

# STN-40

## Absolute Position Sensor

The **STN-40** is a contact-less optical reflective absolute position sensor. It has Integrated dual sensing heads and advanced processing, which gives it a very high precision over a low profile and redundant core.

The **STN-40** support SSI & BiSS-C interfaces.

The wide assembly tolerance of the **STN-40** makes it easy to install and align, its plug and-play approach makes it simple to design into any application.

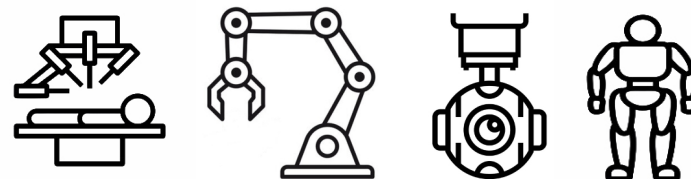
High precision single turn, optical reflective absolute position sensor

- Contact less
- Dual core, redundant - Duplus core technology
- Low profile
- High resolution
- High accuracy



Mechanical		
OD stator	mm	54
ID rotor	mm	21
Height	mm	8
Rotor moment of inertia	kgm <sup>2</sup>	< 3.5 x 10 <sup>-6</sup>
Permissible radial run-out	mm	± 0.4
Rotor / Stator air gap	mm	1.75 ± 0.5
Weight	gr	20

Characteristic's		
Resolution	bit	18 - 22
Accuracy [INL]	mdeg	± 4
Repeatability	count	± 1
Data latency	µsec	20
Startup time	msec	20
Current consumption	mA	130
Power supply	VDC	5 ± 5%
Rotation speed, max	RPM	4,000
Sensor position bandwidth	KHz	40 (SSI) / 65 (BiSS-C)
Thermal drift		None



### Environment Condition's

Temperature, operational	-40 to 85 C° <sup>1</sup>
Humidity	95% relative humidity, Non condensing, IEC 60068-2-78
IP rating	-
Shock	1000 m/s <sup>2</sup> , 6 ms, ½ sine, 3 axes
Vibration	100 m/s <sup>2</sup> max @ 55 Hz to 2000 Hz, 3 axes
Pressure	600 bar max
Vacuum	1.0 × 10 <sup>-7</sup> Pa
Magnetic field	Immune
EMC compliance	IEC 61326-1
Environmental compliance	RoHS, REACH

### Storage and Handling



Stator is ESD-sensitive and must be handled with care.

Avoid touching the electronic circuitry, wiring, or sensor surfaces unless you are using proper ESD protection and are within an ESD-controlled environment.

### Storage Condition's

Temperature, Storage	-45 to 105 C°
Humidity	70 % relative humidity, Non condensing,

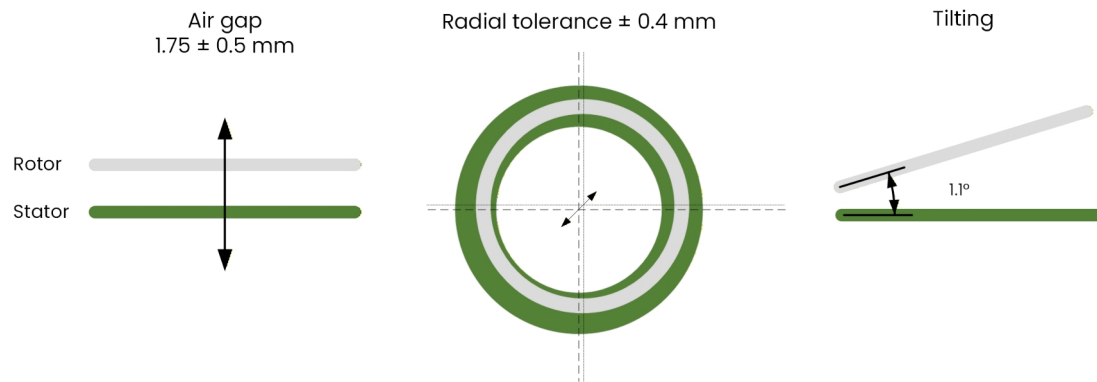
Notes :

<sup>1</sup> Extended temperature range: available on request.



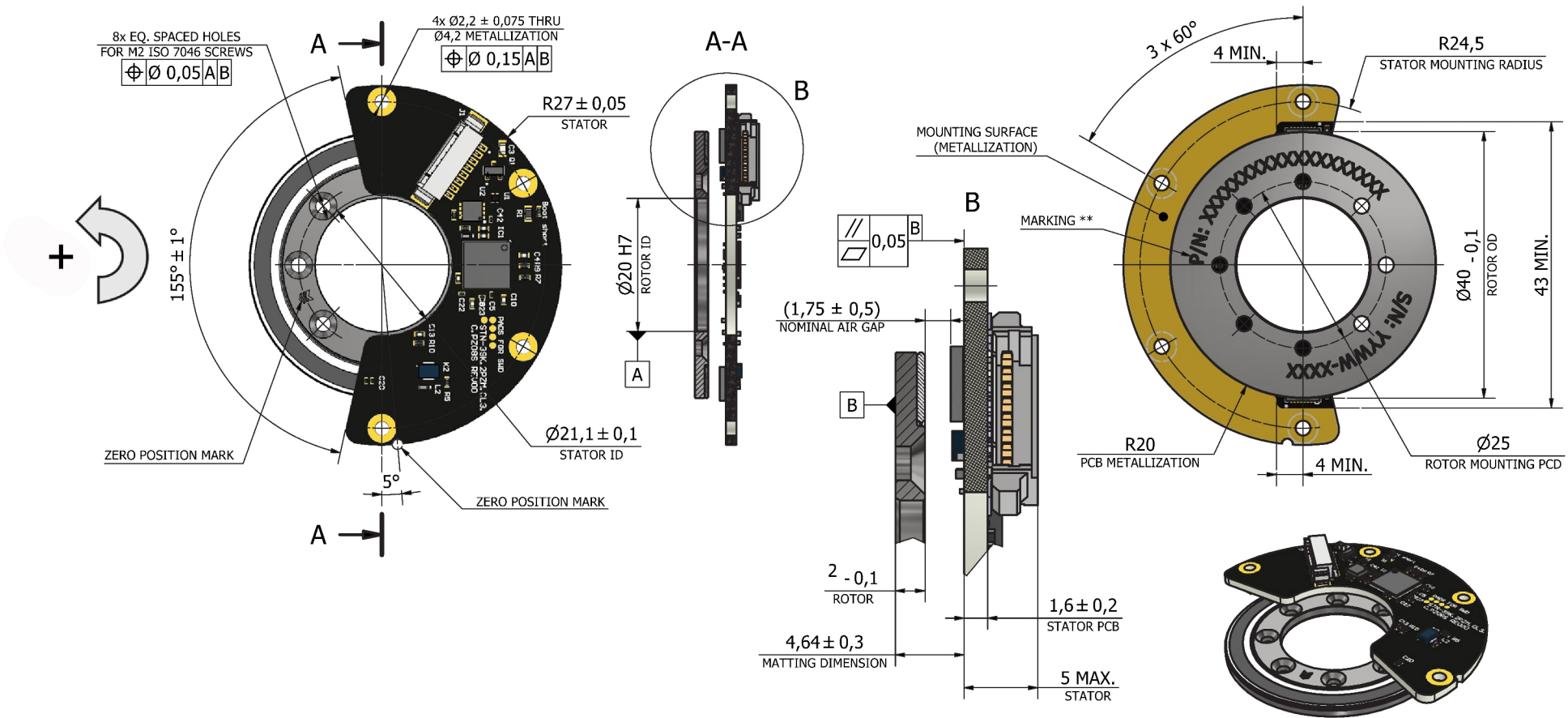
### Mechanical notes

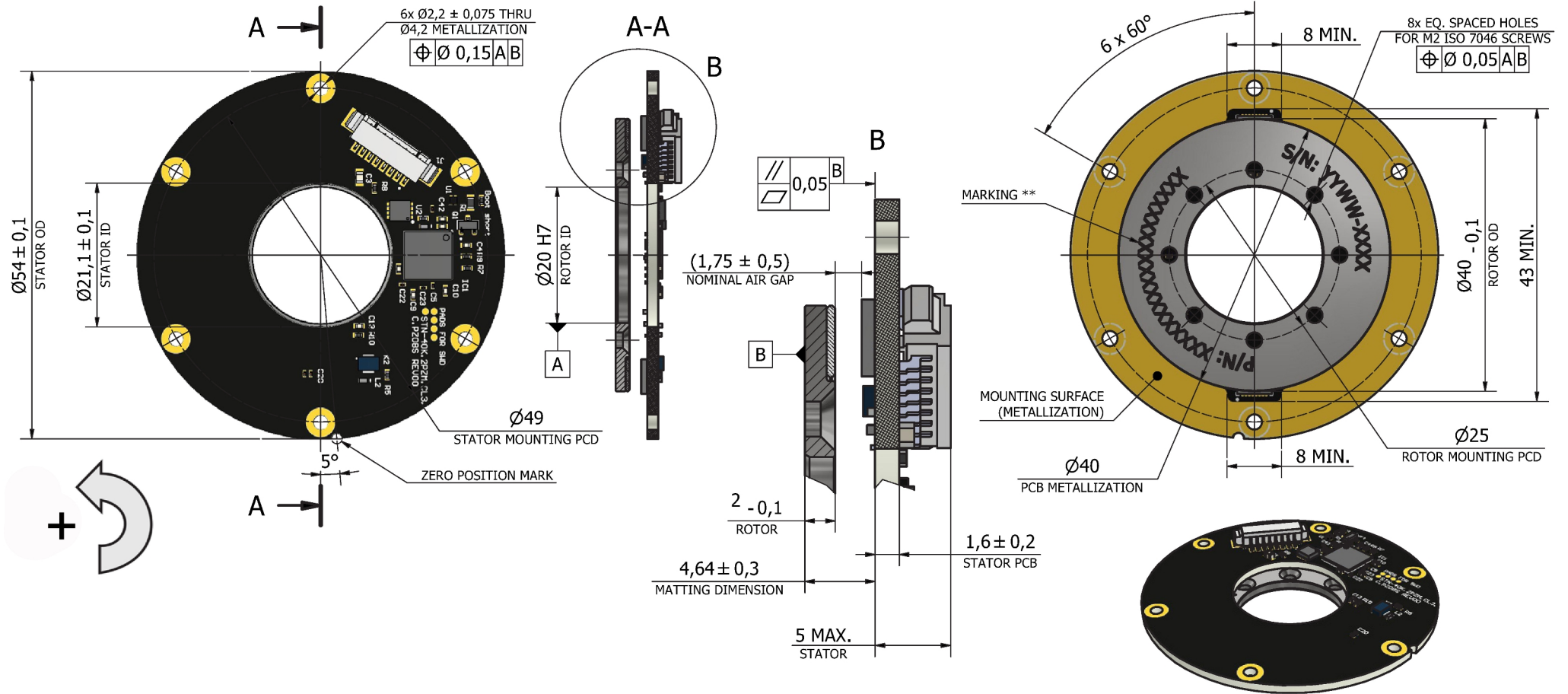
Materials	FR4 (PCB) Stainless steel, ASTM A276 Type 304 (rotor hub, adapter shim) Float glass with chromium pattern (coded glass disc) UV - curable adhesive PERMABOND® UV605 Epoxy adhesive 3M® Scotch-Weld® 2216EC
Passivation	Stainless steel parts passivate per ASTM A967/A967M
Permissible shaft radial run-out	100 um



*statum motion sensors support on-axis calibration for high-precision fine-tuning, though this level of adjustment is rarely required. Every sensor undergoes off-axis calibration during production as part of final quality assurance to validate overall performance and characteristics. Additional on-site configuration—such as rotation direction, zero-point setup, and more—is easily performed using the statum studio software tool.*

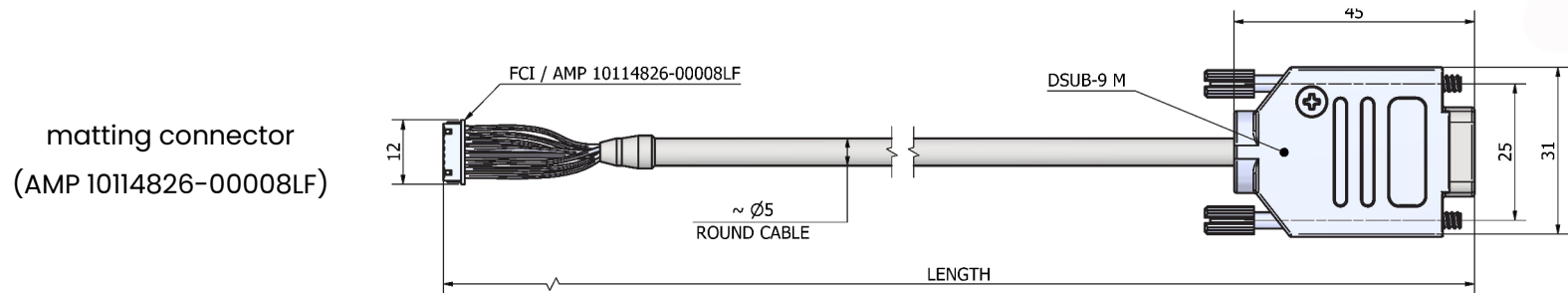
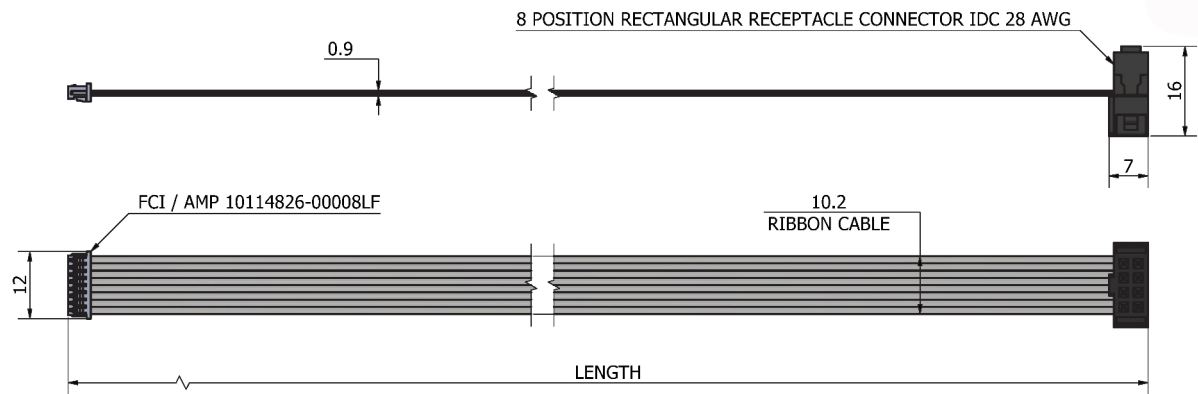
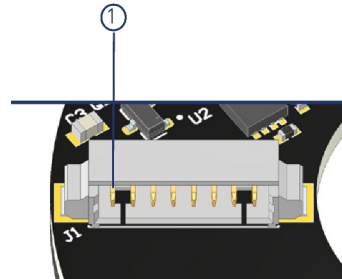




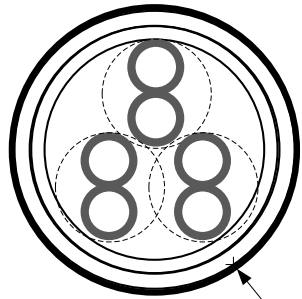


A standard horizontal 8-pin low-profile connector (FCI / AMP 10114830-111108LF) is mounted directly on the stator PCB, providing a convenient plug-and-play interface for cable harnesses and enabling fast, reliable installation.

Connector	SSI / BiSS-C
1	5 VDC
2	GND
3	N.C.
4	N.C
5	Clock+
6	Clock-
7	Data+
8	Data-



Interconnection



Ø 3.2 mm max

Cable	Twisted pair , Ø3.2 ± 0.15 mm
Wire	AWG 30 21/0.05 mm tinned copper Insulation - PFE Ø 0.6 ± 0.07 mm
Shield	Thinned copper braided 85%
Binder	FEB black
T. Rating	-40 / + 150 ° C

DB9	Function	Color	
6	Return	Black	
4	5 VDC	RED	
7	Data +	Green	
8	Data -	Yellow	
2	Clock +	Gray	
3	Clock -	Blue	
	Shield		

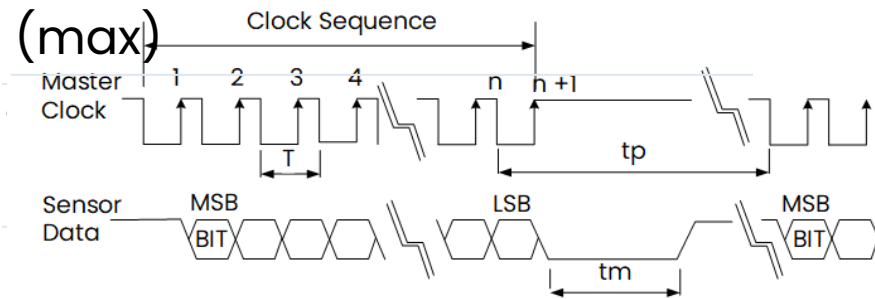
Absolute position protocols

Output signals EIA standard RS422

Data encoding Binary Recommended  
f : Clock 2.5 MHz



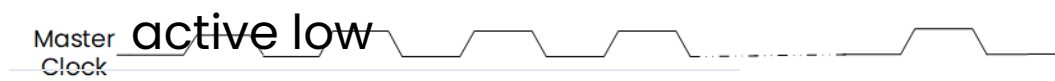
to pulse time > 21



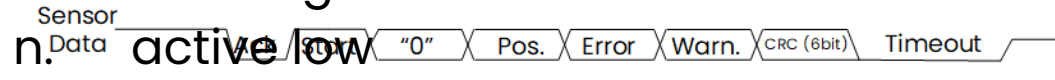
( , Optional)

Description Recommended

Error Error bit - 1

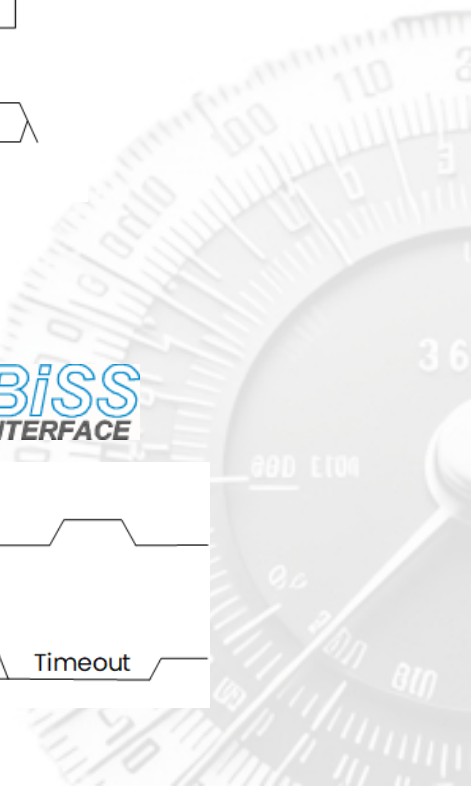


Warning Warning bit - 1



CRC CRC 6

polynomial



Sensor manufactured by statum motion are warranted to be free from defects in materials and workmanship for a period of 12 months from the date of shipment.

### Warranty Coverage

This warranty covers the replacement or repair of faulty encoders at no charge, provided that the following conditions are met:

- The sensor was installed, operated, and stored in accordance with the manufacturer's instructions.
- The sensor was not subjected to improper installation, misuse, or abuse.
- The sensor was not disassembled or repaired by the customer.

*Product specifications are subject to change without prior notice.*

*The product images shown are for illustration purposes only and may not be an exact representation of the product*

Ordering

<b>STN40</b>	a	b	c	d	e	f
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a	b	c	d	e	f
Resolution	Comm.	Cable	Length	Connector	PCB Shape
18-22	B – Biss C S – SSi	RI – ribbon RO – round 0 – without cable	0 – without cable 1 – 250 mm 2 – 500 mm	0 – without connector 2 – 8 pins connector (ribbon cable) 3 – DSUB-9 (round cable)	A – arc shape R – round shape

Stator board protection	
PCB assemble	IPC 610 Class 3
PCB	IPC 620 Class 3
Sensor harness assembly	IPC-A 620 Class 3
Conformal coating (optional)	UVCL ; UV cure conformal coating



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