

BoltSafe

Load Measuring Systems



Product sheet | RS-232 and Analog Converter

Phone +31 (0)24 6 790 797 | E-mail info@boltsafe.com |

Website www.boltsafe.com | Address Platinawerf 8, 6641 TL, Beuningen, The Netherlands

How does the RS-232 and Analog Converter work?

Our RS-232 and Analog Converter can connect a BoltSafe CMS load cell directly to any data acquisition system (DAQ), computer or PLC. The Converter automatically scales the analog output from the attached sensor. The maximum bolt load from the sensor equals 100% of the analog output (5Vdc, 10Vdc or 20mA). The minimum and maximum load range can be changed on request if a small measuring range of the sensor is needed. This way, the preferred bandwidth of the output can be utilized.

The converter uses free Windows-based software that allows users to easily read out the bolt load. This software can also be used to set alarms in case of load deviations (in kN or as a percentage of full scale). Because of this function, the Converter can be used standalone, for instance to activate an acoustic alarm or warning light. Because the Converter comes with the complete serial communication protocol, it enables users to use their own software and adjust settings through their own computer or PLC. This system provides a digital readout in the RS-232 standard and an analog readout in 0-5Vdc, 0-10Vdc, 0-20mA and 4-20mA.





How is the Analog Converter used?

One RS-232 and Analog Converter can be connected to one BoltSafe CMS sensor. When the Converter is connected to a DAQ, PC or PLC, the acquired bolt load data can be read and further processed. Because the Converter is equipped with a relay, it can also be used as an alarm or set off any other desired warning. The RS-232 and Analog Converter can also be used to switch off any type of equipment connected to the BoltSafe sensor, such as a pump or torque tool.

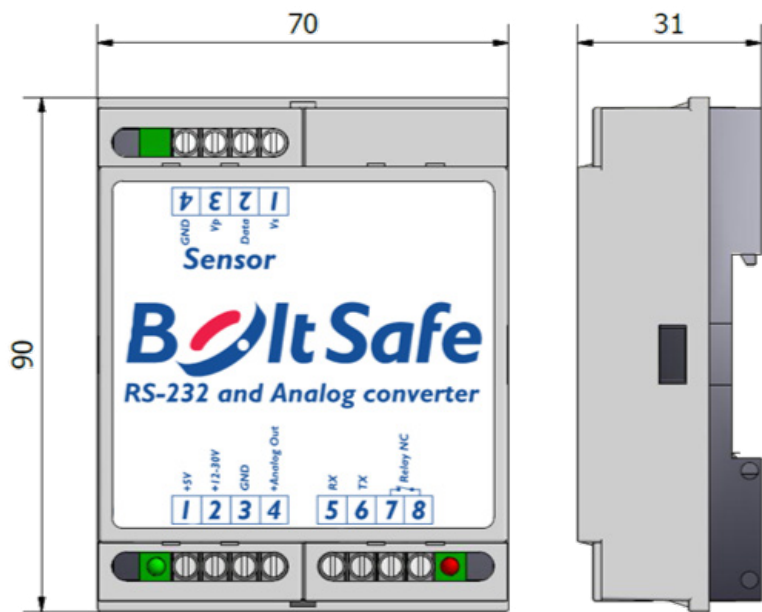


Possible variations of the RS-232 and Analog Converter

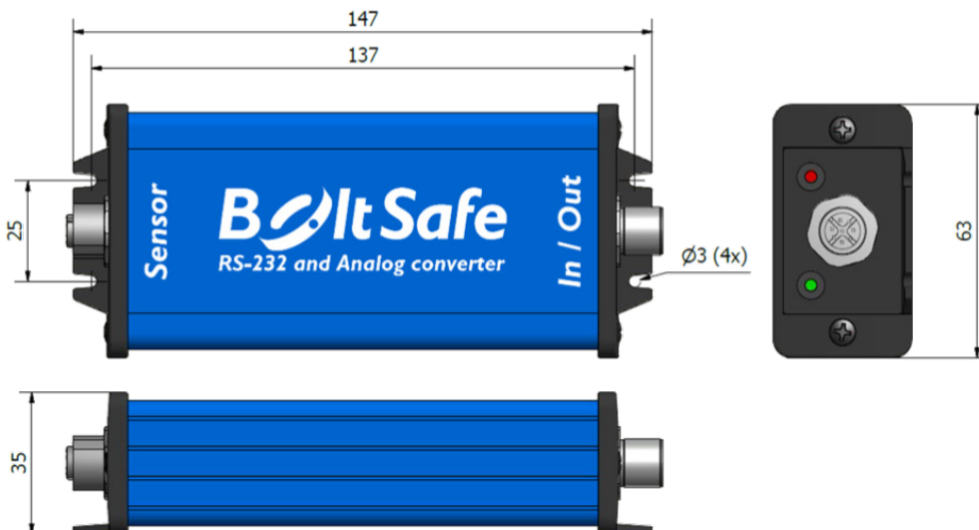
The RS-232 and Analog converter is available in two versions. A plastic DIN rail enclosure that can be used inside a control box or the version that is already enclosed in an aluminum box which is dustproof and watertight.

The aluminum enclosure is fitted with connectors, which makes this a plug-and-play system. This version is suitable for rough conditions.

The DIN rail version is more useful when you are using multiple converters and multiple sensors in one project, because the converters can be mutually connected.



The RS-232 and Analog Converter in DIN rail enclosure (BKS-DAC-DIN)



The RS-232 and Analog Converter in aluminium enclosure (BKS-DAC-ALU)



Technical data

Applicable to all BoltSafe CMS sensors	
M20 to M72	18 kN to 3.000 kN
7/8" to 2-3/4"	22 kN to 2.000 kN
RS-232 and Analog Converter	
Operating temperature	0°C to 55°C
Storage temperature	-40°C to 85°C
Relative humidity	95% at 40°C, non-condensing
Signal	RS-232
Protocol	9600 baud, 8 bits, no parity, 1 stop bit
Analog Output	
Output levels	0-5Vdc, 0-10Vdc, 0-20mA and 4-20mA
Output resolution	12 bits (4.096 steps)
Output accuracy	± 0,25% of output span
Output update rate	50 ms
Output selection	DIP switch
System calibration	10% and 100% of output by dipswitch
Relay Output	
Serial communication and relay	5Vdc (through USB)
0-5Vdc, serial and relay	12-30Vdc
All outputs	15-30Vdc
Max. power consumption	0,75W
Short circuit resistance	5Vdc and 12-30Vdc vs. GND
Reverse polarity protection	Analog output vs. GND and 5Vdc Sensor vs. GND
Insulation voltage	500Vdc
Fuse	2 pieces of 125mA T, 5x20mm



Technical data of the two enclosures

	DIN-Rail enclosure	Aluminium enclosure		
Article number	BKS-DAC-DIN	BKS-DAC-ALU		
Dimensions (LxWxH)	90x70x31mm	147x63x35mm		
Sealing/IP-class	-	IP65		
Mounting	DIN-rail (EN50022)	Flanges with 4 x 3mm holes		
Enclosure material	Lexan / Noryl	Aluminum extrusion with Diecast Aluminum covers		
Electrical Connections				
Sensor side	Plug-in screw-clamp	M12x1, 5P, Female connector		
	1 = 5Vdc Sensor		1 = Brown	5Vdc Sensor
	2 = Data		2 = White	Data
	3 = 5Vdc Probe		3 = Blue	5Vdc Probe
	4 = GND		4 = Black	GND
			5 = Grey	NC
Outputs and supply	Plug-in screw-clamp	M12x1, 8P, Male connector		
	1 = 5Vdc		1 = White	5Vdc
	2 = 12-30Vdc		2 = Brown	12-30Vdc
	3 = GND		3 = Green	GND
	4 = Analog Output		4 = Yellow	Analog Output
	5 = RX (RS-232)		5 = Grey	RX (RS-232)
	6 = TX (RS-232)		6 = Pink	TX (RS-232)
	7 = Relay C1		7 = Blue	Relay C1
	8 = Relay C2		8 = Red	Relay C2



Available accessories for the Analog Converter

Accessories	Article number
M12x1, 5P, Female. PG 9 Panel mount	BKS-5PFPG9
M12x1, 8P, Male. PG9 Panel mount	BKS-8PMPG9
5 meter USB-cable loose wire (RS-232 to USB converter build in)	BKS-5USBL
5 meter USB-cable with M12x1, 8P, Female connector	BKS-5USB8PFM12
5 meter loose wire PUR Cable with M12x1, 8P, Female connector	BKS-5L8PFM12
M12x1 8P Female connector, screw contacts	BKS-8PFM12

