CLOUDBERRY AERO

CM-2900 SERIES

Cloudberry 36 Port Managed Airborne Gigabit PTP Ethernet Switch, CM-2900-RJ45 series

Features

- 36 x 10/100/1000BASE-TX ports
- Power input: 28VDC, 115VAC or dual power supplies: 28VDC and 115VAC
- PTP v1 or v2 Grand Master Clock, or
- PTP v1 or v2 Transparent Clock
- PTP version translation to/from PTP v1 and v2 per port
- Network redundancy: RSTP/STP protocol
- Network management: Web, telnet, CLI and SNMP v1/v2/v3
- Multicast filtering: IGMP snooping or static multicast filters
- IEEE802.1Q VLAN
- Event notification: through Syslog and SNMP trap
- Wide operating temperature range
- 19” mounting

Description

The CM-2900-RJ45 is a reliable and accurate PTP Grand Master or Transparent Clock fulfilling IEEE1588-2002 (v1) or IEEE1588-2008 (v2) for aircraft use. Both PTPv1 and PTPv2 Slave clocks can co-exist in the same network by using the PTP version translator feature of the CM-2900-RJ45 platform. Multicast filters can be set on the switch either based on IGMP snooping or by manual configuration of static filters.

The free running clock of the IEEE 1588 switch can be used as the time base, when the switch is configured as a GMC. The GMC is equipped with an AA lithium battery in order to power to the Real Time Clock when the switch is not powered. The battery is easily exchangeable by the user.

The switches in the CM-2900-RJ45 series offer full management based on HTTP/HTTPS, telnet/SSH, CLI or SNMP. Network Redundancy is achieved based on the RSTP/STP (IEEE 802.1s/w/D) protocol. The switch is designed for aircraft environments. The switch offers a wide operating temperature range up to: [5°F to 158°F] / [-15°C to 70°C].

Management port

The management port is a special port for switch management supporting 10/100/1000Mbit interface speeds. While the CM-2900-RJ45 normally can be managed on all of the standard Ethernet interfaces, the standard Ethernet interfaces may be prohibited from management depending on the configuration of the switch. In such cases, the management port may be used for management.

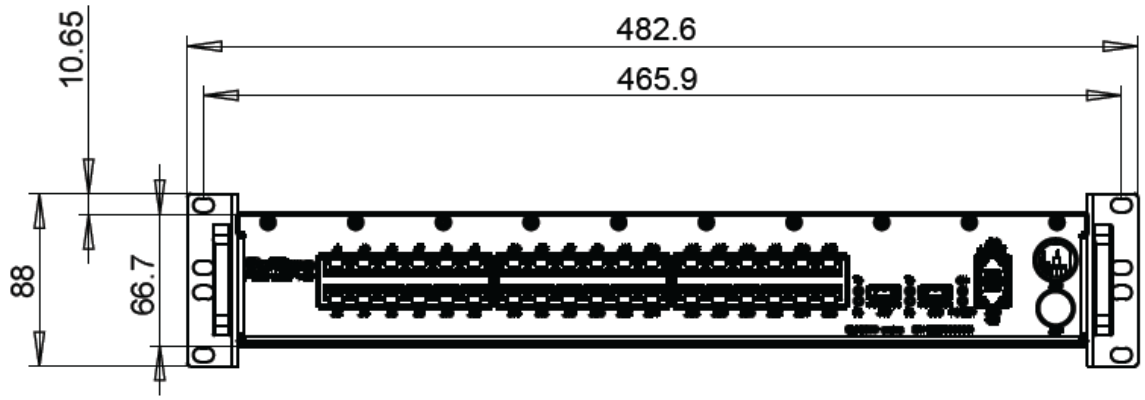
Console port

The console port provides a serial interface to the CM-2900-RJ45 for switch management.

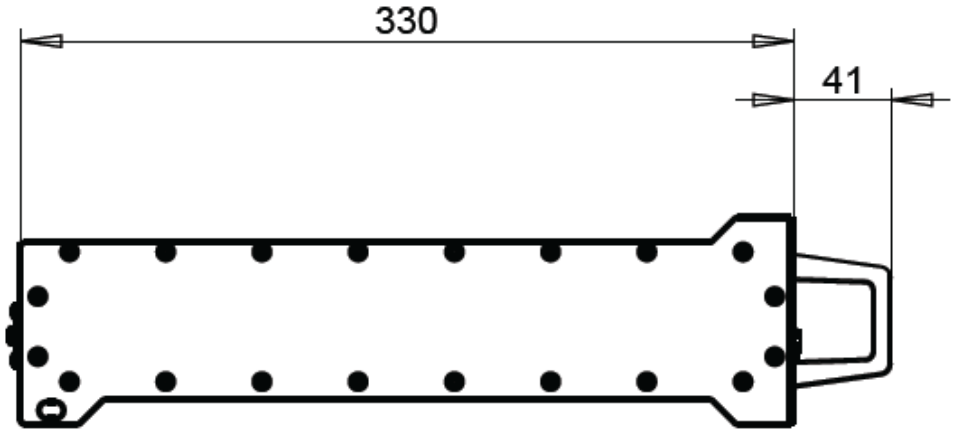
Dimensions

NOTE: All dimensions in [mm]. For further details see the ICD and QIG documents.

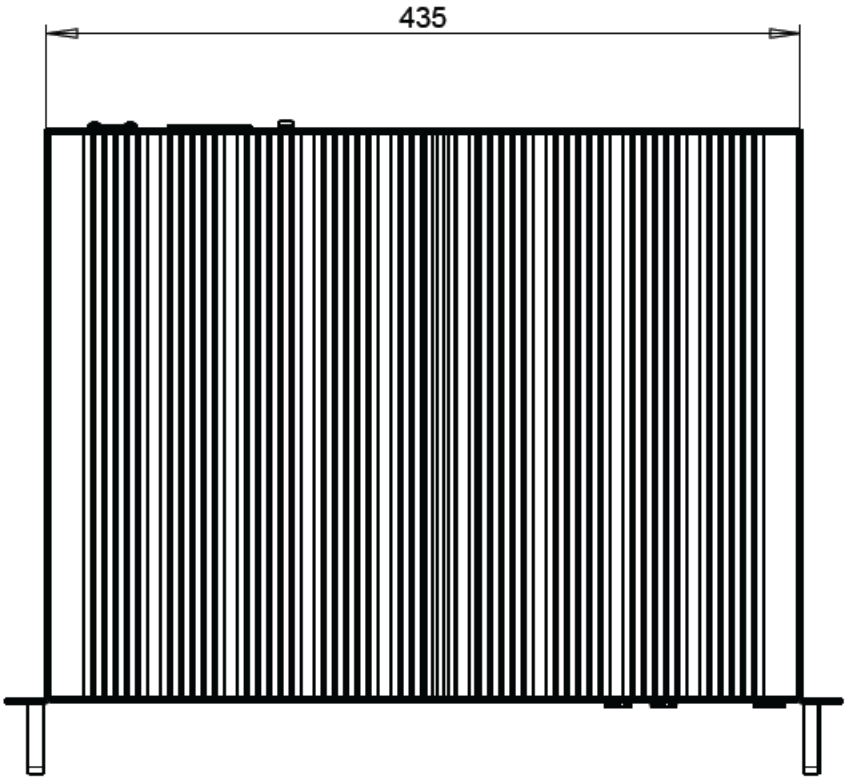
Front view



Side view



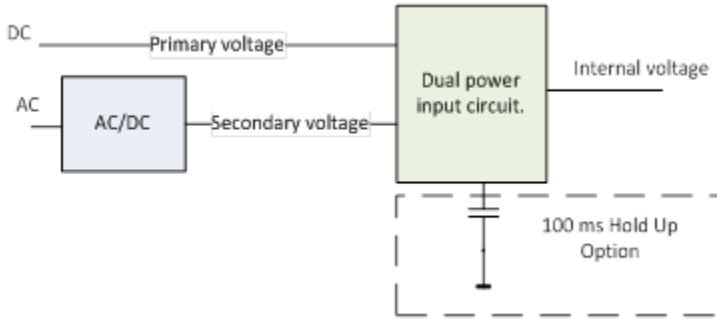
Top view



Power Supply

The CM-2936F0-RJ45 Series offers 3 types of Power Single 115VAC, 28VDC or Dual power 115VDC and 28VDC. As an option the DUAL power input circuit can be equipped with a capacitor to obtain a power hold up for 100ms.

Dual power solution



Connectors

The CM-2936F0-RJ45 Series is configured with up to 44 connectors. The following sections provide the mating connector and cable pin-outs for each of the connectors.

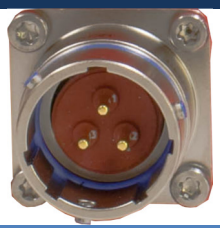
Power input 115VAC – J41

Pin	Description
A	AC Common
B	AC IN
C	Chassis ground

Connector part number: IEC320C14 (socket)

Power input VDC – J42

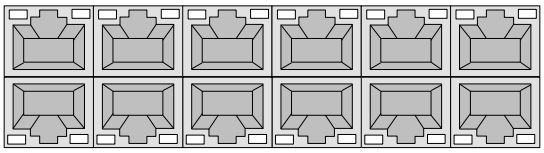
Pin	Description
1	Negative supply voltage
2	Power supply, +28VDC
3	Chassis ground



Connector: Amphenol M83723/72R1203N, receptacle with pins

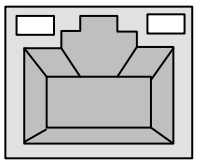
Mating connector: Amphenol M83723/75R1203N, straight plug with sockets

The Ethernet connectors are grouped in three 12 port connectors, each consisting of 2x6 RJ45 Ethernet connectors.



Ethernet – J1-36

Pin	Description
1	BI_DA_P
2	BI_DA_N
3	BI_DB_P
4	BI_DC_P
5	BI_DC_N
6	BI_DB_N
7	BI_DD_P
8	BI_DD_N

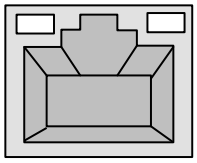


Connector: RJ45

Mating connector: RJ45

Management port – J39

Pin	Description
1	BI_DA_P
2	BI_DA_N
3	BI_DB_P
4	BI_DC_P
5	BI_DC_N
6	BI_DB_N
7	BI_DD_P
8	BI_DD_N

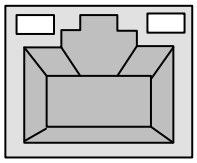


Connector: RJ45

Mating connector: RJ45

Console port – J40

Pin	Description
1	RESET/FACTORY_DFLT
2	CON_RS232_TXD0
3	CON_RS232_RXD0
4	NC
5	GND_ISO
6	NC
7	NC
8	NC



8 7 6 5 4 3 2 1

Connector: RJ45

Mating connector: RJ45

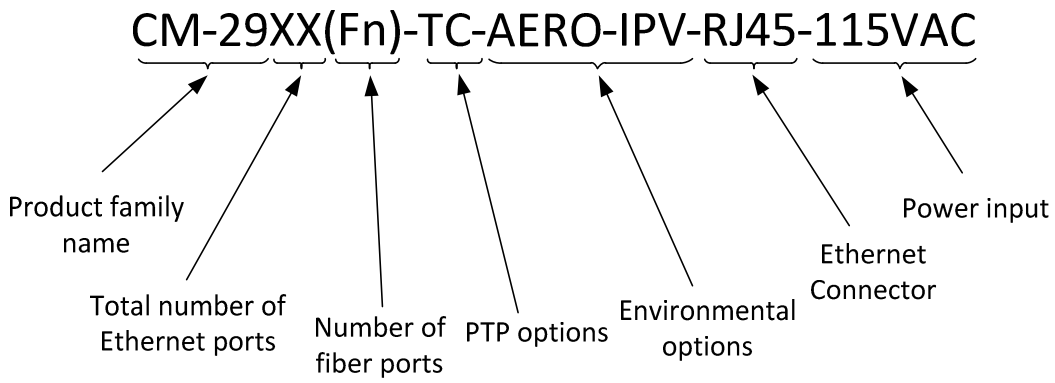
Specifications

Ethernet LAN ports	
10/100/1000BASE-TX with Auto MDI/MDIX	36 ports
Console ports (service ports)	
Console port	1 port. CPU console port: Baud rate setting: 115200, 8, N, 1 Reset pin
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 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1X for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 1588-2002, GMC - free running clock, TC/SC IEEE 1588-2008, GMC - free running clock, TC/SC
MAC table	32768 MAC addresses
Priority queues	8
Switch properties	Store-and-forward and full wire speed on all ports
Security Features	Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security
Network redundancy	STP RSTP MSTP
Management	HTTP/HTTPS, telnet/SSH, CLI and SNMP v1/v2/v3
Other protocols	IGMP snooping (up to 1024 multicast filters) Static multicast filter setting Port rate limiting TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and MVR

		Port configuration, status, statistics, monitoring, security
Power		
Power Consumption (Typ.)		45 Watts (link on all ports)
Overload Current Protection		Yes
Reverse Polarity Protection		Yes
Power input	**115VAC**	AC input range : 100 – 130VAC AC input frequency : 47-440 Hz
	28VDC	DC input range : 22,0-30,3VDC
	DUAL	AC input range : 100 – 130VAC AC input frequency : 47-440 Hz DC input range : 22,0-30,3VDC
Battery		
Battery type		Lithium/thionyl chloride (LTC)
size		AA
Nominal capacity:		2.4Ah
Physical Characteristic		
Enclosure		Aluminum case
Dimension (W x D x H)		482,6mm (W) x 330 (D) x 84(H)mm
Weight (g)		6.400 g

Environmental		
Storage Temperature		[-40°F to 185°F] / [-40°C to 85°C]
Operating Temperature	**115VAC**	[5°F to 158°F] / [-15°C to 70°C]
	28VDC	[5°F to 158°F] / [-15°C to 70°C]
	DUAL	[5°F to 131°F] / [-15°C to 55°C]
Altitude		50 000 feet / 15.2 km
Overpressure		24 656 psi / 170 kPa
Humidity		95% Relative Humidity at 131°F / 55°C
Shock		6 g, 11ms
Vibration		Random vibration, 2.67 Grms
Waterproofness		No
Momentary power interruptions		up to: 100ms
Conducted RF emission		D6-56612: D6-16050-5C – Flight test thresholds FCC Part 15B, class B
Radiated RF emission		D6-56612/RTCA DO-160G: D6-16050-5C – Flight test thresholds / RTCA DO-160G – Cat M FCC Part 15B, class B
ESD		+/- 4KV
Standards		MIL-STD-704A, B, C, D and E input transient protection Cat. A(CF) AC, equipment per RTCA DO-160G – chapter 16, except no power factor, Cat. Z.

Ordering information



Product Family	
reference	Description
CM-2936F0	Managed Aircraft Ethernet switch with PTP TC, 32 x 10/100/1000BASE-TX Ethernet Version: Inside Pressure Vessel (IPV)

PTP Option	
Reference	**Description**
GMC	PTP Grand Master Clock (GMC) with free running clock as time base and clock battery backup with support for IEEE1588 std 2002 (PTP V1) and support for IEEE1588 std 2008 (PTP V2)
TC	Transparent Clock with support for IEEE1588 std 2002 (PTP V1) and support for IEEE1588 std 2008 (PTP V2)

Power Input	
Reference	**Description**
115V	115VAC power supply with 100ms power hold up.
28V	28VDC power supply
DUAL	Dual power supplies: 28VDC and 115VAC

HU option	
Reference	**Description**
HU	0,1s Power Hold Up capability for 28V power supply