



# अंतर्राष्ट्रीय ऑटोमोटिव प्रौद्योगिकी केन्द्र INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

[A Division of NATRiP Implementation Society (NATIS), Govt. of India]

TAC/Reference No. **C N 8 7 5 9**





Date : 15th Dec 2022

Cert	Dwg	Total
1	2	03 pgs

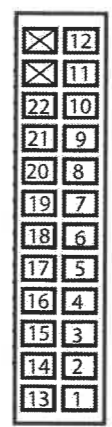
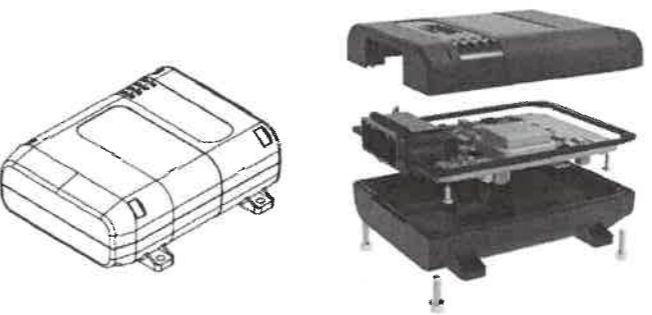
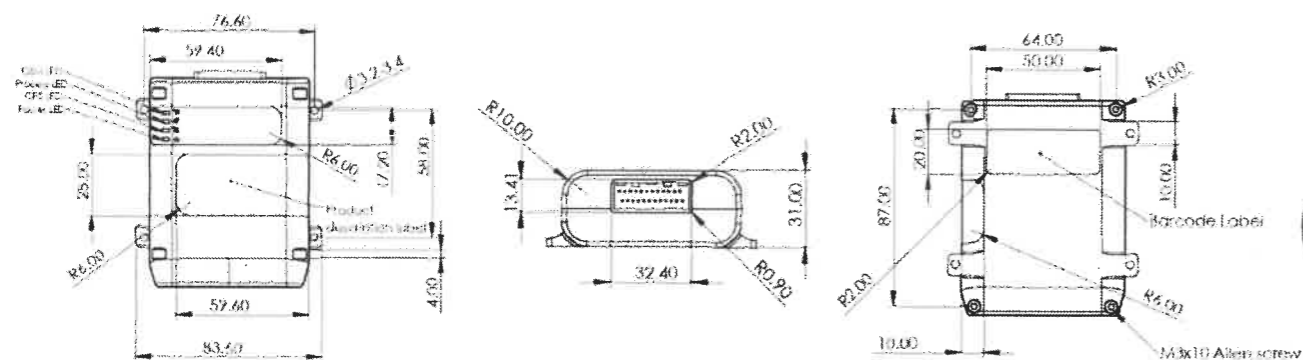
## TYPE APPROVAL CERTIFICATE

(For compliance to AIS - 140)

Non- Transferable

1	Customer's Name	M/s iTriangle Infotech Private Limited				
2	Customer's Address	# 803/A (803/A-1-3) 76th 'A' Cross, Chord Rd, 6th Block, Rajajinagar, Bengaluru, Karnataka 560010				
3	Manufacturing / Assembly Plant Address	# 803/A (803/A-1-3) 76th 'A' Cross, Chord Rd, 6th Block, Rajajinagar, Bengaluru, Karnataka 560010				
4	Description of the Test Component(s)	4.1. Vehicle Location Tracking Device 4.2. Emergency Button				
4.1.1	Model Name	BHARAT 101 Plus 4G				
4.1.2	Part No. / Drawing No.	BH4GIC-152201140 / ITR-DR-A-BH202				
4.1.3	GSM/GPRS Make/Module	Neoway N58				
4.1.4	GNSS/GPS Make/Module	Teratom TT03-00 (GPS+IRNSS)				
4.1.5	Accelerometer & Gyroscope Make/Module	InvenSense ICM-20600				
4.1.6	Voltage System	12V & 24V				
4.1.7	E-Sim Chip Maker	Idemia				
4.1.8	E-Sim Service Integrator	Taisys				
4.1.9	Network Service Providers	Airtel & BSNL				
4.1.10	Firmware/Software Version	010008 / 010008				
4.2.1	Model Name	BHARAT 101 Plus 4G Panic Button				
4.2.2	Part No. / Drawing No.	ITRPB0025 / ITRPB0025				
5	Applicable Notified Standard / Reference GSR	AIS:140 as amended up to December 2018 / Sr. No. 1 of Annexure of Notification S.O. 5453(E) Dated 25.10.2018				
6	Test Report No.	CT0GR8758 dated 15.12.2022				
7	Details of Quality Management System (QMS)	S.No.	Type of QMS	Certifying Agency	Certificate No.	Valid Upto
		1	ISO 9001:2015	NQA	600301	03.04.2023
8	Approval	√ Granted/ Not-Granted/ Extended				
9	Note: The COP of the component mentioned in Sr. No.4.0 above would be due from the date of start of commercial production of the component and shall be completed before 30th September 2023.					
ICAT Reference		CCTNITRIIRGEEL159713 Dated 21-Jun-2022			Please turn over for DISCLAIMER	
AUTHORISED SIGNATORY						
 ICAT <b>ENOCH EAPEN</b> MANAGER		 ICAT <b>VIKAS SADAN</b> DEPUTY GENERAL MANAGER		 ICAT <b>MADHUSUDAN JOSHI</b> SBO		 Page 1 of 1

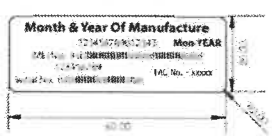
TAC Certificate No. CN8759 Dated 15 Dec 2022



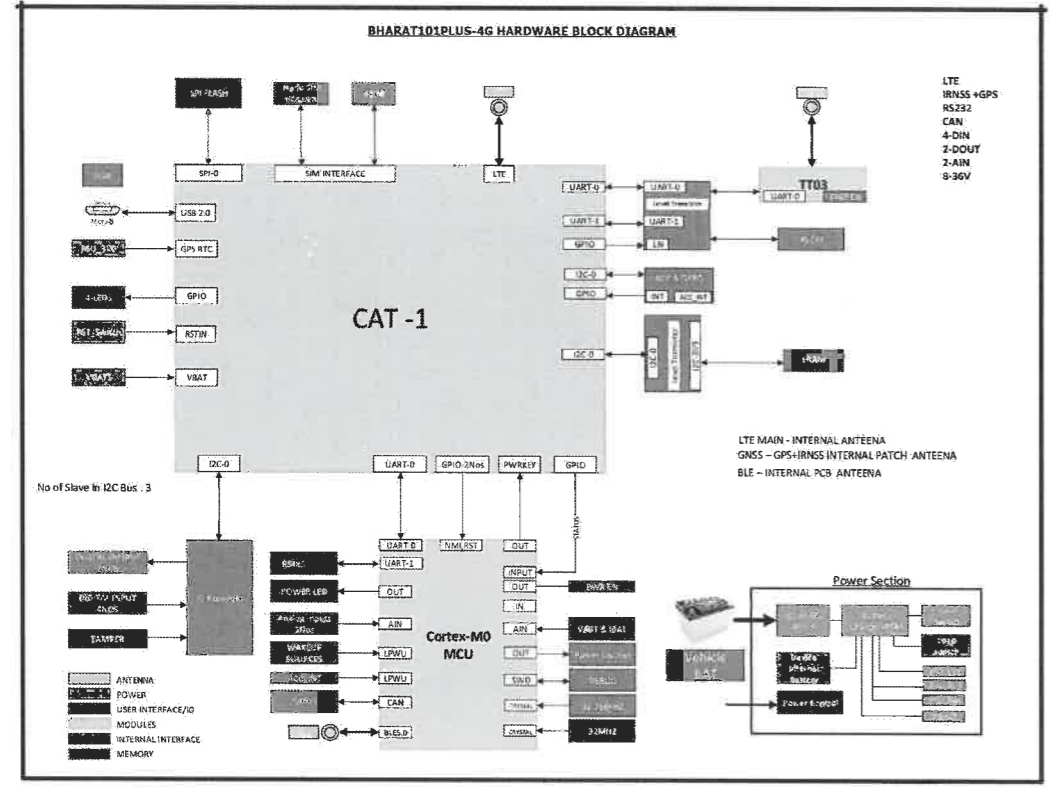
Connector Pins details with part no.				
S/NC	Connector Pin Detail	Input/Output	Specification	Requirement Pin detail
1	VBAT	Input		Pin1
2	RS485-A	I/O		Pin2
3	RS485-B	I/O		Pin3
4	DIN - 3	Input		Pin4
5	CAN-L	I/O		Pin5
6	CAN-H	I/O		Pin6
7	AIN-1	Input		Pin7
8	GND	Com		Pin8
9	DOUT-4	Output		Pin9
10	DOUT-3	Output		Pin10
11	RS232-RX	Input		Pin11
12	RS232-TX	Output		Pin12
13	GND	Com		Pin13
14	DIN-1	Input		Pin14
15	DIN - 2 Panic	Input		Pin15
16	IGN	Input		Pin16
17	DOUT-1	Output		Pin17
18	DOUT-2	Output		Pin18
19	AIN-2	Input		Pin19
20	DIN-4	Input		Pin20
21	1-WIRE DATA	Input		Pin21
22	Frequency IN	Input		Pin22

LED Indication			
S.No	LED Detail	Function	Remarks
1	GSM LED	Communication	
2	Process LED	Process	
3	GPS LED	Tracking	
4	Power LED	Power	

BOM					
S.No	Description	Qty per unit	Part No.	Material	Remarks
1	BHARAT 101PLUS -4G Top	1	ITR-CSI-0743	Nylon 30% GF (PA66)	
2	BHARAT 101PLUS -4G Bottom	1	ITR-CSI-0744	Nylon 30% GF (PA66)	
3	BHARAT101 PLUS -4G Gasket	1	ITR-CSI-0745	TPE - 50 A	
4	BHARAT 101 PLUS -4G Tamper Rubber	1	ITR-CSI-0746	TPE - 50 A	
5	Allen M3x12mm	4	ITR-CSI-0031	SS	Used for device enclosure assembly
6	PCB Screw M2.5x6mm	4	ITR-CSI-0033	SS	Used for PCB to enclosure assembly
7	300mm cable tie	2	ITR-CSI-0002	PA6/6	Used for device mounting
8	Allen M3x20mm	4	ITR-CSI-0074	SS	Used for device mounting
11	M3 X 20 Star pan head self tapping screw	4	ITR-CSI-0201	SS	Used for device mounting
12	Warranty Card	1	ITRCSI0110	NA	
13	Zip Lock Cover 2*3	1	ITRCSI0005	NA	Screw packaging
14	Bar code sticker Big (60*20)	3	ITRCSI0045	NA	Used for product serial & barcode
15	Bar code sticker small(QC) (38*25)	1	ITRCSI0006	NA	Used for QC
16	850mAh 3.7V WITH NTC (MAKE 11 ION)	1	ITR-BAT-0025	NA	
17	Double sided red tape (52mm l)	1	ITRCSI0417	NA	Used for Battery mounting
18	BOX_B101LC_4G	1	ITR-CSI-0691	NA	Product packaging
19	PCB-A with connector	1	ITR-CON-0234	NA	



Mounting Recommendation		Torque
1	Mount device as flat surface only aligning to the metal holes, top surface facing the sky.	-
2	Use M3x8mm Allen SS screws for top & bottom enclosure (Qty-4 No's)	~1Nm
3	Use M4x20mm Allen SS screws for enclosure (Qty-4 No's)	~1Nm



AIS 140 Specification		
S.No	Information to be submitted for type approval	To be filled by customer
1	System Software	
1.1	Make	iTriangle
1.2	Version	010008
1.3	Operating system details with version	RTOS V10.0.1
2	Communication Protocol Used	TCP/IP
2.1	vehicle to center	TCP/IP
2.2	VLT to control center	TCP/IP/SMS
3	Description of Device	Telematics Unit
3.1	Manufacturer Address	iTriangle Infotech Pvt. Ltd. # 803/A (803/A-1-3) 76th 'A' Cross, Chord Rd, 6th Block, Rajajinagar, Bengaluru, Karnataka 560010
3.2	GSM/GPRS Make/Module with Main GSM antenna	N58 Neoway
3.3	GNSS/GPS Make/IRNSS Module: with GPS antenna	TT03-00(Teratron)
3.4	WLAN antenna	
3.5	Accelerometer & Gyroscope Make/Module	ICM-20600
4	e-Sim details	
4.1	e-Sim Hardware chip Maker	IDEMIA
4.2	integrator	TAISYS
4.3	Network Profiles	AIRTEL,BSNL
5	Firmware Version	010008
6	4 Alphanumerical Characters for name of manufacturer	ITB1
7	2 Alphanumerical characters for name of model	B1



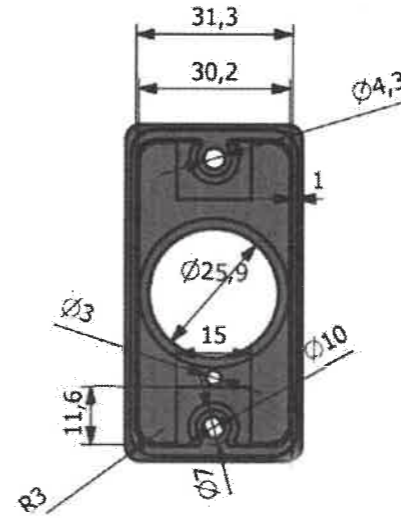
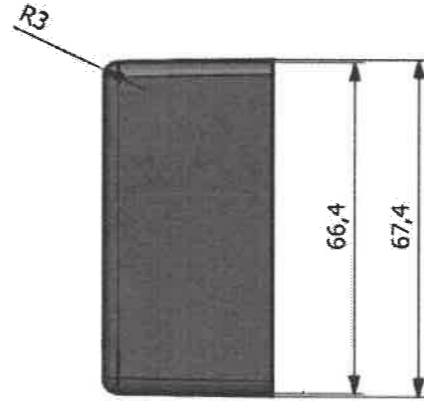
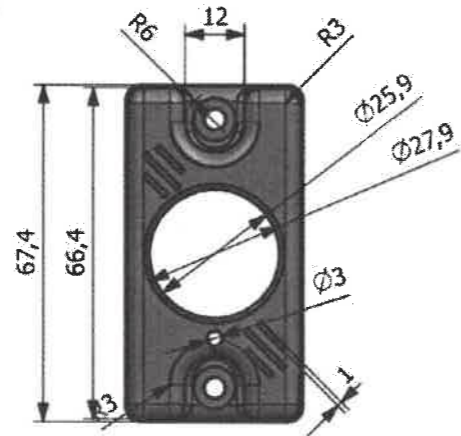
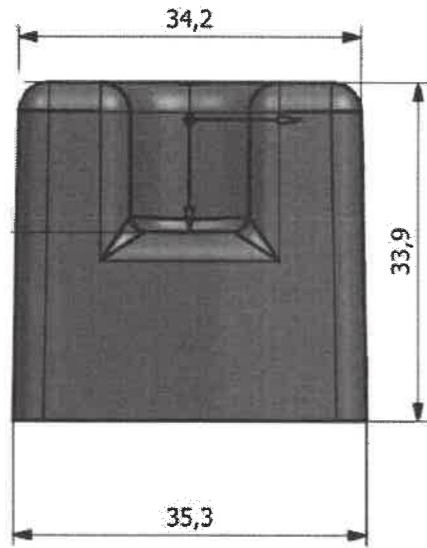
Sr. No.	Model No./Name	Part No.	Remarks
1	BHARAT 101 Plus 4G	BH4GIC-152201140	

Tolerance								
Nominal Dimension	Length	Diameter		Draw.	Checked	Approved	Scale	Part No.
		Inside Dia.	Outside Dia.					
								BH4GIC-152201140
							Unit	Model No./Name
							mm	BHARAT 101 Plus 4G
							Projection	Draw. No.
								Sheet
								Rev. 00





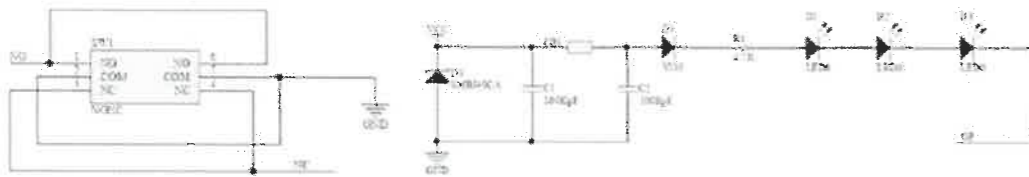
TAC Certificate No. CN8759 Dated 15 Dec 2022



BOM

Sr. No.	Mfr. Part No.	Comment	Description	Make	Quantity
1	885012207098	100KpF	WC AP-C56P General Purpose MFC N7R0805104K050DFC1 1000, SMT Clap, 100ndF = 10%, 50 V(DC), -55°C ~ +125°C, size 0805, LxWxH 2.0 x 1.25 x 0.8	Würth Electronik	2
2	150080RS75000	RED LED	WL-SMCW SMT Mono Color Clap LED Waterclear 0805, Red Typ (@ 20mA), 625nm, 150mcd, 2.0V	Würth Electronik	3
3	824521401	SMBJ40CA	TVS Diode	Würth Electronik	1
4	SS34	SS34	TVS Diode	Vishay	1
5	742792122	Ferrite Bead	WL-CHB SMT EMI Suppression Ferrite Bead Size 1206, Z @ 100 MHz = 220.11, Zmax = 23002 @ 200 MHz, IR = 900 mA, RDC = 9.40 Ω	Würth Electronik	1
6	SPVQ820592	Switch with 4 Lash Life Cycle	Switch with 4 Lash Life Cycle Size 8.3-5.4-7mm	Alps Alpine	1

Schematic and Layout



AIS 140 Specification

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1	System Software	
1.1	Make	iTriangle
1.2	Version	010008
1.3	Operating system details with version	RTOSV10.0.1
2	Communication Protocol Used	TCP/IP
2.1	vehicle to center	TCP/IP
2.2	VLT to control center	TCP/IP
3	Description of Device	Telematics Unit iTriangle Infotech Pvt. Ltd. # 803/A (803/A-1-3) 76th 'A' Cross, Chond Rd, 6th Block, Rajajinagar, Bengaluru, Karnataka 560010
3.1	Manufacturer Address	



Sr. No.	Model No. /Name	Part No.	Remarks
1	BHARAT 101 PLUS 4G Panic Button	ITRPB0025	

Nominal Dimension	Length	Diameter		Draw	Checked	Approved	Scale	Part No.
		Inside Dia	Outside Dia					
± 0.2 mm				Sulavara	ALOK	ALOK		ITRPB0025
								Model No./Name
								BHARAT 101 Plus 4G Panic Button
				Date	Date	Date	Projection	Draw. No.
				22/11/22	22/11/22	22/11/22	1st	Sheet
								1 of 1
								Rev. 00

iTriangle