

TECHNICAL REFERENCE MANUAL

IOLITE® V26-1



4.3. Enclosure Overview

IOLITE can be configured in the 19-inch cabinet compatible chassis (IOLITE-R12) or in more rugged Sirius-like compatible chassis (IOLITE-R8).

4.3.1. IOLITE-R12: Cabinet Mount Chassis

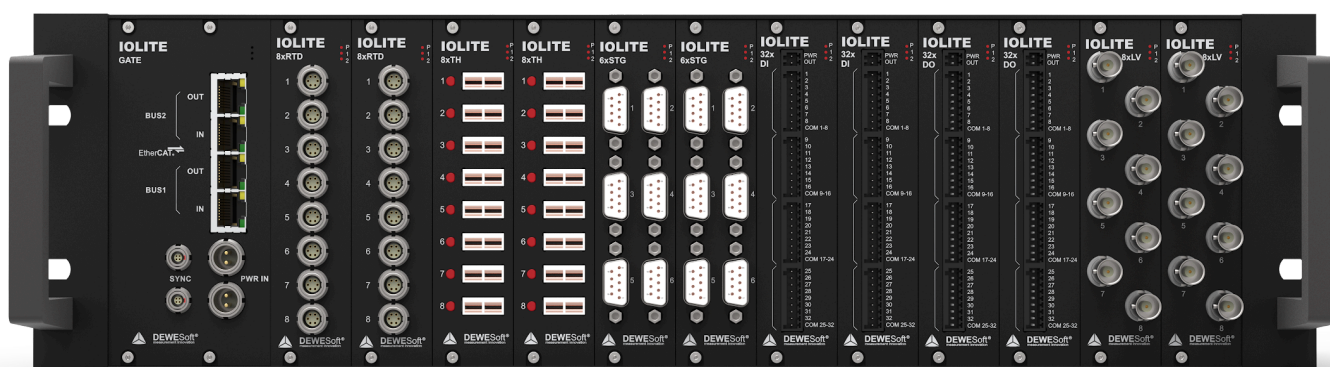
Standard IOLITE chassis is compatible and can be mounted in any 19-inch rack cabinet. This is perfect for the test-bed installations.

IOLITE height is 3U and can host up to 12 IOLITE modules. It includes a cooling system with four fans on the back panel.

4.3.1.1. IOLITE-R12: Cabinet Mount Chassis: Renders



Mounting of IOLITE-R12 in the 19" cabinet

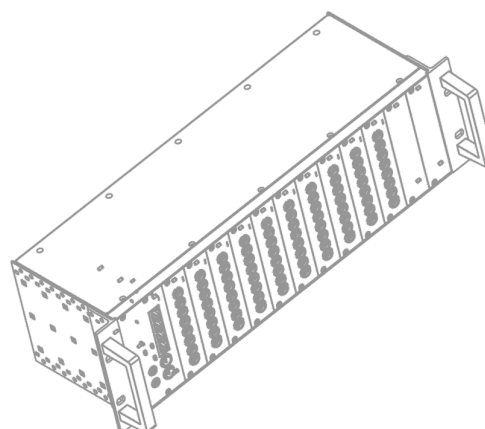
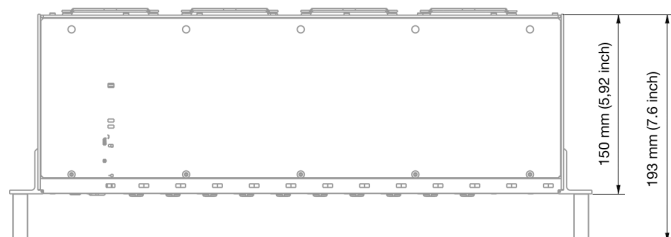
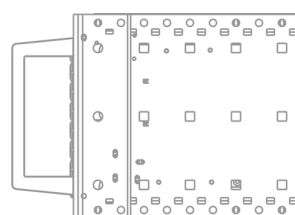
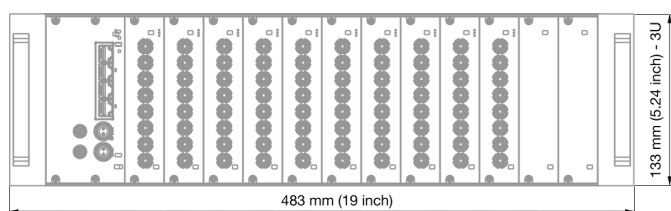


IOLITE-R12 (Cabinet Mount Chassis) Front panel



Cooling system on the Back panel of IOLITE-R12

4.3.1.2. IOLITE-R12: Cabinet Mount Chassis: Dimensions



Technical Drawings of IOLITE-R12

4.3.1.3. IOLITE-GATE

The IOLITE-GATE module serves as a gateway between IOLITE measurement modules and either PC, other Dewesoft EtherCAT devices or 3rd party control masters. It includes dual EtherCAT bus, redundant power supply inputs and provides synchronization with Dewesoft USB devices.

IOLITE-GATE is mounted in the first slot from left inside the IOLITE-R12 19-inch rack cabinet chassis.

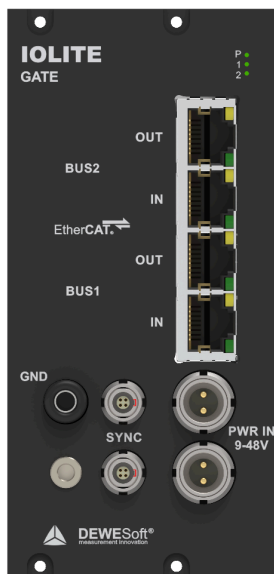
4.3.1.3.1. IOLITE-GATE: Connectors

The IOLITE-GATE module is available with either:

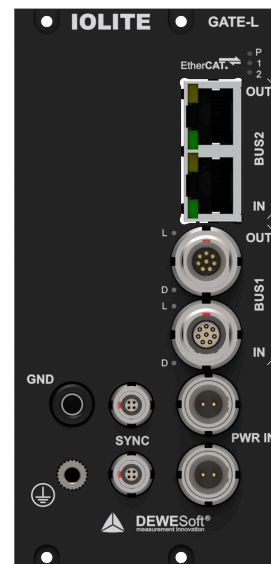
- 4x RJ45 connectors for dual EtherCAT bus. Primary bus (BUS 1) for buffered data and Secondary bus (BUS 2) for unbuffered data have IN and OUT connectors.
- 2x RJ45 connectors and 2 x LEMO connectors for dual EtherCAT bus. Primary bus (BUS 1) for buffered data (with LEMO connectors) and Secondary bus (BUS 2) for unbuffered data (with RJ45 connectors) have IN and OUT connectors.

Two 2-pin LEMO 1B connectors are used for redundant power supply (PWR IN).

Synchronization with Dewesoft USB data acquisition devices or connection to clock master is on IOLITE-GATE enabled by connecting a synchronization cable to two SYNC inputs (4-pin LEMO 00).

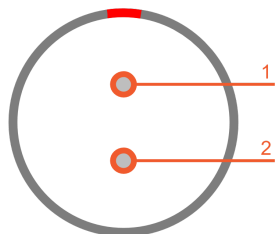


IOLITE-GATE front



IOLITE-GATE-L front

4.3.1.3.1.1. IOLITE-GATE: Power in: Pinout



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

Pin	Name	Description
1	V +	Supply
2	V -	Ground

For the power supply an unregulated DC voltage between 9 V and 48 V is required, which is connected to the 2-pin LEMO 1B male connector on the IOLITE-GATE front.

PWR IN connector (on the device): EXJ.1B.302.HLD
Mating connector (for the cable): FGJ.1B.302.CLLD42Z



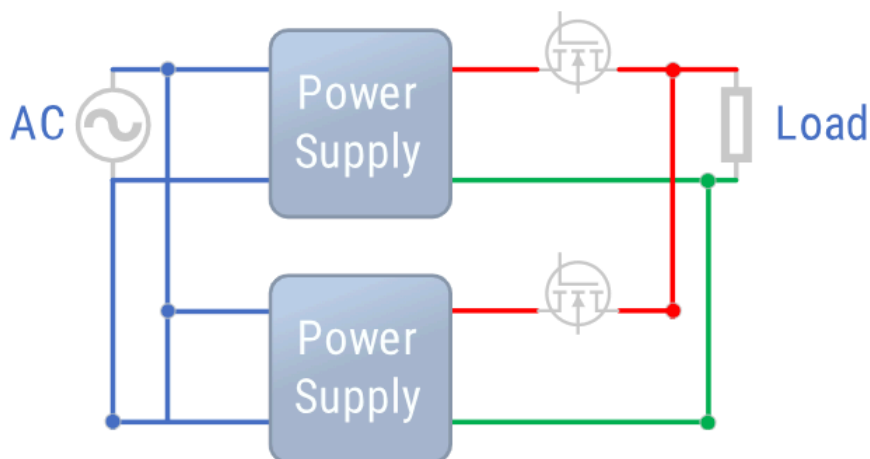
Important

Dual PWR IN works as redundant power input. This means that power input with higher voltage will be prioritized. If both supply voltages are present and in the similar voltage range (50 mVdc), the device will start draining power from both supplies.



Important

Dual PWR IN is not intended to be used as UPS battery power backup! PWR IN leakage current is around 2-5 mAdc depending on the applied supply voltage.



Dual PWR IN schematics

4.3.1.3.1.2. IOLITE-GATE: Sync: Pinout

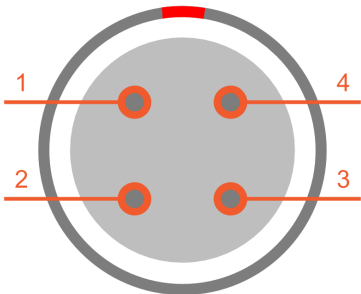
The sync connectors are required when you want to synchronize the data from IOLITE with Dewesoft USB devices for the same measurement. The signal that is transferred over sync cable makes sure that the measurement data of IOLITE and Dewesoft USB devices are perfectly synchronized to each other.

The other use of a sync connector is to connect directly to IOLITE, a signal from the clock master.



Hint

There is no distinction between the IN and OUT – it does not matter which connector you use. When IRIG-synchronization is used, the IRIG signal is on pins 1, 2.



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

Pin	Name	Description
1	CLK	Clock
2	TRIG	Trigger
3	RES	PPS
4	GND	Ground

SYNC connector (on the device): EEG.00.304.CLL
Mating connector (for the cable): FGG.00.304.CLAD27Z

4.3.1.3.1.3. IOLITE-GATE: RJ45: Pinout

The IOLITE-GATE module includes RJ45 connectors that enable data transfer and synchronization via dual EtherCAT bus.

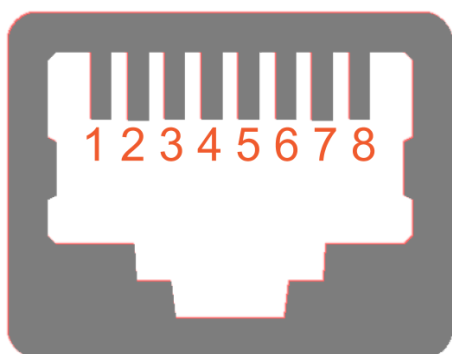
The same connectors are used on Primary bus (BUS 1) for buffered data and on Secondary bus (BUS 2) for unbuffered data.

Each RJ45 connector has two LEDs:

- **GREEN** LED indicates that IOLITE is connected to another device (Dewesoft EtherCAT device, PC or 3rd party control master).
- **YELLOW** LED is active only when the data transfer is active.

The connector used on the device is a standard Ethernet connector (RJ45).

Standard ethernet cable with standard connector can be used to connect IOLITE-GATE with a PC.



EtherCAT connector: pin-out (RJ-45 female)

Pin	Name	Description
1	TX_P	Transmission +
2	TX_N	Transmission -
3	RX_P	Reception +
4	-	-
5	-	-
6	RX_N	Reception -
7	-	-
8	-	-

4.3.1.3.1.4. IOLITE-GATE: GND: Pinout

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

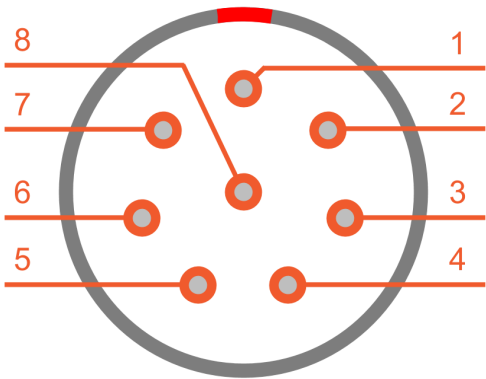


Caution, risk of electric shock

- 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.

4.3.1.3.1.5. IOLITE-GATE-L: BUS 1: IN: Pinout

The IN connector of the primary EtherCAT bus (BUS 1) is a 8-pin LEMO 1B male connector.



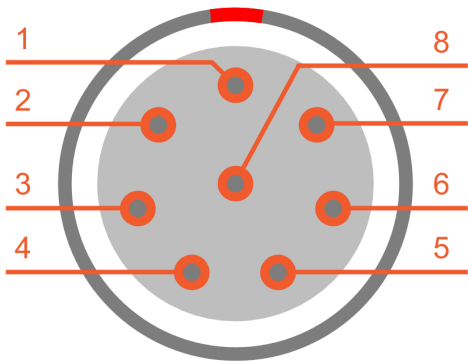
EtherCAT connector: pin-out (8-pin LEMO male)

BUS 1 IN connector (on the device): EEJ.1B.308.CLD
Mating connector (for the cable): FGJ.1T.308.CLL.1433

Pin	Name	Description
1	TX_P	Transmission +
2	TX_N	Transmission -
3	RX_P	Reception +
4	RX_N	Reception -
5	NC	Not connected
6	NC	Not connected
7	GND	Ground
8	GND	Ground

4.3.1.3.1.6. IOLITE-GATE-L: BUS 1: OUT: Pinout

The OUT connector of the primary EtherCAT bus (BUS 1) is a 8-pin LEMO 1B female connector. OUT connector enables power supply for external Dewesoft EtherCAT devices.



EtherCAT connector: pin-out (8-pin LEMO female)

BUS 1 OUT connector (on the device): EEG.1B.308.CLN
Mating connector (for the cable): FGG.1T.308.CLA.1433

Pin	Name	Description
1	TX_P	Transmission +
2	TX_N	Transmission -
3	RX_P	Reception +
4	RX_N	Reception -
5	VCC	Power OUT
6	VCC	Power OUT
7	GND	Ground
8	GND	Ground

4.3.1.4. IOLITE-GATE: Connection of IOLITE-R12 standalone device to PC

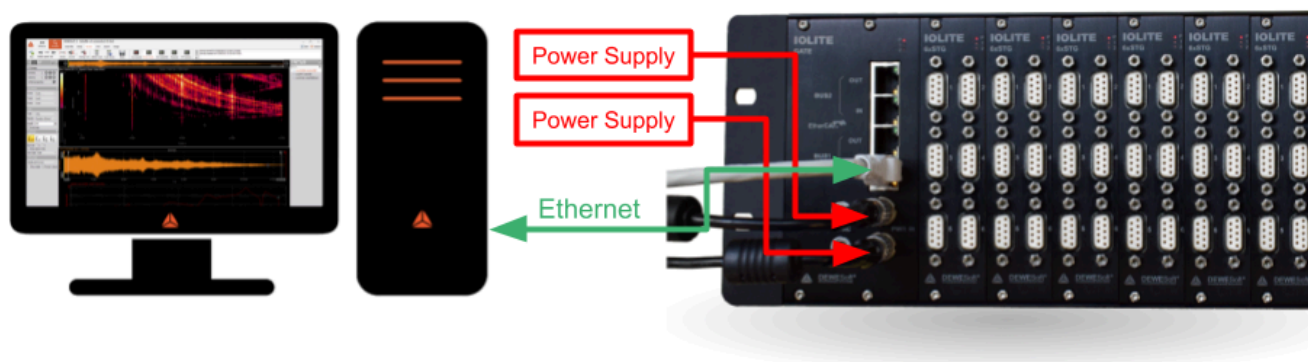
First connect the power supply cable (PS-120-L1B2f) to the PWR IN 2-pin LEMO 1B connector. To increase system reliability connect the redundant power supply to other PWR IN connectors.



Hint

To improve the redundancy of the system, it is recommended that the device is powered with two power supplies connected to different electrical fuses!

Then connect a standard ethernet cable to the IN connector of BUS 1 on IOLITE-GATE. Finally, connect the other side of the ethernet cable to the LAN port of the PC.



Connection of IOLITE-R12 standalone device to PC

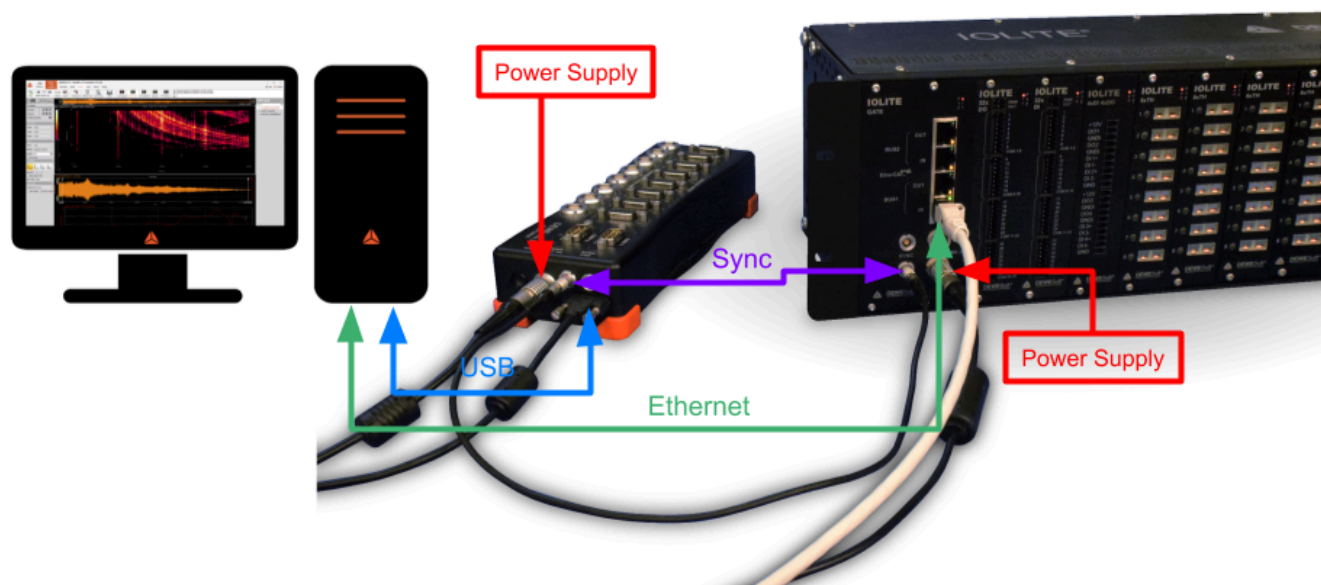
List of required cables:

Function	Dewesoft order code
Power supply	PS-120-L1B2f (default)
Ethercat	CABLE-UTP-CAT.6-3m (default), CABLE-UTP-CAT.6-1m

4.3.1.5. IOLITE-GATE: Connection of IOLITE-R12 and DEWE-43A device

The connection of the IOLITE device to the PC is the same as in [4.3.1.4](#). Connect power supply cable to DEWE-43A (PS-60W-12V-5A-L1B2f). Then connect the USB cable (CABLE-USBAmini-USBBS-1.8m) to the USB port on the connector side of DEWE-43A. Finally connect the other side of the USB cable to the USB port on the PC.

In order to have synchronized data between IOLITE and DEWE-43A, connect SYNC cable (e.g. L00B4m-L00B4m-0.2m) to the SYNC connector on IOLITE-GATE and the other side of cable to the SYNC connector on DEWE-43A.



Connection of IOLITE-R12 and DEWE-43A device

List of required cables:

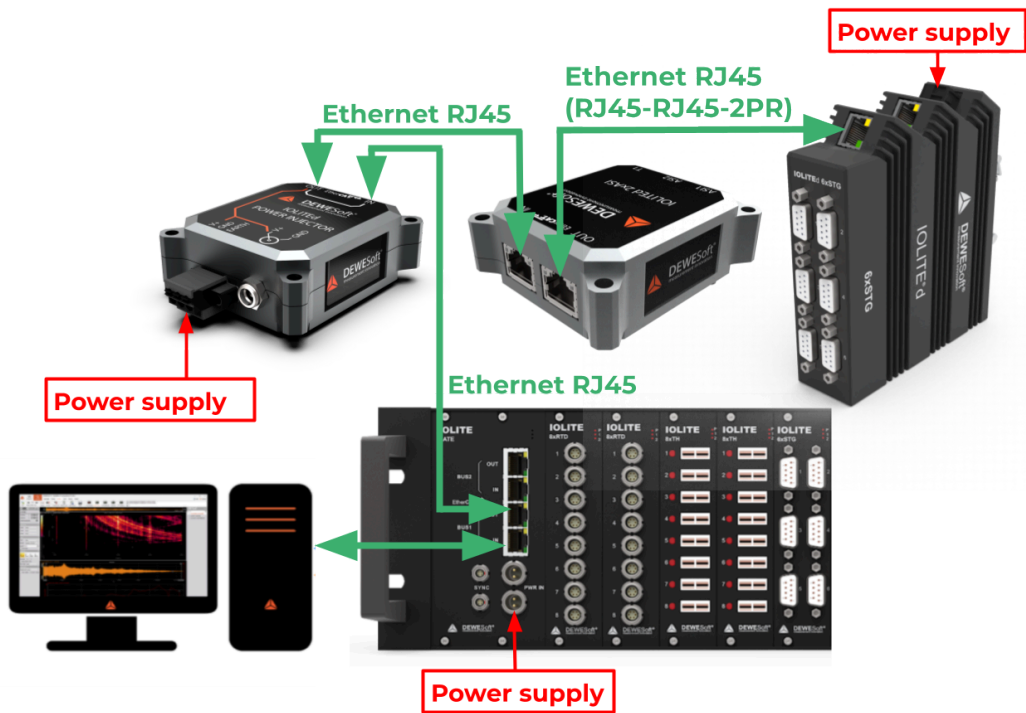
Function	Dewesoft order code
Power supply	IOLITE-R12: PS-120-L1B2f (default) DEWE-43A: PS-60W-12V-5A-L1B2f (default)
Ethernet	RJ45-RJ45
USB	CABLE-USBAmini-USBBS-1.8m (default), CABLE-USBAmini-USBBS-1m
Synchronization	L00B4m-L00B4m-0.2m (default), L00B4m-L00B4m-0.5m, L00B4m-L00B4m-3m

4.3.1.6. IOLITE-GATE: Connection of IOLITE-R12 standalone device to IOLITE - single channel and IOLITE - multi channel (with PoE and without PoE)

Connect power supply cable to IOLITE-R12 (PS-120W-L1B2f).Then connect RJ45-RJ-45 cable to IN connector of BUS 1 on IOLITE-GATE.

Use the RJ45-RJ45 cable to connect the IOLITE-R12 to IOLITE POWER-INJECTOR and then with an additional RJ45-RJ45 cable to the IOLITE - single channel device. You need to connect the PS with the cable to the IOLITE POWER INJECTOR.

Use the RJ45 to RJ45 cable again to connect the data line to IOLITE - multi channel device. The IOLITE - multi channel device will need an additional Power supply. If using PoE compatible devices, check the connection below.

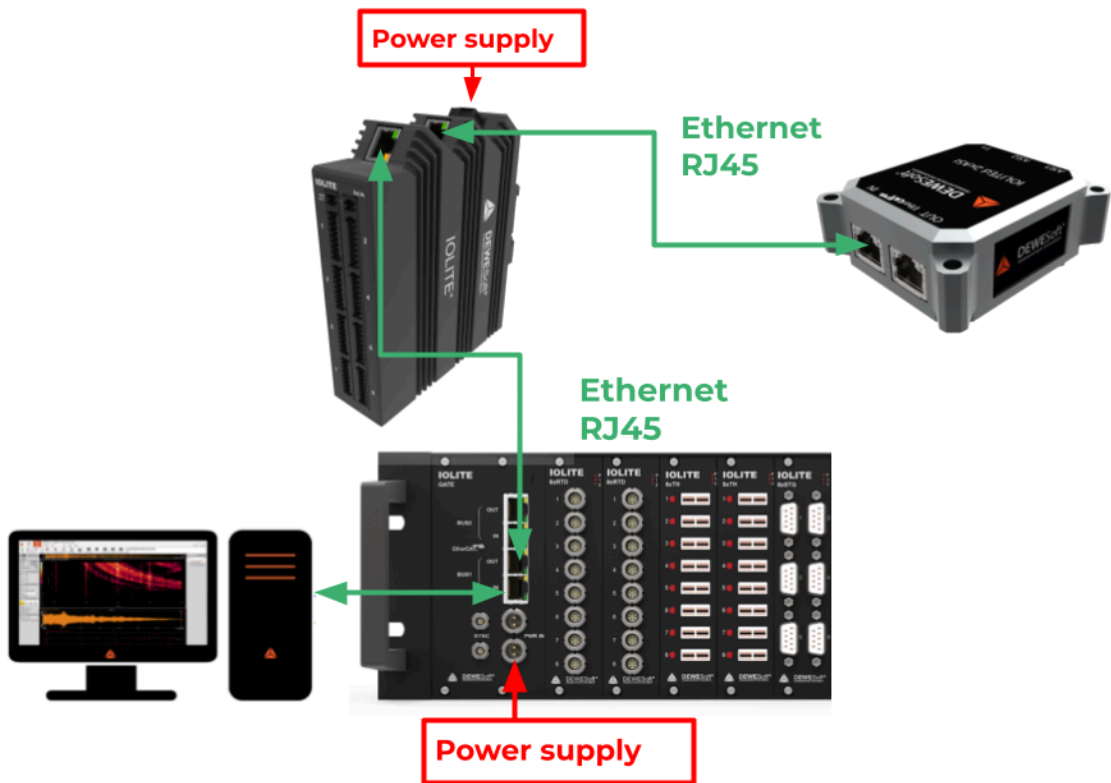


Connection of IOLITE-R12, IOLITE - single channel and IOLITE - multi channel without PoE

Function	Dewesoft order code
Power supply	IOLITE-R12: PS-120W-L1B2f (default) IOLITE POWER-INJECTOR IOLITE-multichannel:
EtherNET	IOLITE-R8 to IOLITE single channel: RJ-45 - RJ-45 IOLITE single channel to IOLITE multi channel: RJ-45 - RJ-45

Connect power supply cable to IOLITE-R12 (PS-120W-L1B2f). Then connect RJ45-RJ-45 cable to the IN connector of BUS 1 on IOLITE-GATE.

Use the RJ45-RJ45 cable to connect the IOLITE-R12 to IOLITE multi-channel and then with an additional RJ45-RJ45 cable to the IOLITE - single channel device. You need to connect the PS with the cable to the IOLITE multi-channel with PoE.



Connection of IOLITE-R12, IOLITE - single channel and IOLITE - multi channel with PoE

Function	Dewesoft order code
Power supply	IOLITE-R12: PS-120-L1B2f (default) IOLITE POWER-INJECTOR IOLITE-multichannel:
EtherNET	IOLITE-R8 to IOLITE single channel: RJ-45 - RJ-45 IOLITE single channel to IOLITE multi channel: RJ-45 - RJ-45