The power cord separates the system from the power supply. Do not block the power cord, since it has to be accessible for the users.
- DO NOT use the system if equipment covers or shields are removed.
- If you assume the system is damaged, get it examined by authorized personnel only.
- Adverse environmental conditions are Moisture or high humidity Dust, flammable gases, fumes or dissolver Thunderstorm or thunderstorm conditions (except assembly PNA) Electrostatic fields, etc.
- The measurement category can be adjusted depending on module configuration.
- Any other use than described above may damage your system and is attended with dangers like short-circuiting, fire or electric shocks.
- The whole system must not be changed, rebuilt or opened.
- DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until the safe operation can be verified by service-trained personnel. If necessary, return the product to Dewesoft sales and service office for service and repair to ensure that safety features are maintained.
- If you assume a more riskless use is not provided anymore, the system has to be rendered inoperative and should be protected against inadvertent operation. It is assumed that a more

riskless operation is not possible anymore if the system is damaged obviously or causes strange noises. The system does not work anymore. The system has been exposed to long storage in adverse environments. The system has been exposed to heavy shipment strain.

- Warranty void if damages caused by disregarding this manual. For consequential damages, NO liability will be assumed!
- Warranty void if damage to property or persons caused by improper use or disregarding the safety instructions.
- Unauthorized changing or rebuilding the system is prohibited due to safety and permission reasons (CE).
- Be careful with voltages >25 VAC or >35 VDC! These voltages are already high enough in order to get a perilous electric shock by touching the wiring.
- The product heats during operation. Make sure there is adequate ventilation. Ventilation slots must not be covered!
- Only fuses of the specified type and nominal current may be used. The use of patched fuses is prohibited.
- Prevent using metal bare wires! Risk of short circuit and fire hazard!
- DO NOT use the system before, during or shortly after a thunderstorm (risk of lightning and high energy over-voltage). An advanced range of application under certain conditions is allowed with therefore designed products only. For details please refer to the specifications.
- Make sure that your hands, shoes, clothes, the floor, the system or measuring leads, integrated circuits and so on, are dry.
- DO NOT use the system in rooms with flammable gases, fumes or dust or in adverse environmental conditions.
- Avoid operation in the immediate vicinity of high magnetic or electromagnetic fields, transmitting antennas or high-frequency generators, for exact values please refer to enclosed specifications.
- Use measurement leads or measurement accessories aligned with the specification of the system only. Fire hazard in case of overload!
- Lithium ion batteries are classified as not hazardous when used according to the recommendations of the manufacturer described in Battery Safety Data Sheet, which is available for download from [this link](#).
- Do not switch on the system after transporting it from a cold into a warm room and vice versa. The thereby created condensation may damage your system. Acclimatise the system unpowered to room temperature.
- Do not disassemble the system! There is a high risk of getting a perilous electric shock. Capacitors still might be charged, even if the system has been removed from the power supply.
- The electrical installations and equipment in industrial facilities must be observed by the security regulations and insurance institutions.
- The use of the measuring system in schools and other training facilities must be observed by skilled personnel.
- The measuring systems are not designed for use in humans and animals.
- Please contact a professional if you have doubts about the method of operation, safety or the connection of the system.
- Please be careful with the product. Shocks, hits and dropping it from already- lower level may damage your system.
- Please also consider the detailed technical reference manual as well as the security advice of the connected systems.
- This product has left the factory in safety-related flawlessness and in proper condition. In order to maintain this condition and guarantee safety use, the user has to consider the security advice and warnings in this manual.

EN 61326-3-1:2008

IEC 61326-1 applies to this part of IEC 61326 but is limited to systems and equipment for industrial applications intended to perform safety functions as defined in IEC 61508 with SIL 1-3.

The electromagnetic environments encompassed by this product family standard are industrial, both indoor and outdoor, as described for industrial locations in IEC 61000-6-2 or defined in 3.7 of IEC 61326-1.

Equipment and systems intended for use in other electromagnetic environments, for example, in the process industry or in environments with potentially explosive atmospheres, are excluded from the scope of this product family standard, IEC 61326-3-1.

Devices and systems according to IEC 61508 or IEC 61511 which are considered as “operationally well-tried”, are excluded from the scope of IEC 61326-3-1.

Fire-alarm and safety-alarm systems, intended for the protection of buildings, are excluded from the scope of IEC 61326-3-1.

8.3. Documentation version history

Version	Date	Notes
V24-1	13.04.2024	Initial version (product release)
V24-2	13.09.2024	- Additional information on connectivity - Specs and functionality update after additional SW testing for DeweosftX 2024.4 Release
V25-1	02.06.2025	- Added SIRIUS X 16xLVE with DSUB connectors - Added SIRIUS X 16xSTGS - Modified the documentation due to an upgrade of the PWR IN/OUT connectors and Dual CAN
V26-1	04.08.2026	- Added SIRIUS X 8xUNI and 16XUNI with DSUB connectors - Added SIRIUS X 8xCAN-FD - Added rack system specifications - Added SIRIUS X rack slices (UNI, LV, LVE, STGS, ACC)
V26-2	28.09.2026	- Updated EtherCAT availability information