

CONEXUS® AIRCRAFT COMMUNICATION UNIT MODEL 200

DESCRIPTION

Appareo's telematic and connectivity solutions for aviation include highly-capable, well-connected mobile computers. The Conexus® Aircraft Communication Unit, model 200 (ACU-200) is a lightweight and affordable computing and communications device for a broad range of aircraft types.

The ACU-200 utilizes many wireless connectivity capabilities including: Cat 4 LTE cellular, 3G GSM cellular, 2G cellular and 433 MHz. These systems can receive data directly from ARINC 429 data busses and communicate bi-directionally with avionic, or off-board, systems using Ethernet. The ACU's onboard IMU and GPS can also generate information about the aircraft's movement including attitude (roll, pitch, yaw), rates of rotation, accelerations, heading, speed, and position (latitude, longitude, altitude), simplifying some data acquisition challenges on legacy aircraft.

FEATURES

- Dual-core ARM cortex A9 processors
- 512 MB DDR3L RAM
- 32 GB eMMC standard storage
- LTE CAT 4 cellular radio with 3G/2G fallback
- Short-range 433 MHz radio
- Bidirectional communication
- 100BASE-TX 10/100 Ethernet
- Digital I/O
- Discrete I/O
- 2x RS-422 TX/RX
- ARINC 429 RX
- Inertial measurement unit & GPS
- Trusted platform module
- Secure boot support
- Low power mode
- Ultra-Low power sleep mode

QUALIFICATIONS

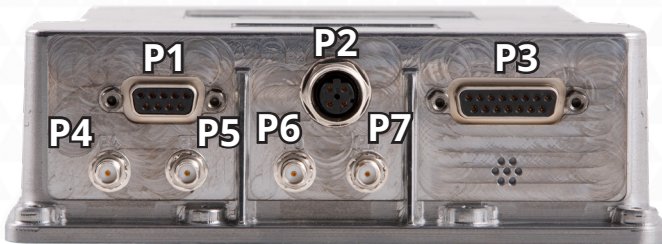
- DO-160G

REGULATORY & NETWORK CERTIFICATION

- Verizon Networks
- Vodafone International
- CE
- IC
- FCC
- RCM



INPUT / OUTPUT



Connector	Function
P1	RS-422
P2	100BASE-TX 10/100 Ethernet
P3	Multi-Purpose
P4	433-MHz
P5	GPS
P6	Cellular Diversity
P7	Cellular Main

Connector: Pin	Function
P1:1	RS-422 Transmit High
P1:2	RS-422 Transmit Low
P1:3	RS-422 Receive High
P1:4	RS-422 Receive Low
P1:5	RS-422 Isolated GND Return
P1:6	Chassis GND
P1:7	Current Sink Output
P1:8	Current Sink Output
P1:9	Current Sink Output
P3:1	28V Aircraft Power Input
P3:2	ARINC 429 Receive High
P3:3	Current Sink Output
P3:4	RS-422 Receive High
P3:5	Discrete input for determining if aircraft is on the ground
P3:6	RS-422 Transmit High
P3:7	Switched Power Input
P3:8	Chassis Ground
P3:9	28V Aircraft Power Return
P3:10	ARINC 429 Receive Low
P3:11	RS-422 Isolate GND Return
P3:12	RS-422 Receive Low
P3:13	Ground return connection for Discrete Input
P3:14	RS422 Transmit Low
P3:15	Ground return connection for SW_PWR

ABSOLUTE MAXIMUM RATINGS

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating conditions for extended periods may affect device reliability and lifetime

Parameter	Value	Unit
Input Power	+/- 60	V
ARINC 429	+/- 120	V
RS-422	+/- 15	V
Discrete Outputs	-0.5 to 32.2	V
Discrete Inputs	-0.5 to 32.2	V
Ethernet	-0.5 to 5	V
Cellular (main and diversity)	10	dBm
GPS	15	dBm
433	13	dBm
Operating Temperature	-40 to 70	°C

CELLULAR

Technology	Supported Bands		Carriers
LTE	LTE FDD • Band 1-5 • Band 7-8 • Band 12-12 • Band 18-20 • Band 25-26 • Band 28	LTE TDD • Band 38 • Band 39 • Band 40 • Band 41	Verizon Vodafone
GSM	3G - UMTS/HSPA • Band 1,2 • Band 4-6 • Band 8 • Band 19		Vodafone
GSM	2G - GSM/(E)GPRS • Band 2 • Band 3 • Band 5 • Band 8		Vodafone

ELECTRICAL SPECIFICATIONS

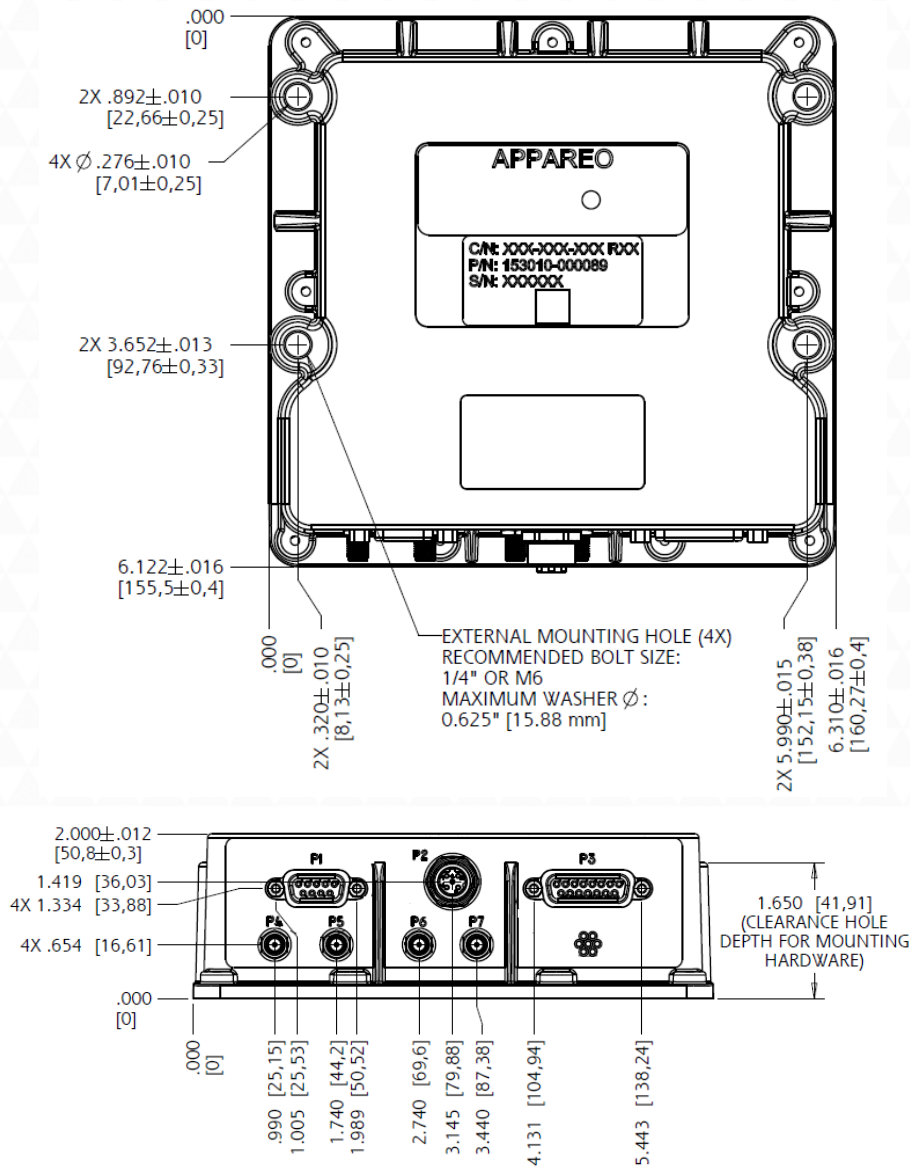
Symbol	Parameter	Min	Typ	Max	Unit
Power Supply					
I _{operating}	Idle current with digital outputs off		300		mA
I _{LPM}	Low power mode current*		1	15	mA
V _{IN}	Input voltage	18	28	32.2	V
ARINC 429					
f _{A429}	A429 BAUD Rate	12.5		100	Kbps
RS-422 (conforms to EIA/TIA 422-B)					
f _{RS422}	RS422 BAUD Rate		230.4		Kbps
Ethernet (Conforms to IEEE 802.3 100BASE-TX)					
f _{Eth}	Ethernet BAUD Rate			100	Mbps
Z _{Eth}	Input impedance		100		Ω
Wireless Connections					
Z ₀	Characteristic impedance		50		Ω
Digital I/O					
V _{KS, RISING}	Key switch, low to high transition	6		32.2	V
V _{KS, FALLING}	Key switch, high to low transition	0		4	V
V _{DO1, RISING}	Discrete Output 1, low to high transition	4		32	V
V _{DO1, FALLING}	Discrete Output 1, high to low transition	-1		2	V
V _{DI1, RISING}	Discrete Input, low to high transition	4		32	V
V _{DI1, FALLING}	Discrete Input, high to low transition	-1		2	V
Battery Sensor					
V _{Batt, precision}	Battery sensor resolution			0.01	V
V _{Batt, range}	Battery sensor operating range	18		32	V

* Current depends on enabled wake up features

ENVIRONMENTAL SPECIFICATIONS (RTCA DO-160G)

SEC	SECTION TITLE
4	Temperature and Altitude
5	Temperature Variation
6	Humidity
7	Operational Shocks and Crash Safety
8	Vibration
9	Explosion Proofness / Explosive Atmosphere
10	Waterproofness
12	Sand and Dust
14	Salt Spray / Salt Fog
15	Magnetic Effect
16	Power Input
17	Voltage Spike
18	Audio Frequency Conducted Susceptibility
19	Induced Signal Susceptibility
20	Radio Frequency Susceptibility
21	Emission of Radio Frequency Energy
22	Lightning Induced Transient Susceptibility
25	Electrostatic Discharge

MECHANICAL



Weight: 847 grams

Recommended Mating Connectors:

DE-09 Male D-SUB
M12 Male (D-Coded), Ethernet
DA-15 Male D-SUB
SMA Male, 433MHz
SMA Male, GPS
SMA Male, Cellular Diversity
SMA Male, Cellular Main

Mounting:

Do not mount with connectors facing up

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Model ACU-200 is Patent Pending

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