CLOUDBERRY**AERO**

CM-4000 SERIES

CM-4004F0-AERO-ITAP series
Cloudberry 4 Port Airborne Gigabit Ethernet Inline Tap

Features

- 4 x 10/100/1000BASE-TX ports
- Wide operating temperature
- Waterproof and dustproof
- 28 VDC power input
- Network management: Web
- Designed for failure safe operation

- Approved for civil and military environmental requirements

The OnTime Networks Cloudberry CM-4004F0-ITAP-AERO is an airborne rugged non-intrusive four port inline Gigabit Ethernet network tap with filtering capabilities, providing a way to access data flowing across Onboard Network Systems (ONS) between two points. The CM-4004F0-ITAP-AERO has four ports: J1, J2 and the two monitor ports J3 and J4 of which one can be used for management. The Tap mirrors uplink and downlink data to the monitoring ports. The device further provides filtering capabilities, in order to selectively pass data, based on VLAN ID to the monitoring ports for monitoring, analysis, processing and recording purposes.

As ONS carry critical data, it is essential that airborne network tap devices offer a back-up (failure) mode in case of power loss or unit failure, to ensure connectivity between the two ONS nodes.

The CM-4004F0-ITAP-AERO inline tap is transparent for monitoring critical links and provides network data flow also in case of:

- No power on the CM-4000 network tap
- Any malfunctions on the CM-4000 network tap

This is achieved by incorporating an advanced relay subsystem between the pair of network ports, enabling transmission of network communications signals during power loss or unit failure. There will be a short transition period when the link goes down and is re-established. During this short period there will be loss of data.

The CM-4004F0-ITAP-AERO series offer management based on HTTP. The tap is designed for aircraft environments with a wide operating temperature range.

The CM-4004F0-AERO series is configured with five connectors: power input (J5) and 4 x 10/100/1000BASE-TX Ethernet ports (J1-J4). Ruggedized military approved connectors are used for both the Ethernet ports and the power connector.

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Key Features/Benefits

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The CM-4004F0-ITAP-AERO is a Gigabit Ethernet network tap with four ports: J1 and J2 and two monitor ports: J3 and J4 which also can be used as control ports. The Tap mirrors uplink and downlink data to one or two of the monitoring ports.

ETHERNET TAP

The CM-4004F0-ITAP-AERO supports relevant IEEE Ethernet standards.

INTEROPERABILITY

The switches in the CM-4004F0-ITAP-AERO offer management based on HTTP.

MANAGEMENT

The Cloudberry CM-4004F0-ITAP-AERO has Built-in-Test (BIT) support. The BIT provides a level of confidence in the correct operation of the CM-4004F0-ITAP-AERO at both power-up and during normal operation.

BUILT-IN TESTING

BYPASS RELAY

The CM-4004F0-ITAP-AERO inline tap is transparent for monitoring critical links and provides network data flow also in case of:

- No power on the CM4000 network tap
- Any malfunctions on the CM4000 network tap

FILTERING

The CM-4004F0-ITAP-AERO offers VLAN filtering capabilities, in order to selectively pass data to the monitoring ports for analysis, processing and recording purposes.

RUGGED

The CM-4004F0-ITAP-AERO is designed for the harsh environmental requirements of the Aerospace and Defense industry and offers a wide operating temperature range (-40 to +71C). Ruggedized military approved connectors are used for both the Ethernet ports and the power connector. The unit is designed to meet RTCA DO 160G, as well as MIL-STD 461D, -704E and -810G standards
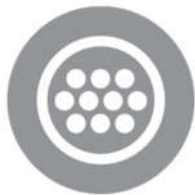
CONNECTORS

The CM-4004F0-ITAP-AERO is configured with 5 connections. Power input (J5) and 4 x 10/100/1000BASE-TX Ethernet ports (J1-J4) with N-keying.

Connectors

The CM-4004F0-AERO series is configured with five connectors: power input (J5) and 4 x 10/100/1000BASE-TX Ethernet ports (J1-J4). The following sections provide the mating connector and cable pin-outs for each of the connectors, which are located on the top of the unit.

Power input – J5

Pin	Description
1	Negative supply voltage
2	Power supply, +28VDC
3	Chassis ground
4-10	Reserved

Connector: Amphenol M83723/72R1203N, receptacle with pins

Mating connector: Amphenol M83723/75R1203N, straight plug with sockets

Ethernet – J1-4

1	BI_DA+ Differential pair A
2	BI_DA- Differential pair A
3	BI_DB+ Differential pair B
4	BI_DC+ Differential pair C
5	BI_DC- Differential pair C
6	BI_DB- Differential pair B
7	BI_DD+ Differential pair D
8	BI_DD- Differential pair D

Connector: TE Connectivity ceelok FAS-T P/N 2102351-X

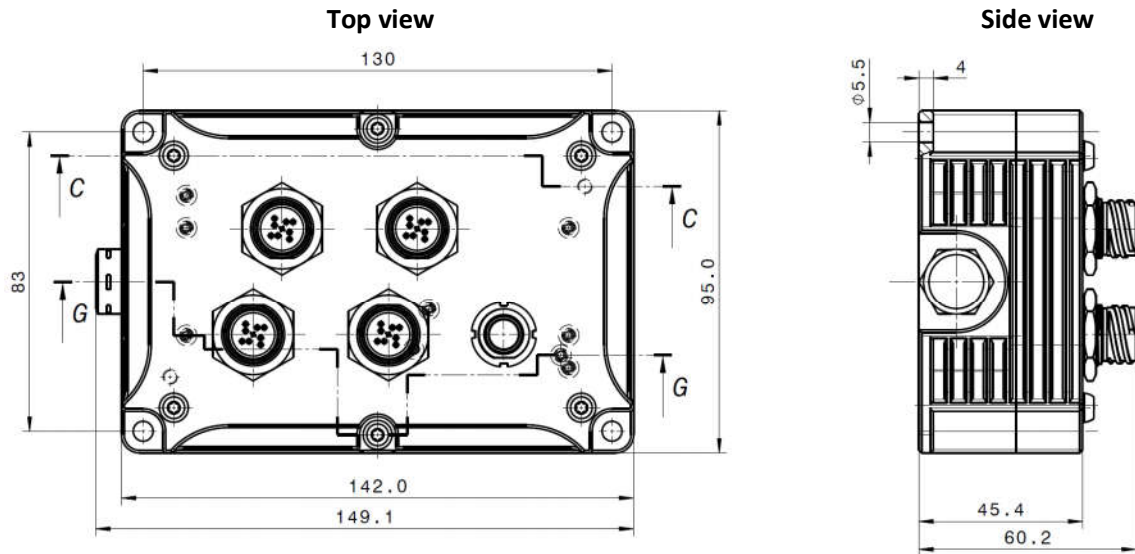Mating connector: TE Connectivity ceelok FAS-T P/N 2102353

Dimensions

Top view

130

C

C

83

95.0

G

G

142.0

149.1

Side view

Φ5.5

4

45.4

60.2

Dimensions in drawing are in millimeter

Conversion table

mm	Inch
130.0	5.118
83.0	3.268
142.0	5.591
149.1	5.870
95.0	3.740
5.5	0.217
4.0	0.157
45.4	1.787
60.2	2.370

Bottom view
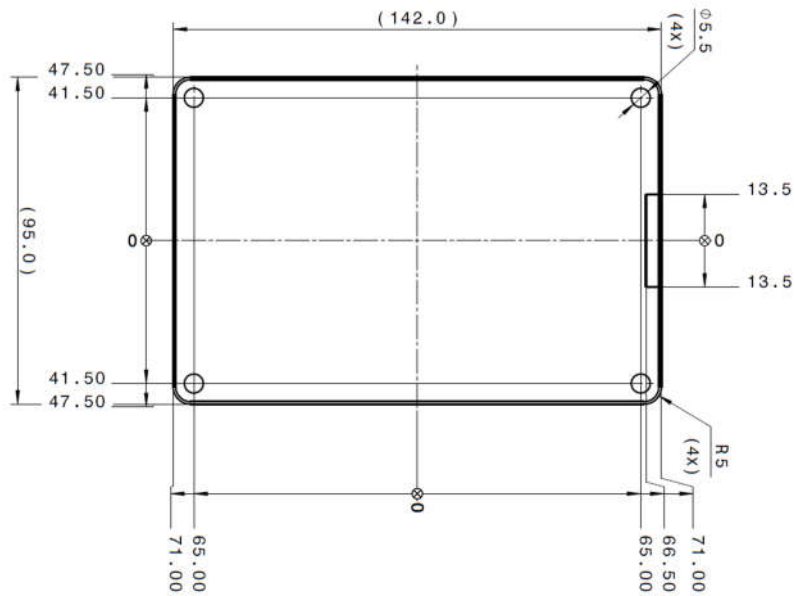
Dimensions are in millimeter

Conversion table

mm	Inch
47.50	1.870
41.50	1.634
13.50	0.531
142.00	5.591
5.50	0.217
65.00	2.560
71.00	2.795
13.5	0.531

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Specifications

Ethernet LAN ports	
10/100/1000 BASE-TX TE Connectivity ports with Auto MDI/MDIX	4, ceelok FAS-T P/N 2102351-X
Technology	
Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3z for 1000Base-X IEEE 802.3x for Flow control IEEE 802.1Q for VLAN Tagging
Management	HTTP
Power	
Input Power	28VDC DC inputs. 22-32VDC on 10-pin connector (Mighty Mouse: 801-011-07M7-10SA connector)
Power Consumption (Typ.)	<10 Watt
Overload Current Protection	Yes
Reverse Polarity Protection	Yes
Physical Characteristic	
Enclosure	Aluminum case
Dimension (W x D x H)	149.1 mm (W) x 95.0 (D) x 45.4(H)mm Height including connectors: 60.2mm
Weight (g)	922g / 2 lbs.
Environmental	
Storage Temperature	[-67°F to 221°F] / [-55°C to 105°C]
Operating Temperature	[-40°F to 159.8°F] / [-40°C to 71°C]
Altitude	85 000 feet / 25.9 km
Shock	Mil-Std 810 G
Crash safety	Mil-Std 810 G
Vibration	Mil-Std 810 G
Power input	MIL-Std 704 E, DC input range: 22,0-30,3VDC
Conducted RF susceptibility	MIL-St 461 F

Environmental (cont)

Environmental (cont)	
Radiated RF susceptibility	MIL-St 461 F
Conducted RF emission	MIL-St 461 F
Radiated RF emission	MIL-St 461 F
Lightning - ground Injected	Single stroke: 750 V/2000A, level 4 Multiple strokes: 300 V/800A (first stroke) and 150V/400A (multiple strokes), level 4
Lightning - pin Injected	600V/24V, level 3
Lightning - cable Induction	600 V / 120 A, level 3, single stroke 300 V / 60 A, level 3, multiple strokes
ESD	+/- 15KV

Ordering information

Product Family	
Reference	Description
CM-4004F0-ITAP-AERO	Managed Aircraft Ethernet network tap, 4 x 10/100/1000BASE-TX (Ceelok FAS-T), op. temp range: [-40 .. 71]°C. 28V DC power supply

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