

# iMADC-01

## Micro Air Data Computer for UAV and OPV

iMADC-01 provides static and dynamic pressure and air data information, which are generated from an integrated micro air data computer. A CAN aerospace interface provides all result data via CANbus. The power supply is fully EMI/EMC protected for aviation applications.

- CANaerospace interface (ARINC825)
- Static pressure and total pressure output
- 4 analog inputs for  $\alpha$  and  $\beta$  meas. (option)
- Indicated and True Airspeed, pressure altitude
- High accuracy, large measurement range
- Wide range supply voltage 9...36 V DC, full EMI/EMC protection for aviation applications
- direct supported by iVRU-xxx IMUs

The iMADC-01 provides an interface for plug&play operation with iMAR's vertical reference units of



type iVRU-xx. The iMADC-01 is designed for UAV applications and OPV with the potential to be EASA certified.

### Technical Data of iMADC-01:

	Performance
Operating Altitude:	up to 10'000 m (optional >10'000 m with reduced accuracy)
Pressure Altitude:	-600 ... +10'000 m (accuracy: +/- 10 m @ 20'000 ft; resolution: < 0.02 m)
Pressure Altitude Rate:	+/- 50 m/s (accuracy: +/- 0.5 m/s; resolution: < 0.01 m/s)
Indicated/True Air Speed:	0 ... 100 m/s [TBD] (accuracy: +/- 1 m/s @ v > 15 m/s; res. 0.01 m/s)
Static Pressure:	0 ... 1'100 hPa (accuracy: +/- 0.06 % full scale; resolution: < 0.02 Pa)
Dynamic Pressure:	0 ... 80 hPa (accuracy: +/- 0.08 % full scale; resolution: < 0.005 Pa)
Outside Air Temperature:	-55 ... +85 °C (resolution: +/- 0.5 K)
Humidity:	< 95 % non-condensing
Data Update Rate:	configurable, 20 Hz default
Digital Interface:	CANaerospace rev. 2.0 (according to ISO 11898, electrically insulated, configurable 125 kBd ... 1 Mbit/s, transceiver with dominant timeout protection.)
OAT Interface:	Sensor type: Resistor; IEC-751, 2 mA max; 381 $\Omega$ @ -60 °C / 711 $\Omega$ @ 110 °C
Analog Interface (opt.):	up to 4 analog input channels for angle of attack ( $\alpha$ ) / sideslip ( $\beta$ ) [incl. 5 V supply]
Data Output:	Indicated and True Airspeed, Vertical Airspeed, Pressure Altitude, Static and Total Pressure, Outside Air Temperature (OAT) [OAT sensor to be provided by user]
Connector:	MIL-C-38999-III, type D38999/20FB35PA, 13 pin
Temperature:	-40...+71 °C (case temperature) operational
Power:	9...36 V DC; < 2.5 W
Size / Weight:	90x109x66 mm (metal case, IP68, plus connector), approx. 450 grams
Environmental Prot.:	MIL-STD-810F (sand/dust/water/humidity/temp./shock/vibr.); MIL-STD-461E
Shock, Vibration; MTBF:	50 g, 11 ms ; 5...2'000 Hz 5 g(rms); aviation proofed; > 10'000 hrs

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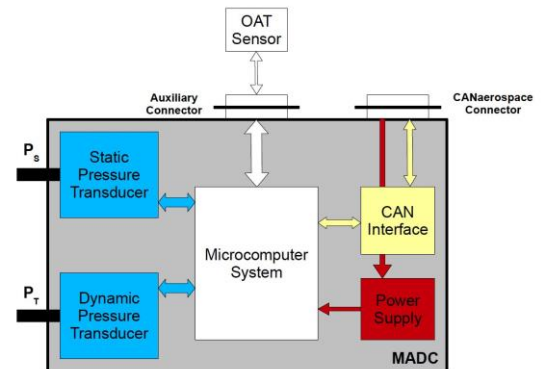
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Connector Pinout and Drawing of iMADC-01:

**System Connector:** MIL-C-38999 III, Type 20FB35PA (13 pin)

Pin 1:	Power Supply IN	(9...36 V DC)
Pin 2:	Power GND IN	
Pin 3:	Power Supply OUT	(internally connected to PSupply IN)
Pin 4:	Power GND OUT	(internally connected to PGND IN)
Pin 5:	CAN-Low IN	
Pin 6:	CAN-High IN	
Pin 7:	CAN-Low OUT	
Pin 8:	CAN-High OUT	
Pin 9:	CAN Termination A	
Pin 10:	CAN Termination B	
Pin 11:	CAN GND IN	
Pin 12:	CAN GND OUT	
Pin 13:	PE / Case (Protective Earth)	



**iMADC-01 Auxiliary Connector for Outside Air**

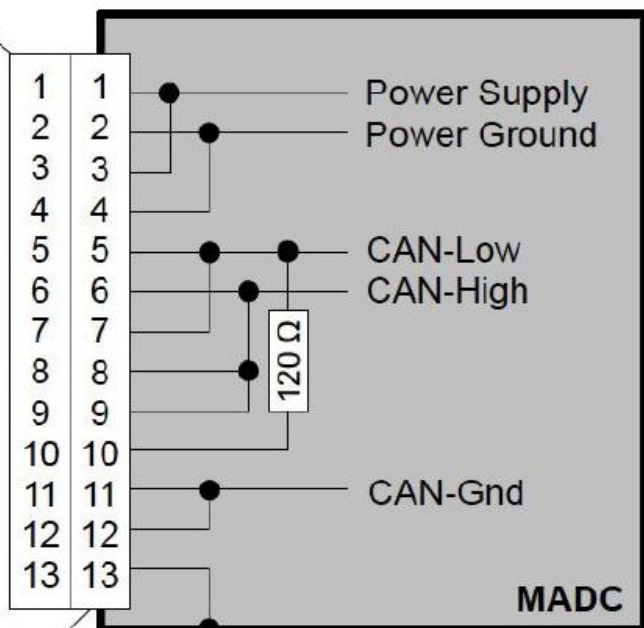
**Temperature and optional  $\alpha$  /  $\beta$  Sensor:**

MIL-C-38999 III, Type D38999/20FA35PN (6 pin)

(for $\alpha$ and $\beta$ sensors)	Pin 1:	N.C. or +5V Poti supply	
	Pin 2:	OAT Sig	(OAT Sensor input)
	Pin 3:	GND for OAT and potis	
	Pin 4:	N.C. or $\alpha$ (angle of attack) poti output voltage	
	Pin 5:	N.C. or $\beta$ (angle of sideslip) poti output voltage	
	Pin 6:	Chassis-GND	

**D38999/26FB35SA Plug**

- Power Supply In
- Power Ground In
- ← Power Supply Out
- ← Power Ground Out
- CAN-Low In
- CAN-High In
- ← CAN-Low Out
- ← CAN-High Out
- CAN Termination A
- CAN Termination B
- CAN-Gnd In
- ← CAN-Gnd Out
- PE



**D38999/20FB35PA Receptacle**

**Airdata Interface:** Input fittings 1/8 inch for P<sub>S</sub> and P<sub>T</sub>



Technical Drawing of iMADC-01:

