

TECHNICAL REFERENCE MANUAL

IOLITE® V26-1



4.3.5. IOLITE: Multi channel device

IOLITE multi-channel modules are fully compatible with the DIN rail mount. The chassis offers an easy clip-in mechanism for mounting to all standard industrial DIN rail mounts.

IOLITE DAQ devices use RJ45 connectors which allow easy connection of modules with standard low-cost Ethernet/EtherCAT cables.



Important

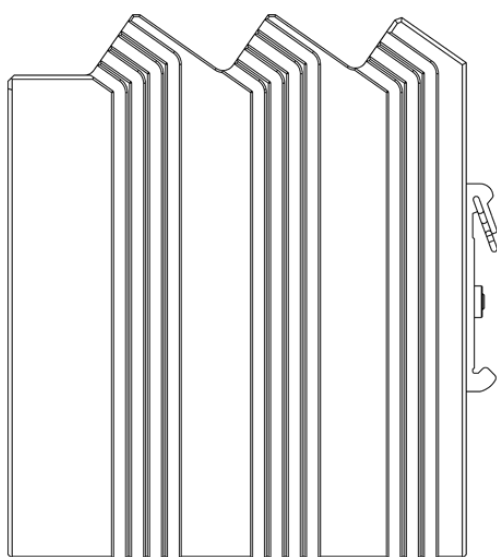
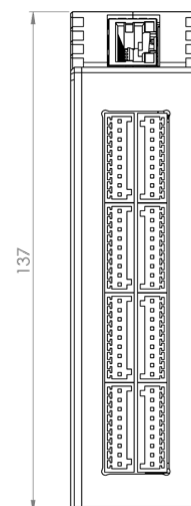
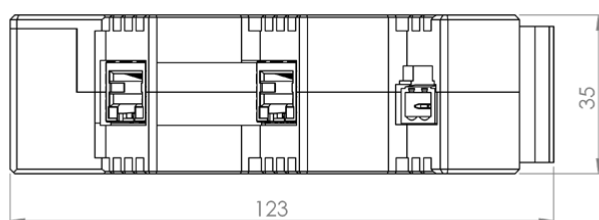
For the power supply we have two terminal block connectors so the devices can be daisy chained with each other.

4.3.5.1. IOLITE - Multi channel: Renders



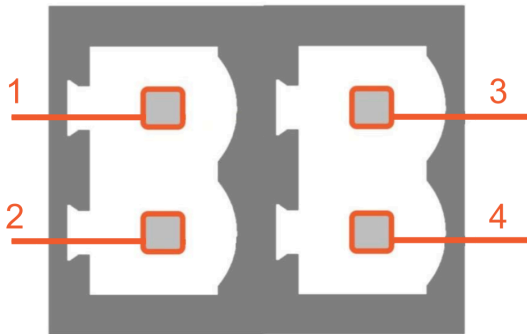
IOLITE multi channel device

4.3.5.2. IOLITE - Multi channel: Dimension



4.3.5.3. IOLITE - Multi channel: Connectors

4.3.5.3.1. IOLITE - Multi channel: PWR IN

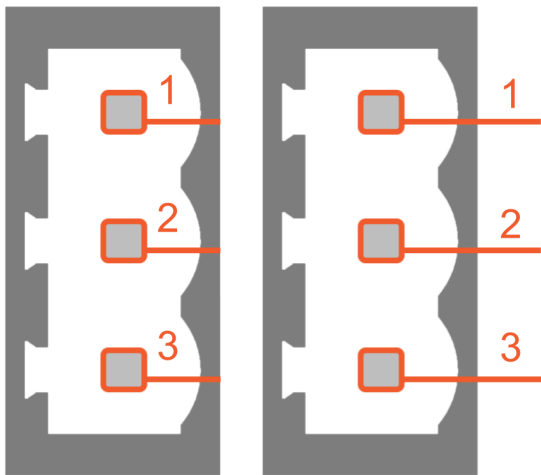


Power in connector: pin-out (4-pin male)

Pin	Name	Description
1	+	PWR +
2	-	PWR -
3	+	PWR +
4	-	PWR -

Connector (on the device):
SCDN-THR 3.81/04/90G 3.2SN BK BX

Mating Connectors (for the cable):
BCF 3.81/02/180 SN BK BX



Power in connector: pin-out (two 3-pin connectors)

Pin	Name	Description
1	Chassis	Connected to chassis
2	-	PWR-
3	+	PWR +

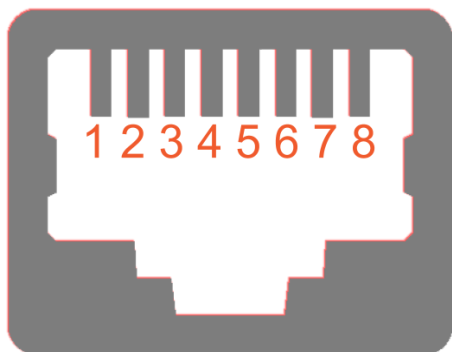
Connector (on the device):
2x3 OMNIMATE SC 3.81/03/180

Mating Connectors (for the cable):
2x3 OMNIMATE BCF 3.81/03/180;

4.3.5.3.2. EtherNET - IN (Data, Sync)

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

Standard ethernet cable with standard connector can be used to connect IOLITE - Multi channel to PC.



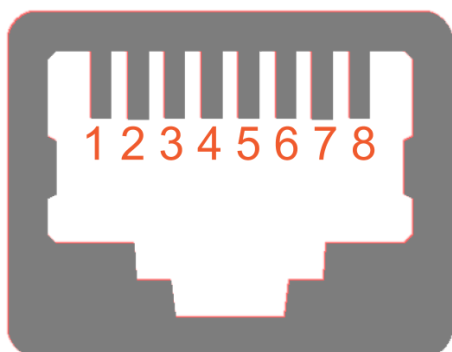
EtherCAT connector: pin-out (RJ-45 female)

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

4.3.5.3.3. EtherNET - OUT (Data, Sync)

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

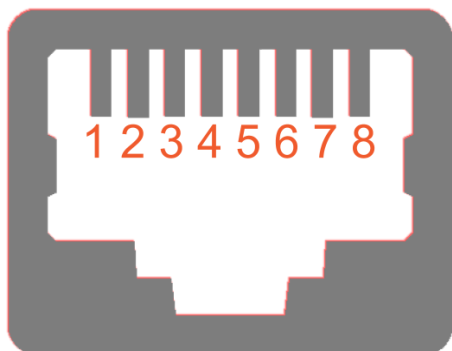
Standard ethernet cable with standard connector can be used to connect IOLITE Multi channel device with an additional IOLITE Multi channel device



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	-	-

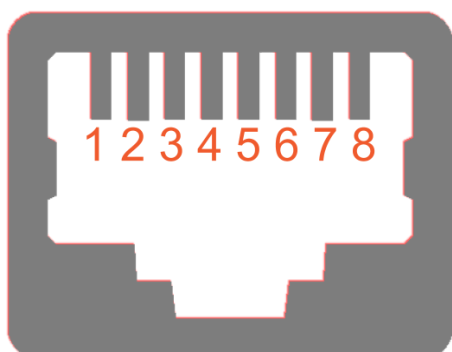
4.3.5.3.4. PoE - ECAT - IN (Data, Sync, PWR)



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

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

4.3.5.3.5. PoE - ECAT - OUT (Data, Sync, PWR)



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

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

Caution



If the device is supplied on PWR IN, PoE voltage (DC+ / DC- on ECAT OUT) is equal to Vin (PWR+ / PWR-) on PWR IN (max. current 3 A). If you chain the devices, the voltage on ECAT OUT is the same as connected to the ECAT IN. There is no protection.

If PoE with power and PWR IN are connected at the same time, PWR IN power will be chosen, but only if it is within the specifications (9-48 V).

Be sure to check the connection possibilities in chapter [3.2. Connecting IOLITE®](#).

6.2.4. IOLITE 16xLV

IOLITE 16xLV modules have terminal block connectors for analog input. The 16-channel low voltage module comes with channel-to-ground isolation and a range of 200 V.



IOLITEr-16xLV



IOLITE-16xLV

6.2.4.1. IOLITEr-16xLV: Specifications

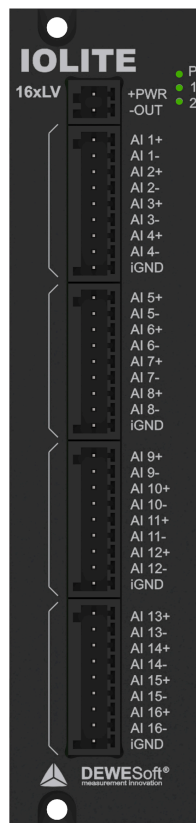
Analog input		
Input type	Voltage	
Number of channels	16	
ADC Type	24-bit oversampled sigma-delta	
Sampling Rates IOLITE	Simultaneous 20k, 10k, 5k, 2k, 1k, 500, 200, 100 S/s (software-selectable)	
Sampling Rates OBSIDIAN	Simultaneous 5k, 2k, 1k, 500, 200, 100 S/s (software-selectable)	
Voltage Mode		
Ranges	±200 V	±10 V
Accuracy	±0.03 % of reading ±40 mV	±0.03 % of reading ±2 mV
Typ. SNR (10 kS/s, -1 dBFS sine wave @ 1 kHz)	103 dB	101 dB
Typical noise floor @ 10 kS	-115 dB	-105 dB
Typ. THD (10 kS/s, -1 dBFS sine wave @ 1 kHz)	-93 dB	-108 dB
Typ. SFDR (10 kS/s, -1 dBFS sine wave @ 1 kHz)	95 dB	111 dB
Typical CMR @ 400 Hz / 1 kHz	88 dB / 87 dB	82 dB / 80 dB
Crosstalk @ 1 kHz	-118 dB	-120 dB
Gain Drift	Typical 10 ppm/K, Max. 30 ppm/K	
Offset Drift	Typical 2 ppm of range/K, Max. 5 ppm of range/K	
Gain Linearity	< 0.01 %	
Input Coupling	DC	
Input Impedance	800 kΩ	
Max. common mode voltage	±200 V	
Overvoltage Protection	In+ to In-: 200 V continuous, 350 Vpeak (100 ms)	
Analog input performance		
Bandwidth (-3 dB)	0.433*fs	
Alias-free Bandwidth	DC to 0.45*fs (DC to 0.499*fs @ 20 kS/s)	
Alias Rejection	-105 dB (all sample rates)	
Delay Through ADC	34 / fs	
Oversampling	128	
Additional Specifications		
Rack	IOLITEr-16xLV	
Input Connectors	Terminal block 9 pole OMNIMATE SL 2.50 / BLF 2.50/180	
Power supply	9 - 48 V DC	
Isolation Voltage	250 V functional isolation (channel to power supply ground)	
Power Consumption	Typ. 3.4 W (Max. 3.9 W)	

Weight	230 g
Slice Dimensions	128.4 x 115.4 x 30.1 mm
Modular	IOLITE-16xLV
Input Connectors	Terminal block 9 pole OMNIMATE SL 2.50 / BLF 2.50/180
Power supply	9 - 48 V DC
Isolation Voltage	250 V functional isolation (channel to power supply ground)
Power Consumption	Typ. 3.6 W (Max. 4.5 W)
Weight	530g
Slice Dimensions	136.75 x 115.0 x 35.0 mm

6.2.4.2. IOLITE 16xLV: Connectors

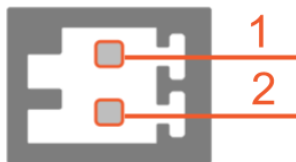
IOLITEr-16xLV and IOLITE-16xLV modules have four 9-pin terminal block connectors (T2A9f) with 2.50 mm pitch for voltage input. 8 pins on a 9-pin connector bank are used for digital inputs and pin 9 for common GND.

Additionally, there is a 2-pin terminal block connector with a 2.50 mm pitch for PWR OUT function.



IOLITEr-16xLV front

6.2.4.2.1. IOLITE 16xLV: T2A2f Power OUT Connector: Pinout



LV connector: pin-out (TBLOCK male)

Pin	Name	Description
1	+PWR OUT	V _{supply} output
2	-PWR OUT	Non-isolated GND

Connector (on the device): OMNIMATE Signal SL 2.50/02/90G

Mating connector (for the cable): OMNIMATE Signal BLF 2.50/02/180



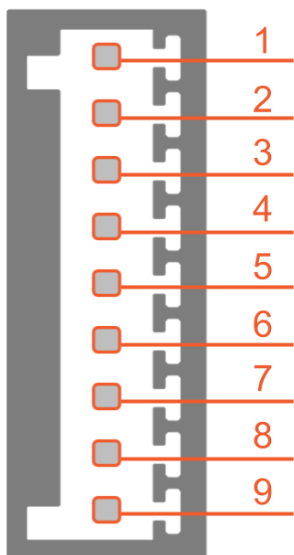
Caution

PWR OUT pins are intended to supply external loads. Do not connect the external power supply to the PWR OUT pins! It can damage the equipment.

Current limit of PWR OUT source is 2 A per module.

Current limit of the IOLITE system is 16 A!

6.2.4.2.2. IOLITE 16xLV: T2A9f Analog input: Pinout



Analog in connector: pin-out (terminal block male)

Pin	Name	Description
1	IN 1 +	Analog input 1
2	IN 1 -	Input ground 1
3	IN 2 +	Analog input 2
4	IN 2 -	Input ground 2
5	IN 3 +	Analog input 3
6	IN 3 -	Input ground 3
7	IN 4 +	Analog input 4
8	IN 4 -	Input ground 4
9	iGND	Common isolated ground

AI connector (on the device): OMNIMATE Signal SL 2.50/09/90G

Mating connector (for the cable): OMNIMATE Signal BLF 2.50/09/180

6.2.4.2.3. IOLITE 16xLV: T2A9f Connector: Wiring diagram

Voltage

