

# KRYPTON® RUGGED SYSTEMS

## KRYPTON® CPU

Compact, highly portable logger for data recording in harsh environments from -40 to +70 °C operating range.



## KRYPTON®

Ultra rugged and distributable data acquisition devices from -40 to +85 °C operating range.

## KRYPTON® 1 SERIES

Distribute your measurements down to a single channel.



Rugged DAQ system that can be distributed down to a single channel and placed close to sensors. All DAQ systems offer IP67 degree of protection and are thus waterproof, dustproof, shock resistant up to 100 g, and can withstand a temperature range up to -40 °C to 85 °C.

## MADE TO BE EXTREME

IP67, dust proof, waterproof, 100 g shock and vibration resistant, wide temperature operating range.

## SINGLE CABLE

With up to 100 m between devices for power, data and synchronization.

## DISTRIBUTABLE DEVICES

Locate your data acquisition hardware close to the sensors.

# RUGGED SYSTEMS SIRIUS® AND SBOX

## SBOXwe

Ultra rugged and powerful data logger from -40 to +50 °C.

## SIRIUS®iwe

High-end signal conditioning in rugged form factor from -40 to +60 °C.



Extremely rugged (IP67 degree of protection) and fully isolated data acquisition system for the most demanding testing in harsh environments. High-precision, high-dynamic, and high-bandwidth for all types of analog signals from IEPE to strain gages.

## DEWESOFT 7-YEAR WARRANTY

Our warranty covers that the instruments function as promised for a period of 7 years from the day of the delivery.

## SIRIUS® DAQ TECHNOLOGY

DualCoreADC®, high dynamic range 160 dB, high isolation, SuperCounter®.

## MADE TO BE IP67 EXTREME

Dust-proof, water-proof, 100 g shock and vibration resistant, wide temperature operating range.

# KRYPTON® WATERPROOF



## UP TO 100 m BETWEEN UNITS

KRYPTON units can be distributed over the large area with distances of up to 100 meters (328 feet) between DAQ nodes.

## DISTRIBUTED DAQ

Distributed measurement hardware that can be located close to sensors. Compared to traditional DAQ systems, this has many advantages such as shorter cable runs and less potential for signal noise. KRYPTON systems can be distributed down to a single channel.

## EtherCAT® DAQ

Protocol with 100Mb/s bus speed is used for data transmission, data synchronization, and power supply. KRYPTONs are connected with a single cable for data, power, and sync.

## RUGGED IP67

These modules are built with tough-as-nails IP67 protection - they're ready to go to work in extreme weather and under the harshest conditions.

Rugged and distributable data acquisition modules. EtherCAT® interface for analog and digital I/O and IP67 degree of protection.

## UP TO 20 kS/s/CH SAMPLING RATE

Most KRYPTON channels in the EtherCAT® line can achieve sampling rates up to 20 kS/s.

## FROM 3 TO 16 CHANNEL UNITS

Modules are available from a 3 channel unit, ranging up to larger 8 and 16 channel modules.

# KRYPTON® WATERPROOF SPECS

	STG	TH	TH-HS	RTD	ACC	LV	LA	DIO	CNT
Connectors	DB9, L2B10f	Thermocouple	Thermocouple	L0B6f	BNC	BNC	BNC	DB25	L1T7f
#ch per module	3x, 6x	8x, 16x	8x, 16x	8x	4x, 8x	4x, 8x	8x	16xDI, 16xDO 8xDI, 8xDO	4xCNT
Data rate / channel	20 kS/s	100 S/s	100 S/s, upgradable to 10 kS/s	100 S/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	digital	100 MHz timebase 5 ppm, 20 ppm max
Bandwidth	0.49*fs	X	0.49*fs (max. 1 kHz)	X	0.49*fs	0.49*fs	0.49*fs	X	10 MHz
Voltage ranges	±10 V, ±1 V, ±100 mV, ±10 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, AC 0.1 Hz, 1 Hz	DC	DC	DC	
Sensor excitation	0...15 V max. 0.4 W/ch (45 mA limit)	X	X	X	IEPE 4 mA, 8 mA	-	-	5 V / 300 mA, 12 V / 120 mA, Vsupply / 200 mA*	5 V / 100 mA 12 V / 50 mA
Bridge connection	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	X	X	X	X	X	X	X	X
Programmable shunt	100 kΩ	X	X	X	X	X	X	X	X
IEPE input	DSI-ACC	X	X	X	✓	X	X	X	X
Resistance	X	X	X	10 kΩ	X	X	X	X	X
Temperature (PTx)	DSI-RTD	X	X	PT100, 200, 500, 1000, 2000	X	X	X	X	X
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
Current	ext. shunt DSI-20mA, DSI-5A	X	X	X	ext. shunt	X	X	X	X
Potentiometer	✓	X	X	X	X	X	X	X	X
LVDT	DSI-LVDT	X	X	X	X	X	X	X	X
Charge	DSI-CHG	X	X	X	X	X	X	X	X
TEDS	✓	X	X	X	✓	X	X	X	X
Isolation voltage	Differential	1000 V	1000 V	1000 V	Differential	1000 V	1000 V	250 V	X
Isolation arrangement	None	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-HS)	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	TEDS support	High isolation, high input range	High isolation, 4-20 mA current loop	X	SuperCounter®

## AMPLIFIER SPECS

3xSTG, 6xSTG	Differential universal and strain module
8xTH, 16xTH, 8xTH-HS, 16xTH-HS	Isolated universal thermocouples module
8xRTD	Isolated module for measurements with resistance temperature detectors
4xACC, 8xACC	IEPE accelerometer amplifier
4xLV, 8xLV	Isolated voltage input module

8xLA	Isolated low current amplifier
16xDI, 16xDO, 8xDI-8xDO	Isolated digital input/output module
GPS JUNCTION	Module for synchronization between SIRIUS or KRYPTON EtherCAT® devices to SIRIUS USB device, IRIG-B-DC or GPS
Sync junction	Module used to inject IRIG-B-DC sync signal from USB device to EtherCAT® line
KRYPTON CPU	Rugged data logger



# KRYPTON® 1 WATERPROOF SPECS

	AO	DI	DO	ACC	STG	LV	HV	TH-HV	CNT
Connector	BNC	DSUB15HD Male	DSUB15HD Female	BNC	DB9	BNC	Banana jack	K-type Thermocouple LEMO REDEL	LEMO T-type 7pin female
Number of channels per module	1	4	4	1	1	1	1	1	1
Data rate per channel	X	40 kS/s	X	40 kS/s	40 kS/s	40 kS/s	40 kS/s	100 S/s	20 kS/s
Resolution	18 bit	Digital	Digital	24-bit	24-bit	24-bit	24-bit	24-bit	100 MHz timebase 5 ppm, 20 ppm max
Bandwidth	X	X	X	0.49 fs	0.49 fs	0.49 fs	0.49 fs	0.49 fs	10 MHz
Voltage ranges	X	Digital (Low: < 1 V, High: > 2 V)	X	±10 V, ±5 V, ±1 V, ±200 mV	±50 V, ±10 V, ±1 V, ±100 mV	±50 V, ±10 V, ±1 V, ±100 mV	±1000 V	Thermocouple	TTL (Low: <0.8 V, High > 2 V)
Input coupling				DC, AC 0.1 Hz, 1 Hz	DC, AC 1 Hz	DC, AC 1 Hz	DC		
Sensor excitation	±10 V	X	X	IEPE 4 mA, 8 mA	Unipolar 0 - 24 V Bipolar 0 - 12 V	X	X	X	5 V (100 mA max.), 12 V (90 mA max.)
Bridge connection	X	X	X	X	Full, ½, ¼ 350 Ω, ¼ 120 Ω 3 wire	X	X	X	X
Programmable shunt	X	X	X	X	100 kΩ	X	X	X	X
IEPE input	X	X	X	✓	DSI-ACC	X	X	X	X
Resistance	X	X	X	X	✓	X	X	X	X
Temperature (PTx)	X	X	X	X	DSI-RTD	X	X	X	X
Thermocouple	X	X	X	X	DSI-TH	X	X	K-type	X
Current	X	X	X	X	20mA (internal shunt), DSI-5A, ext. shunt	ext. shunt	X	X	X
Potentiometer	X	X	X	X	✓	X	X	X	X
LVDT	X	X	X	X	DSI-LVDT	X	X	X	X
Charge	X	X	X	X	DSI-CHG	X	X	X	X
TEDS	X	X	X	✓	✓	X	X	X	X
Isolation	None	Galvanic isolation CH, GND	Galvanic isolation CH, GND	125 Vrms Isolation CH, GND	125 Vrms Isolation CH, GND	125 Vrms Isolation CH, GND	CAT III 600 V CAT II 1000 V	CAT III 600 V CAT II 1000 V	None
Power consumption	2 W	1.5 W	2 W	2 W	3 W	1.5 W	1 W	1.3 W	1.2 W

## AMPLIFIER SPECS

4xDI, 4xDO	Four channel digital I/O amplifier
1xAO	Analog output
1xCNT	Single channel SuperCounter® module
1xLV	Isolated low voltage module

1xSTG	Isolated universal and strain amplifier
1xACC	Isolated IEPE accelerometer amplifier
1xHV	Isolated high voltage module
1xTH-HV	Isolated thermocouple module (CATIII 1000V)