

TECHNICAL REFERENCE MANUAL

KRYPTON V26-1



4.2. General specifications

Interface	
Data interface	EtherCAT®
Data Rate	100 Mbps Full Duplex bus speed
Max. Throughput per Chain	From 6 MB/s to 10 MB/s (see 1)
Sync Accuracy	below 1 sample to Sirius®
EtherCAT®	Max. Cable Length 100 m
Max. Number of Units	64 or more (power injectors may be required)
Data Interface Connection	LEMO 1T EtherCAT® hybrid cable Single cable for data, power and sync, daisy chainable
Additional Specifications	
Power supply ground to mechanical ground (housing) resistance	> 100 kΩ
Power	
Power Supply	9 - 48 V DC
Environmental	
Operating Temperature	-40 to 85°C
Storage Temperature	-40 to 85°C
Humidity	5 to 100 % RH
IP rating	IP65 / IP67
Shock	Shock: SIST EN 60068-2-27:2009 100 g, 6 ms, half-sine 100x pos./neg in each axis 600x total
Vibration	Random vibration: MIL-STD-202G Method 214A, test condition II-D Profile break points: 50 Hz @ 0.025 g ² /Hz 100 Hz @ 0.1 g ² /Hz 2000 Hz @ 0.1 g ² /Hz Profile RMS / Peak = 13.9 g / 41.7 g 8 hrs in each axis, 24 hrs total
1) It depends on the devices connected, numbers of channels, configuration, length of cables and other parameters.	

5.1. Technical specifications

5.1.1. KRYPTON Multichannel

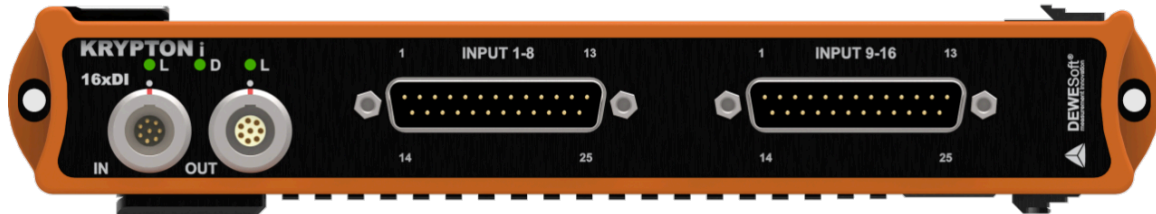
	STG	TH	TH-HS	RTD	RTD-HS	ACC	LV	LA	DIO	CNT
Connectors	DB9, L2B10f	Thermocouple	Thermocouple	LOB6f	LOB6f	BNC	BNC	BNC	DB25	LIT7f
#ch per module	3x, 6x	8x, 16x	8x, 16x	8x	8x	4x, 8x	4x, 8x	8x	16xDI, 16xDO 8xDI, 8xDO	4xCNT
Data rate / channel	20 kS/s	100 S/s	100 S/s, upgradeable to 10 kS/s	100 S/s	100 S/s, upgradeable to 10 kS/s	20 kS/s	20 kS/s	20 kS/s	40 kS/s	20 kS/s
Resolution	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	24-bit	digital	100 MHz timebase 5 ppm, 20 ppm max
Bandwidth	0.49*fs	✗	0.49*fs (max. 1 kHz)	✗	✗	0.49*fs	0.49*fs	0.49*fs	✗	10 MHz
Voltage ranges	±10 V, ±1 V, ±100 mV, ±10 mV	±1 V, ±100 mV	±1 V, ±100 mV	±1 V, ±100 mV	±1 V, ±100 mV	±10 V, ±5 V, ±1 V, ±200 mV	±50 V	±20 mA	CMOS compatible	TTL (Low: <0.8 V, High > 2 V)
Input coupling	DC	DC	DC	DC	DC	DC, AC 0.1 Hz, 1 Hz	DC	DC	DC	
Sensor excitation	0...15 V max. 0.4 W/ch (45 mA limit)	✗	✗	✗	✗	IEPE 4 mA, 8 mA	-	-	5 V / 300 mA 12 V / 120 mA Vsupply / 200 mA	5 V / 100 mA / ch 12 V / 50 mA / ch
Bridge connection	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	✗	✗	✗	✗	✗	✗	✗	✗	✗
Programmable shunt	100 kΩ	✗	✗	✗	✗	✗	✗	✗	✗	✗
IEPE input	DSI-ACC	✗	✗	✗	✗	✓	✗	✗	✗	✗
Resistance	✗	✗	✗	10 kΩ	10 kΩ	✗	✗	✗	✗	✗
Temperature (PTx)	DSI-RTD	✗	✗	PT100, 200, 500, 1000, 2000	PT100, 200, 500, 1000, 2000	✗	✗	✗	✗	✗

Thermocouple	DSI-TH	K, J, T, R, S, N, E, C, B	K, J, T, R, S, N, E, C, B	X	X	X	X	X	X	X
Current	ext. shunt DSI	X	X	X	X	ext. shunt	X	✓	X	X
Potentiometer	✓	X	X	X	X	X	X	X	X	X
LVDT	DSI-LVDT	X	X	X	X	X	X	X	X	X
Charge	DSI-CHG	X	X	X	X	X	X	X	X	X
TEDS	✓	X	X	X	X	✓	X	X	X	X
Isolation voltage	Differenti al	1000 V	1000 V	1000 V	1000 V	Differenti al	1000 V	1000 V	250 V	X
Isolation arrangement	None	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	None	Ch-Ch & Ch-GND	Ch-Ch & Ch-GND	Isolated common GND	Isolated common GND
Power consumption per module	2.4 W (4 W 120 Ω @ 5 V load) 3xSTG; 5.9 W (8.9 W 120 Ω @ 5 V load) 6xSTG	2.5 W (8xTH) 4 W (16xTH)	2.6 W (8xTH-HS) 4.3 W (16xTH-H S)	2.5 W	2.5 W	4.6 W	3.5 W (4xLV) 6.7 W (8xLV)	6.8 W	2 W	2.3W
Advanced functions	Supports all strain types, TEDS support	High isolation, support of main TC types	High isolation, support of main TC types	X	X	TEDS support	High isolation, high input range	High isolation	X	SuperCount er®
OBSIDIAN compatibility	Yes* up to 5kHz	Yes	Yes up to 5kHz	X	X	Yes* up to 5kHz	Yes* up to 5kHz	X	X	Yes
Rev: 1784267400										
*Some features might not be supported.										

5.8.3. KRYPTONi-16xDI, KRYPTONi-16xDO, KRYPTONi-8xDI-8xDO

KRYPTONi-16xDI

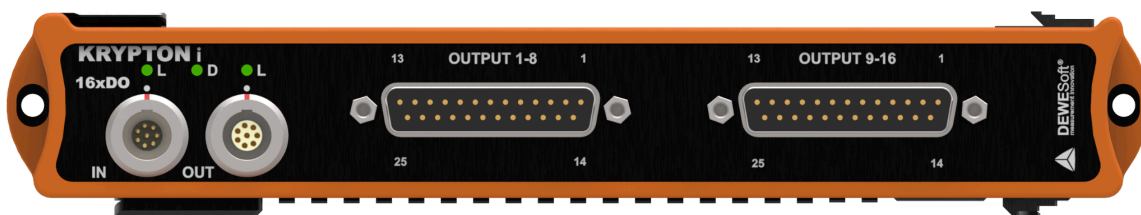
KRYPTONi-16xDI module has 16 digital input channels: 8 on each of the two 25-pin DSUB male connectors.



KRYPTONi-16xDI

KRYPTONi-16xDO

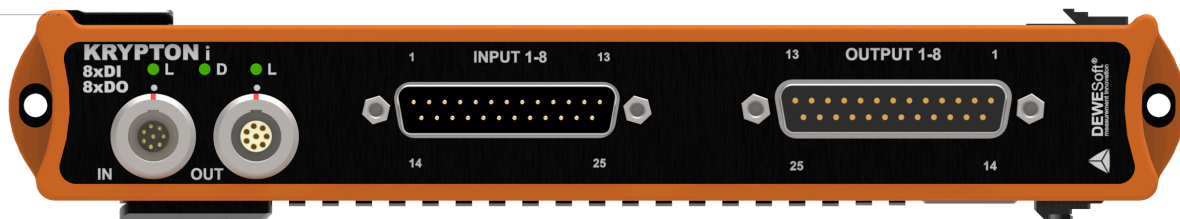
KRYPTONi-16xDO module has 16 digital output channels: 8 on each of the two 25-pin DSUB female connectors.



KRYPTONi-16xDO

KRYPTONi-8xDI-8xDO

KRYPTONi-8xDI-8xDO module has 8 digital input channels (25-pin DSUB male connector) and 8 digital output channels (25-pin DSUB female connector).



KRYPTONi-8xDI-8xDO

5.8.3.1. KRYPTONi-16xDI, KRYPTONi-16xDO, KRYPTONi-8xDI-8xDO: Specifications

	KRYPTONi-16xDI	KRYPTONi-8xDI-8xDO	KRYPTONi-16xDO
Digital Input			
Isolated Input Channels	16	8	-
Compatibility	CMOS Configuration		-
Input low level	UIN < 0.8 V		-
Input high level	UIN > 2.4 V		-
Input high current @ 5 V	IIN < 1.8 mA		-
Input high current @ 30 V	IIN < 6 mA		-
Propagation delay	< 1 μs		-
Sampling rate	Simultaneous 40 kS/s		-
Overvoltage protection	40 V continuous (65 V peak)		-
Isolation voltage peak	250 V channel/ground & channel/channel		-
Digital Output			
Isolated Output Channels	-	8	16
Compatibility	-	Open collector with 10 kΩ pull-up to +5 V	
Maximum sink current	-	150 mA (not protected)	
Maximum switching voltage	-	50 V	
Propagation delay	-	< 20 μs	
Maximum update rate	-	depending on EtherCAT master	
Isolation voltage peak	-	250 V channel to ground, no channel to channel isolation	
Power			
Power Supply	9 - 48 V DC		
Power consumption	2 W		
Environmental			
IP rating	IP67		
Physical			
Weight	700 g		
Slice Dimensions	213 x 39 x 56 mm		
Dimensions with Connectors	213 x 39 x 58.2 mm		

5.8.3.2. KRYPTONi-16xDI, KRYPTONi-16xDO, KRYPTONi-8xDI-8xDO: DSUB Connector: Pinout

DIO modules are available with two different kinds of connectors, DSUB-25 and DSUB-15.



Note

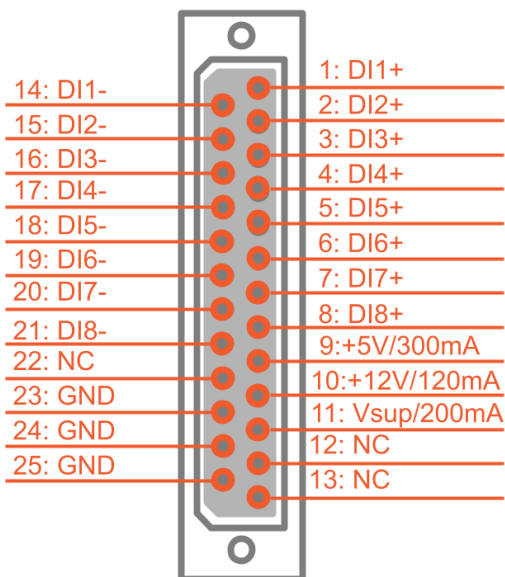
When using the supply from the KRYPTON module (pin 9, 10 or 11 on DSUB-25) please keep in mind to connect the GND iso with GND.

More information is available on [our Solutions website](#).

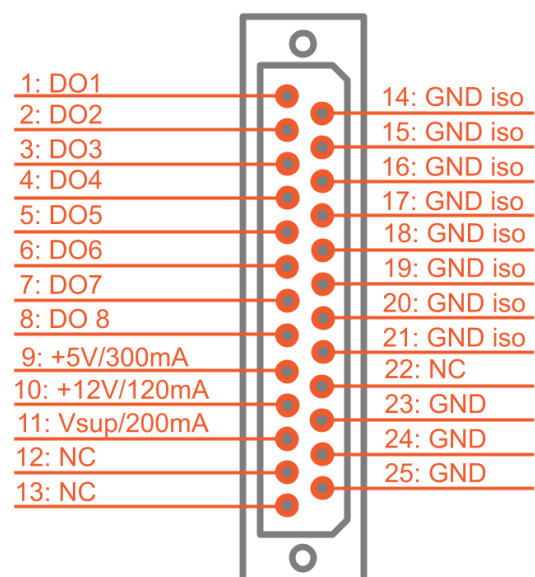


Note

Wiring diagrams for DO connections are available [as a Solution](#).



Digital input: DSUB-25 female



Digital output: DSUB-25 male

Pin	16xDI INPUT 1-8		16xDI INPUT 9-16	
	Name	Description	Name	Description
1	DI1+	Digital input CH1 +	DI1+	Digital input CH9 +
2	DI2+	Digital input CH2 +	DI2+	Digital input CH10 +
3	DI3+	Digital input CH3 +	DI3+	Digital input CH11 +
4	DI4+	Digital input CH4 +	DI4+	Digital input CH12 +
5	DI5+	Digital input CH5 +	DI5+	Digital input CH13 +
6	DI6+	Digital input CH6 +	DI6+	Digital input CH14 +
7	DI7+	Digital input CH7 +	DI7+	Digital input CH15 +
8	DI8+	Digital input CH8 +	DI8+	Digital input CH16 +
9	+5V/300mA	5 V supply, max. 300 mA	+5V/300mA	5 V supply, max. 300 mA
10	+12V/120mA	12 V supply, max.120 mA	+12V/120mA	12 V supply, max.120 mA
11	V _{supply} /200mA	Supply voltage, max. 200 mA	V _{supply} /200mA	Supply voltage, max. 200 mA
12	NC	-	NC	-
13	NC	-	NC	-
14	DI1-	Digital input CH1 -	DI1-	Digital input CH9 -
15	DI2-	Digital input CH2 -	DI2-	Digital input CH10 -
16	DI3-	Digital input CH3 -	DI3-	Digital input CH11 -
17	DI4-	Digital input CH4 -	DI4-	Digital input CH12 -
18	DI5-	Digital input CH5 -	DI5-	Digital input CH13 -
19	DI6-	Digital input CH6 -	DI6-	Digital input CH14 -
20	DI7-	Digital input CH7 -	DI7-	Digital input CH15 -
21	DI8-	Digital input CH8 -	DI8-	Digital input CH16 -
22	NC	-	NC	-
23	GND	Ground	GND	Ground
24	GND	Ground	GND	Ground
25	GND	Ground	GND	Ground

Pin	16xDO OUTPUT 1-8		16xDO OUTPUT 9-16	
	Name	Description	Name	Description
1	DO1	Digital output CH1	DO1	Digital output CH9
2	DO2	Digital output CH2	DO2	Digital output CH10
3	DO3	Digital output CH3	DO3	Digital output CH11
4	DO4	Digital output CH4	DO4	Digital output CH12
5	DO5	Digital output CH5	DO5	Digital output CH13
6	DO6	Digital output CH6	DO6	Digital output CH14
7	DO7	Digital output CH7	DO7	Digital output CH15
8	DO8	Digital output CH8	DO8	Digital output CH16
9	+5V/300mA	5 V supply, max. 300 mA	+5V/300mA	5 V supply, max. 300 mA
10	+12V/120mA	12 V supply, max. 120 mA	+12V/120mA	12 V supply, max. 120 mA
11	V _{supply} /200mA	Supply voltage, max. 200 mA	V _{supply} /200mA	Supply voltage, max. 200 mA
12	NC	-	NC	-
13	NC	-	NC	-
14	GNDiso	Isolated ground	GNDiso	Isolated ground
15	GNDiso	Isolated ground	GNDiso	Isolated ground
16	GNDiso	Isolated ground	GNDiso	Isolated ground
17	GNDiso	Isolated ground	GNDiso	Isolated ground
18	GNDiso	Isolated ground	GNDiso	Isolated ground
19	GNDiso	Isolated ground	GNDiso	Isolated ground
20	GNDiso	Isolated ground	GNDiso	Isolated ground
21	GNDiso	Isolated ground	GNDiso	Isolated ground
22	NC	-	NC	-
23	GND	Ground	GND	Ground
24	GND	Ground	GND	Ground
25	GND	Ground	GND	Ground

Pin	8xDI		8xDO	
	Name	Description	Name	Description
1	DI1+	Digital input CH1 +	DO1	Digital output CH1
2	DI2+	Digital input CH2 +	DO2	Digital output CH2
3	DI3+	Digital input CH3 +	DO3	Digital output CH3
4	DI4+	Digital input CH4 +	DO4	Digital output CH4
5	DI5+	Digital input CH5 +	DO5	Digital output CH5
6	DI6+	Digital input CH6 +	DO6	Digital output CH6
7	DI7+	Digital input CH7 +	DO7	Digital output CH7
8	DI8+	Digital input CH8 +	DO8	Digital output CH8
9	+5V/300mA	5 V supply, max. 300 mA	+5V/300mA	5 V supply, max. 300 mA
10	+12V/120mA	12 V supply, max.120 mA	+12V/120mA	12 V supply, max. 120 mA
11	V _{supply} /200mA	Supply voltage, max. 200 mA	V _{supply} /200mA	Supply voltage, max. 200 mA
12	NC	-	NC	-
13	NC	-	NC	-
14	DI1-	Digital input CH1 -	GNDiso	Isolated ground
15	DI2-	Digital input CH2 -	GNDiso	Isolated ground
16	DI3-	Digital input CH3 -	GNDiso	Isolated ground
17	DI4-	Digital input CH4 -	GNDiso	Isolated ground
18	DI5-	Digital input CH5 -	GNDiso	Isolated ground
19	DI6-	Digital input CH6 -	GNDiso	Isolated ground
20	DI7-	Digital input CH7 -	GNDiso	Isolated ground
21	DI8-	Digital input CH8 -	GNDiso	Isolated ground
22	NC	-	NC	-
23	GND	Ground	GND	Ground
24	GND	Ground	GND	Ground
25	GND	Ground	GND	Ground