forecr

MILBOX-THR

USER MANUAL

UM-MBXTHR-01
Document Revision: 1.0
05/06/2026

NVIDIA Elite Partner

Forecr
https://www.forecr.io
support@forecr.io

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Preface

Disclaimer

Forecr emphasizes that the information contained in this user manual is continuously updated in line with the technical modifications and enhancements made by Forecr to its MILBOX-THR. Therefore, this manual only represents the technical status of Forecr MILBOX-THR at the time of publishing.

Forecr shall not be held responsible for any damages that may occur directly or indirectly as a result of any technical or typographical errors or omissions found in this document or for any discrepancies between the product and the user's manual.

Customer Support

In case you encounter any challenges after reading the user manual and/or using the MILBOX-THR, please reach out to the Forecr reseller from which you purchased the MILBOX-THR.

See the contact information section below for more information on how to contact us directly.

Contact Information

E-mail Address	For information requests: info@forecr.io For support requests: support@forecr.io For wholesale inquiries: sales@forecr.io
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Limited Product Warranty

Forecr provides a 1-year Warranty for the MILBOX-THR. This warranty period is valid from the original purchase date of the MILBOX-THR. In order to maintain warranty, the MILBOX-THR must not be altered or modified in any way. Changes or modifications to the MILBOX-THR that are not explicitly approved by Forecr and described in this user manual or received from Forecr Support as a special handling instruction, will void your warranty.
To receive warranty service, the MILBOX-THR must be delivered to Forecr within the warranty period together with the original invoice or proof of purchase.

Revision History

Revision No	Revision Date	Revision Description
rev 1.0	05.06.2026	Preliminary Release

1. Introduction

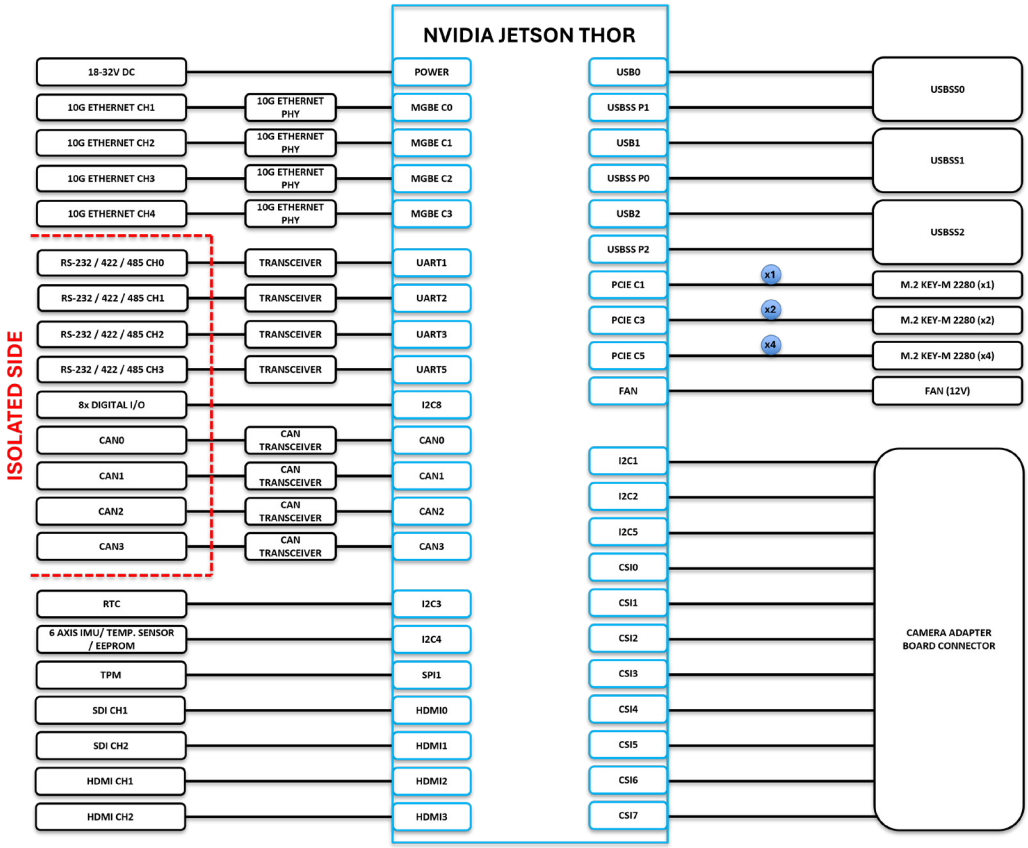
The MILBOX-THR is a military-grade Edge AI computer powered by the latest NVIDIA Jetson AGX Thor SoM, delivering unprecedented AI performance and reliability in the harshest environments. Designed to meet MIL-STD-810G, MIL-STD-461G, MIL-STD704F, MIL-STD-1275E, and DO-160G standards, it operates flawlessly under extreme temperature, vibration, and humidity conditions. Featuring 4× 10G Ethernet, multiple 3G-SDI and HDMI 2.0 outputs, isolated serial and CAN FD interfaces, and PCIe Gen4 expansion, it provides seamless connectivity for defense, aerospace, and autonomous mission platforms. With 18–36 VDC wide power input, integrated TPM 2.0 security, and advanced IMU, temperature sensing, and digital I/O, the MILBOX-THR redefines ruggedized AI computing—bringing data-center-class intelligence directly to the tactical edge

2. Product Specification

2.1 Technical Specification

Supported Modules	NVIDIA Jetson T4000 NVIDIA Jetson T5000
Memory	64 GB 256-bit LPDDR5X 128 GB 256-bit LPDDR5X
Graphics Interfaces	2x HDMI2.0 Display Output
Optional Video Interfaces	3G-SDI Display Output 3G-SDI Video Input Analog Video Input GMSL2 Video Input
Interfaces	4x 10G Ethernet (Copper) 3x USB3.1 4x CAN FD (Isolated) 4x RS-232/422/485 (Isolated) 8x Digital I/O (3.3V Level, Isolated) TPM2.0 Chipset 6-Axis IMU & Temperature Sensor EEPROM
Wireless Communication	None
Power Supply	11-60 VDC
Extension Sockets	1x M.2 Key-M 2280 PCIe Gen5 x4 1x M.2 Key-M 2280 PCIe Gen5 x2 1x M.2 Key-M 2280 PCIe Gen5 x1 Camera Expansion Slot (for optional Analog Video Input or GMSL2 features)
Mass Storage	Up to three NVMe SSD support
Ambient Conditions	-25°C ... +70°C
Form Factor / Dimensions	30cm x 24cm x 10cm, 5500gr (Not finalized, subject to change)
Operating Systems	Ubuntu Linux 24.04
Operating Humidity	5% - 95% (Non-Condensing)
Standards (Designed to Meet)	MIL-STD-810G, MIL-STD-461G, MIL-STD-704F, MIL-STD-1275E, DO-160G
JetPack Support	JetPack 7.x

2.2 Block Diagram

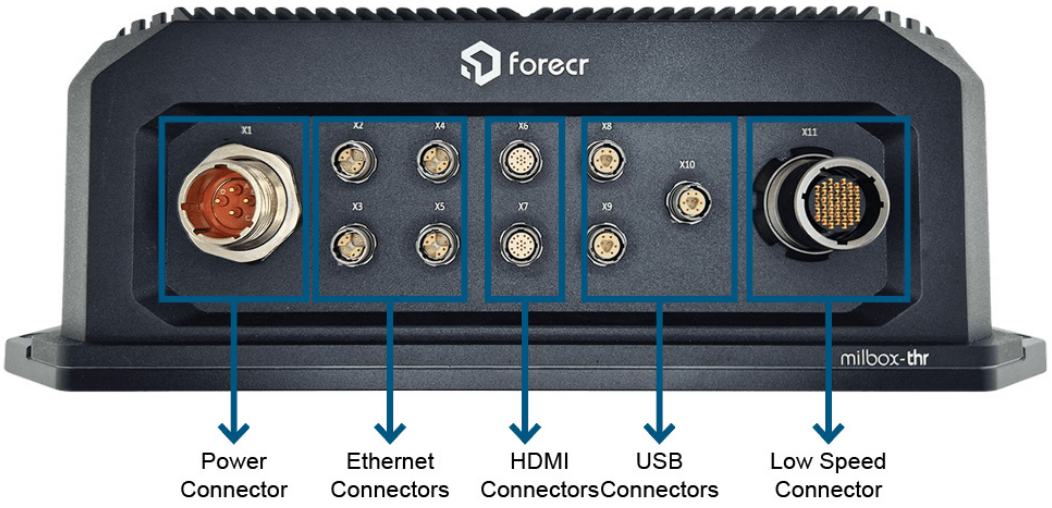


2.3 MILBOX Visuals

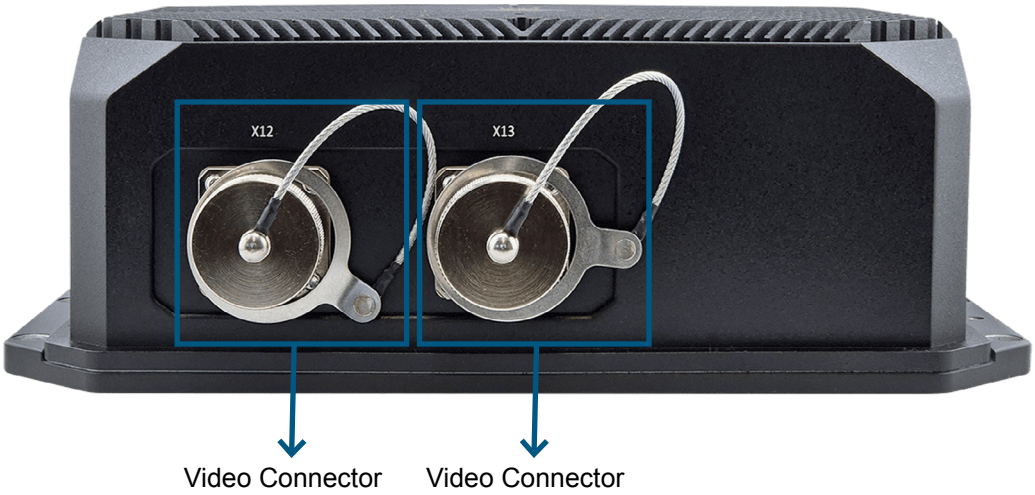
3. Hardware Information

3.1 Connector Location

3.1.1 Front Side



3.1.2 Rear Side

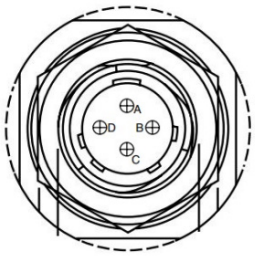


3.2 List of Connector

Connectors
MILBOX-THR Power Connector - (X1)
MILBOX-THR Ethernet Connector - (X2)
MILBOX-THR Ethernet Connector - (X3)
MILBOX-THR Ethernet Connector - (X4)
MILBOX-THR Ethernet Connector - (X5)
MILBOX-THR HDMI Connector - (X6)
MILBOX-THR HDMI Connector - (X7)
MILBOX-THR USB Connector - (X8)
MILBOX-THR USB Connector - (X9)
MILBOX-THR USB Connector - (X10)
MILBOX-THR Low Speed Connector - (X11)
MILBOX-THR Video Connectors - (X12, X13)

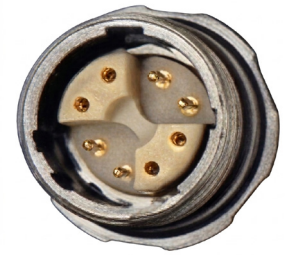
3.3 The Definition of Each Connector

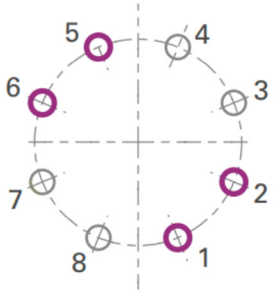
3.3.1 Power Connector (X1)



Function	Description	
Connector Type	D38999/24FC4PN	
Mating Connector	D38999/26FC4SN	
Voltage Range	18-36 VDC (28 VDC Nominal)	
Pinout	**Pin**	**Description**
	A	VIN
	B	VIN
	C	GND
	D	GND

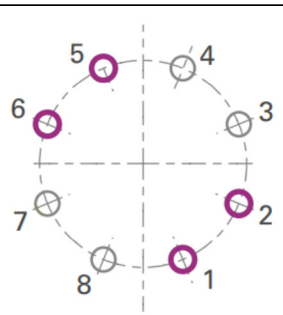
3.3.2 Ethernet Connector (X2)





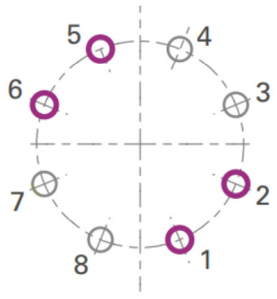
Function	Description	
Connector Type	MR11WS08_0008_AN1_E1AP	
Mating Connector	MP11ZS08_0008_AN1_Z1AS	
Pinout	**Pin**	**Description**
	1	ENET_10G_CH3.D0_N
	2	ENET_10G_CH3.D0_P
	3	ENET_10G_CH3.D1_N
	4	ENET_10G_CH3.D1_P
	5	ENET_10G_CH3.D2_N
	6	ENET_10G_CH3.D2_P
	7	ENET_10G_CH3.D3_N
	8	ENET_10G_CH3.D3_P

3.3.3 Ethernet Connector (X3)



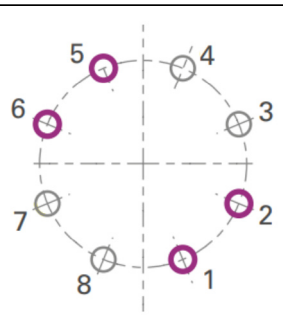
Function	Description	
Connector Type	MR11WS08_0008_AN1_E1AP	
Mating Connector	MP11ZS08_0008_AN1_Z1AS	
Pinout	**Pin**	**Description**
	1	ENET_10G_CH1.D0_P
	2	ENET_10G_CH1.D0_N
	3	ENET_10G_CH1.D1_P
	4	ENET_10G_CH1.D1_N
	5	ENET_10G_CH1.D2_P
	6	ENET_10G_CH1.D2_N
	7	ENET_10G_CH1.D3_P
	8	ENET_10G_CH1.D3_N

3.3.4 Ethernet Connector (X4)



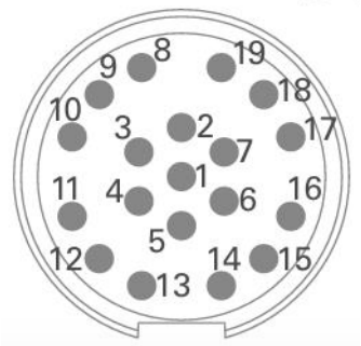
Function	Description	
Connector Type	MR11WS08_0008_AN1_E1AP	
Mating Connector	MP11ZS08_0008_AN1_Z1AS	
Pinout	**Pin**	**Description**
	1	ENET_10G_CH4.D0_N
	2	ENET_10G_CH4.D0_P
	3	ENET_10G_CH4.D1_N
	4	ENET_10G_CH4.D1_P
	5	ENET_10G_CH4.D2_N
	6	ENET_10G_CH4.D2_P
	7	ENET_10G_CH4.D3_N
	8	ENET_10G_CH4.D3_P

3.3.5 Ethernet Connector (X5)



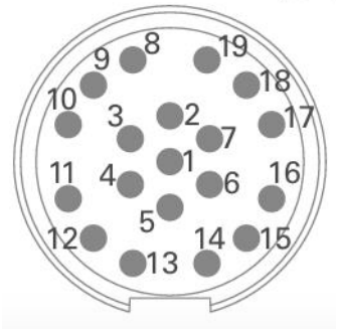
Function	Description	
Connector Type	MR11WS08_0008_AN1_E1AP	
Mating Connector	MP11ZS08_0008_AN1_Z1AS	
Pinout	**Pin**	**Description**
	1	ENET_10G_CH2.D0_P
	2	ENET_10G_CH2.D0_N
	3	ENET_10G_CH2.D1_P
	4	ENET_10G_CH2.D1_N
	5	ENET_10G_CH2.D2_P
	6	ENET_10G_CH2.D2_N
	7	ENET_10G_CH2.D3_P
	8	ENET_10G_CH2.D3_N

3.3.6 HDMI Connector (X6)



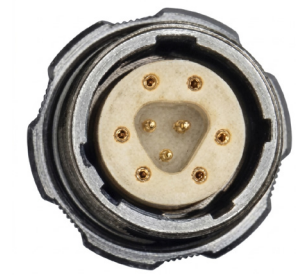
Function	Description	
Connector Type	MR11WS08_H019_AN1_E1AP	
Mating Connector	MP11ZS08_H019_AN1_Z1MS	
Pinout	**Pin**	**Description**
	1	VDD_5V_HDMI3
	2	DGND
	3	NC
	4	HDMI3_CON.HPD
	5	HDMI3_CON.SDA
	6	HDMI3_CON.SCL
	7	NC
	8	HDMI3_CON.TXD2_N
	9	DGND
	10	HDMI3_CON.TXD1_P
	11	HDMI3_CON.TXD1_N
	12	DGND
	13	HDMI3_CON.TXD0_P
	14	HDMI3_CON.TXD0_N
	15	DGND
	16	HDMI3_CON.TXC_P
	17	HDMI3_CON.TXC_N
	18	DGND
	19	HDMI3_CON.TXD2_P

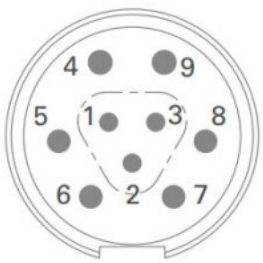
3.3.7 HDMI Connector (X7)



Function	Description	
Connector Type	MR11WS08_H019_AN1_E1AP	
Mating Connector	MP11ZS08_H019_AN1_Z1MS	
Pinout	**Pin**	**Description**
	1	VDD_5V_HDMI2
	2	DGND
	3	NC
	4	HDMI2_CON.HPD
	5	HDMI2_CON.SDA
	6	HDMI2_CON.SCL
	7	NC
	8	HDMI2_CON.TXD2_N
	9	DGND
	10	HDMI2_CON.TXD1_P
	11	HDMI2_CON.TXD1_N
	12	DGND
	13	HDMI2_CON.TXD0_P
	14	HDMI2_CON.TXD0_N
	15	DGND
	16	HDMI2_CON.TXC_P
	17	HDMI2_CON.TXC_N
	18	DGND
	19	HDMI2_CON.TXD2_P

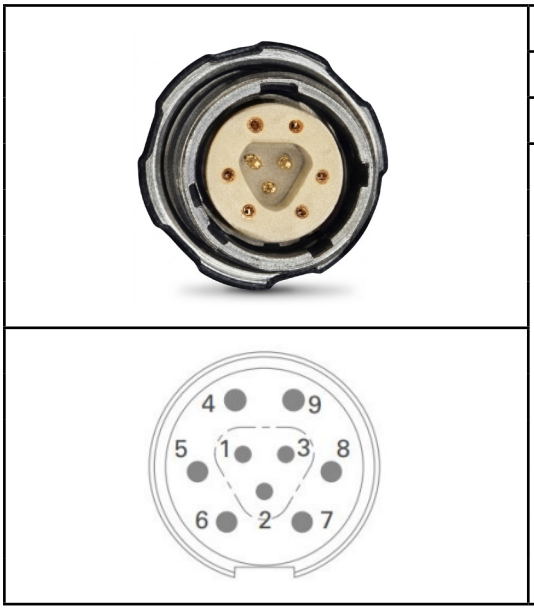
3.3.8 USB Connector (X8)





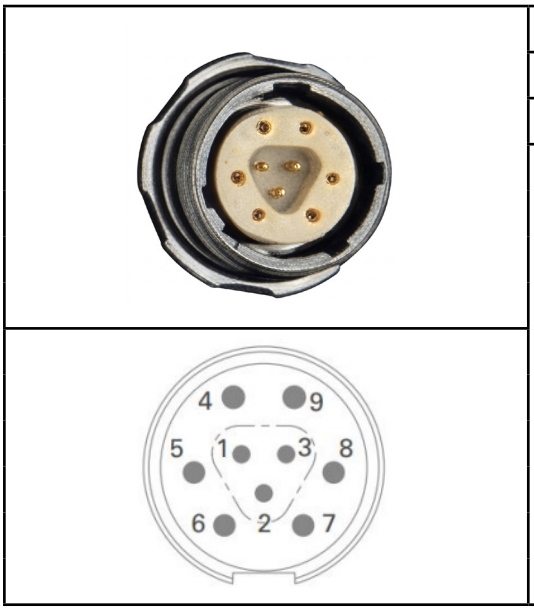
Function	Description	
Connector Type	MR11WS08_0009_AN1_E1AP	
Mating Connector	MP11ZS08 2007 AN1 Z1AS	
Pinout	**Pin**	**Description**
	1	USBSS1_CONN.D_N
	2	DGND
	3	USBSS1_CONN.D_P
	4	USBSS1_VBUS
	5	USBSS1_CONN.TX_N
	6	USBSS1_CONN.TX_P
	7	USBSS1_CONN.RX_N
	8	USBSS1_CONN.RX_P
	9	DGND

3.3.9 USB Connector (X9)



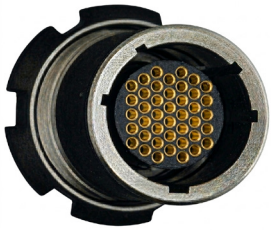
Function	Description	
Connector Type	MR11WS08_0009_AN1_E1AP	
Mating Connector	MP11ZS08 2007 AN1 Z1AS	
Pinout	**Pin**	**Description**
	1	USBSS2_CONN.D_N
	2	DGND
	3	USBSS2_CONN.D_P
	4	USBSS2_VBUS
	5	USBSS2_CONN.TX_N
	6	USBSS2_CONN.TX_P
	7	USBSS2_CONN.RX_N
	8	USBSS2_CONN.RX_P
	9	DGND

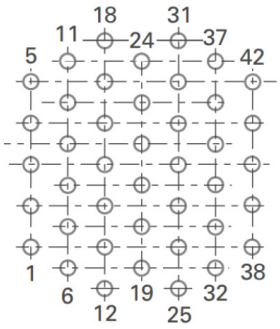
3.3.10 USB Connector (X10)



Function	Description	
Connector Type	MR11WS08_0009_AN1_E1AP	
Mating Connector	MP11ZS08 2007 AN1 Z1AS	
Pinout	**Pin**	**Description**
	1	USBSS0_CONN.D_N
	2	DGND
	3	USBSS0_CONN.D_P
	4	USBSS0_VBUS
	5	USBSS0_CONN.TX_N
	6	USBSS0_CONN.TX_P
	7	USBSS0_CONN.RX_N
	8	USBSS0_CONN.RX_P
	9	DGND

3.3.11 High-Speed Connector (X11)





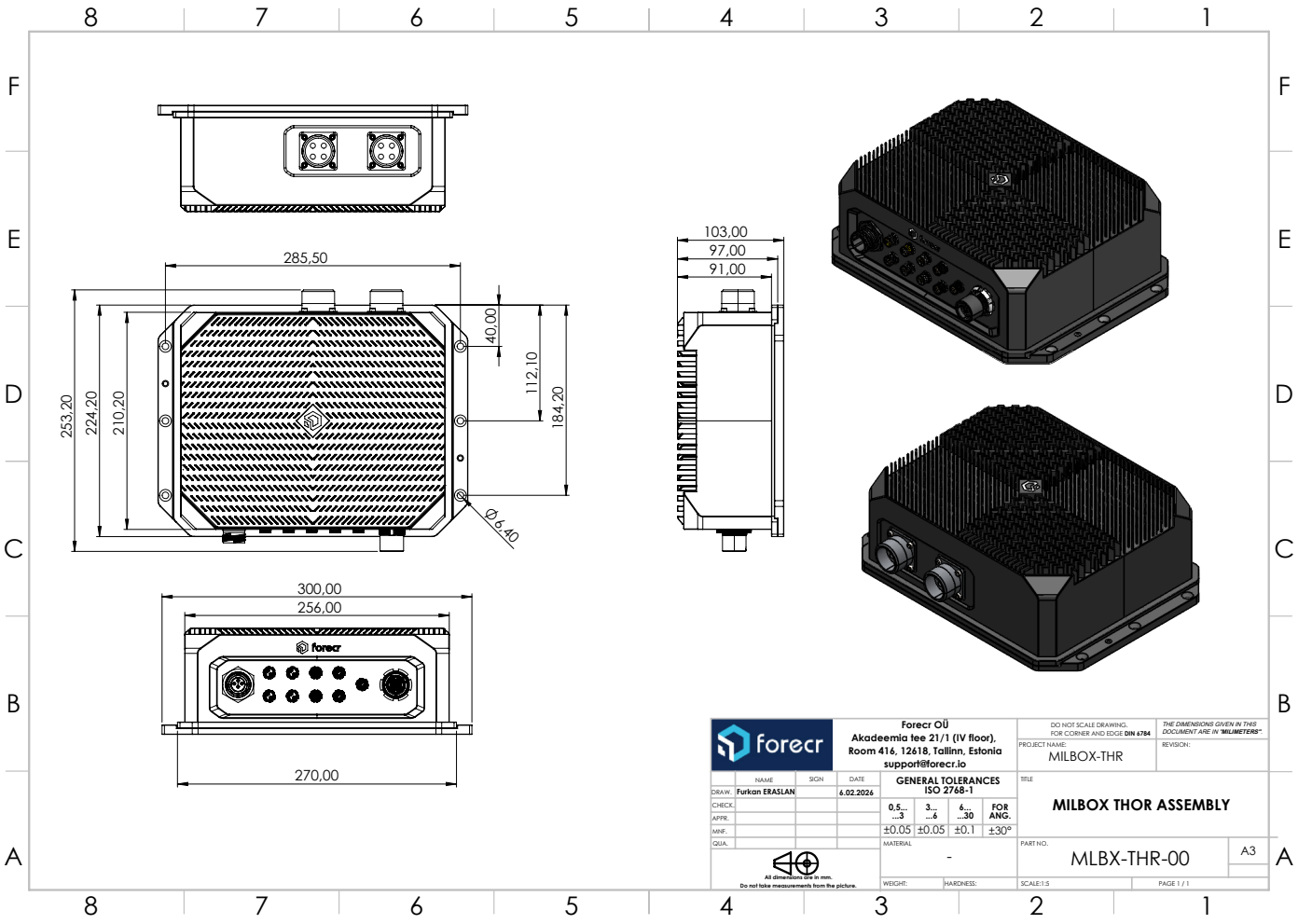
Function	Description			
Connector Type	UR01W18-F042P-BK2-E1AA			
Mating Connector	UP01L18 M042C BK2 Z1ZB			
Pinout	**Pin**	**Description**	**Pin**	**Description**
	1*	RS422_CH0.RX_P	22	RECOVERY_ISO_N
	2*	RS422_CH0.RX_N	23	DGND
	3*	RS422_CH0.TX_N	24	DIGITAL_IO_CH7
	4*	RS422_CH0.TX_P	25	DIGITAL_IO_CH6
	5	DGND	26	DIGITAL_IO_CH5
	6*	RS422_CH1.RX_P	27	DIGITAL_IO_CH4
	7*	RS422_CH1.RX_N	28	DGND
	8*	RS422_CH1.TX_N	29*	CAN3_CONN.D_N
	9*	RS422_CH1.TX_P	30*	CAN3_CONN.D_P
	10*	CAN0_CONN.D_P	31	DGND
	11*	CAN0_CONN.D_N	32*	CAN2_CONN.D_N
	12	DGND	33*	CAN2_CONN.D_P
	13*	CAN1_CONN.D_P	34*	RS422_CH2.RX_N
	14*	CAN1_CONN.D_N	35*	RS422_CH2.RX_P
	15	DGND	36*	RS422_CH2.TX_P
	16	DIGITAL_IO_CH0	37*	RS422_CH2.TX_N
	17	DIGITAL_IO_CH1	38	DGND
	18	DIGITAL_IO_CH2	39*	RS422_CH3.TX_P
	19	DIGITAL_IO_CH3	40*	RS422_CH3.TX_N
	20	DGND	41*	RS422_CH3.RX_N
	21	RESET_ISO_N	42*	RS422_CH3.RX_P

3.3.12 Video Connectors (X12, X13)

Video connector pinouts vary depending on your specific unit configuration. For the correct pinout diagram for your device, please contact our support team at support@forecr.io.

4. Mechanical Models & Drawings

4.1 Mechanical Drawing



5. Power Consumption

This section will be completed soon. It will be published on our website once completed. Please check our Web Page regularly.

6. Cables

This section will be completed soon. It will be published on our website once completed. Please check our Web Page regularly.

7. MTBF Prediction

This section will be completed soon. It will be published on our website once completed. Please check our Web Page regularly.

8. Ordering Information