

Explosion Proof Junction Box for Incremental Encoders

- Fiber Optic Transmission up to 2000 meters
- No Degradation of Encoder Signal from Electrical Disturbances
- Safely brings Encoder Signals out of Hazardous Areas
- High Encoder Frequency and Low Transmission Delay
- Ex-Certified Box

Electrical Specifications – Transmitter	
Supply Voltage	4.75V to 30V
Current Consumption (typical)	240 mA @ $V_{sup} = 5V$ (excl. encoder) 160 mA @ $V_{sup} = 15V$ (excl. encoder) 100 mA @ $V_{sup} = 30V$ (excl. encoder)
Encoder Inputs	Differential inputs $V_{diff} \geq 0.3 \times$ Supply voltage Maximum input voltage equal to Supply voltage
Encoder Frequency	Max. 100 kHz
Encoder Supply Voltage	Identical to Transmitter Supply voltage

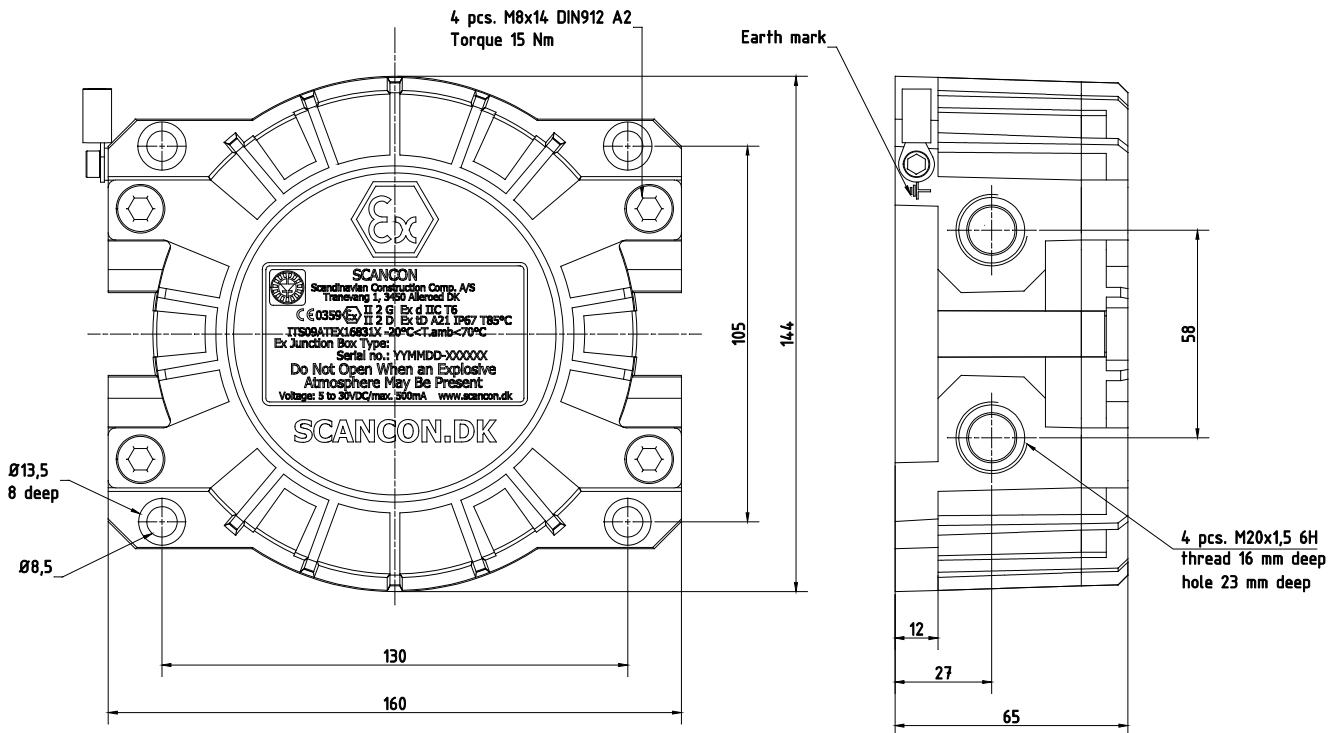
Electrical Specifications – Receiver	
Supply Voltage	4.75V to 30V
Current Consumption (typical)	180 mA @ $V_{sup} = 5V$ 70 mA @ $V_{sup} = 15V$ 45 mA @ $V_{sup} = 30V$
Encoder Outputs	Differential outputs $V_{high} \geq V_{sup} - 1.2V$ @ $I_{out} = -25$ mA $V_{low} \leq 0.8V$ @ $I_{out} = 25$ mA

Common Specifications	
Update Rate	1.04 million updates / second ~ 0.96 μ sec. / update
Transmission Delay	≤ 3 μ sec. Approx. 1 μ sec. must be added per 200 meters of fiber optic cable
Optical Fiber Connectors	Standard ST Insertion loss ≤ 0.7 dB (≤ 0.4 dB recommended)
Recommended Optical Fiber	62.5 / 125 μ m, multimode (TUG 651)
Optical Wavelength	850 nm
Transmission Distance	1,000 meters 2,000 meters (option)

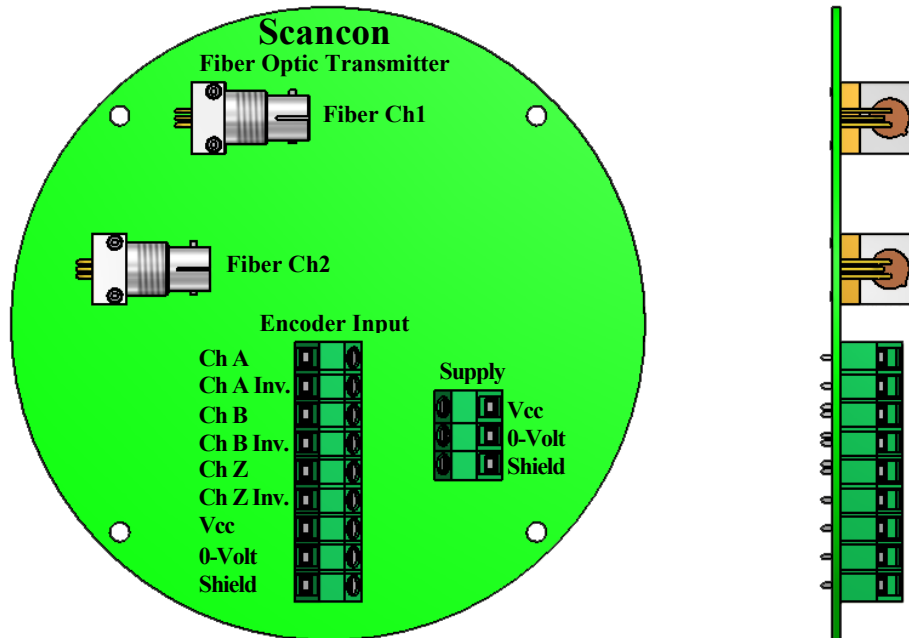
Mechanical Specifications	
Material	Box and Lid: Aluminum AlSi12Cu1Fe0.3 acc. to EN AC 47100 All Fasteners: Stainless Steel ISO 4762 AISI303. Yield Strength 250 Mpa.
Weight	Approx. 1300 gr. (45.8 oz) without cable glands and blinds

Environmental Specifications	
Operating Temperature	-20° to +70° C
Storage Temperature	-40° to +85° C
Humidity	98 % RH without condensation
Shock	100 G / 11 ms
Vibration	(10-2000 Hz) / 10 G
Bump	10 G - 16 ms (1000 x 3 axis)
Enclosure Rating	IP 67
Electromagnetic Compatibility (EMC)	EN 61000-6-2 : 2005 (industrial environments) EN 61000-6-3 : 2007 (residential, commercial, and light-industrial environments)
Certifications	CE 0359 II 2 G Ex d IIC T6 II 2 D Ex tD A21 IP6X T85°C ITS09ATEX16831X <i>Certifications apply to the Junction Box only. Cable glands and blinds are not covered by these certifications.</i>

Mechanical Dimensions



Transmitter Connection



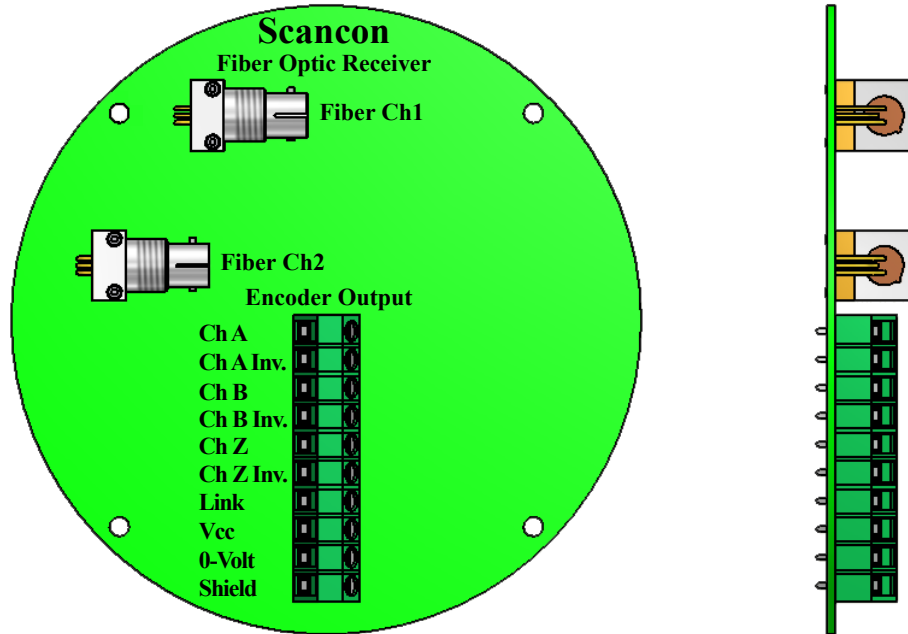
Supply

Terminal	Name	Type	Connect to
1	Vcc	Supply input	Positive supply for Transmitter
2	0-Volt	Supply input	0V (gnd) for Transmitter
3	Shield	Shield	Cable shield – Internally connected to case

Encoder Input

Terminal	Name	Type	Connect to
1	Ch A	Input	Channel A from Encoder
2	Ch A Inv.	Input	Channel A inverted from Encoder
3	Ch B	Input	Channel B from Encoder
4	Ch B Inv.	Input	Channel B inverted from Encoder
5	Ch Z	Input	Channel Z from Encoder
6	Ch Z Inv.	Input	Channel Z inverted from Encoder
7	Vcc	Supply output	Positive supply for Encoder
8	0-Volt	Supply output	0V (gnd) for Encoder
9	Shield	Shield	Cable shield – Internally connected to case

Receiver Connection

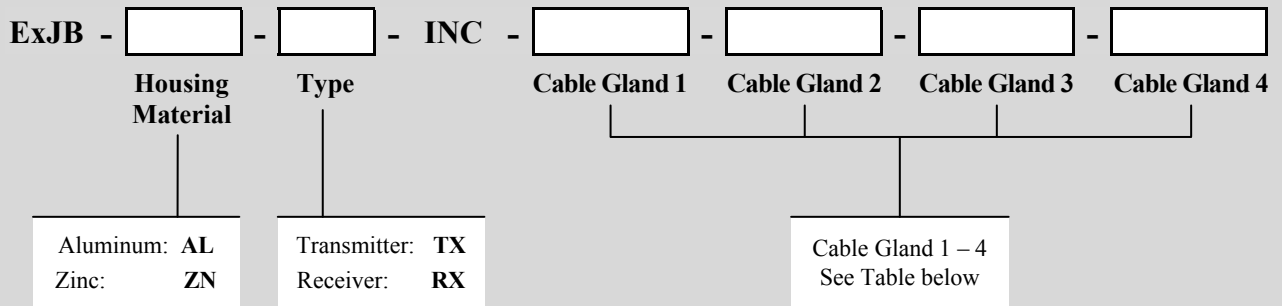


Encoder Output

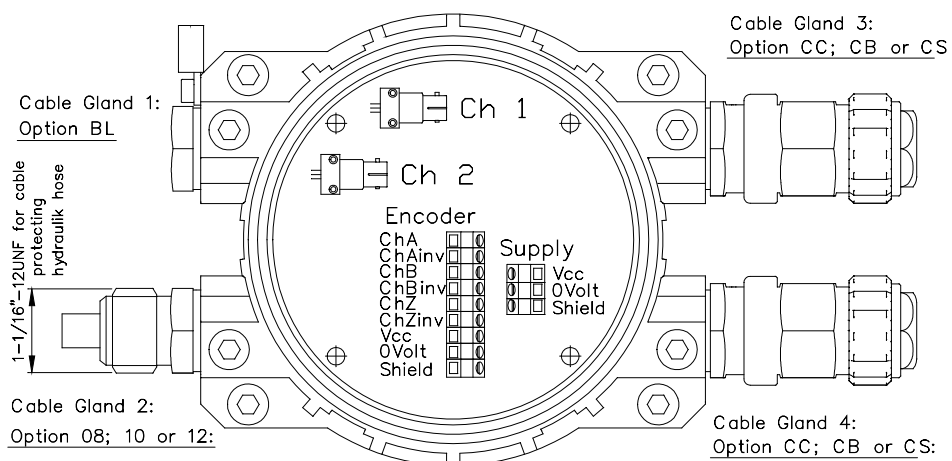
Terminal	Name	Type	Connect to
1	Ch A	Output	Channel A to Counter/Controller
2	Ch A Inv.	Output	Channel A inverted to Counter/Controller
3	Ch B	Output	Channel B to Counter/Controller
4	Ch B Inv.	Output	Channel B inverted to Counter/Controller
5	Ch Z	Output	Channel Z to Counter/Controller
6	Ch Z Inv.	Output	Channel Z inverted to Counter/Controller
7	Link	Output	High for data valid – Low for error
8	Vcc	Supply input	Positive supply for Receiver
9	0-Volt	Supply input	0V (gnd) for Receiver
10	Shield	Shield	Cable shield – Internally connected to case

Ordering Code

Example: ExJB – AL – TX – INC – BL – 10 – CB – CB



Scancon Ex Cable Gland M20x1.5		Commercial Ex Cable Gland M20x1.5	
Cable diameter: 6.5 mm. to 8.0 mm.	08	Provided by customer	CC
Cable diameter: 8.0 mm. to 10.0 mm.	10	Brass (provided by Scancon)	CB
Cable diameter: 10.0 mm. to 12.0 mm.	12	Stainless Steel (provided by Scancon)	CS
Blind	BL		



Example shown for type: **ExJB – AL – TX – INC – BL – 10 – CB – CB**