

YAT-ARS101

Attitude Reference System

The YAT-ARS101 is a compact and high reliable Attitude Reference System Unit which uses high accurate inertial sensors measuring to generate accurate navigation data such as attitude, angular rates and accelerations. YAT-ARS101 has three 2-axial accelerometers, three 1-axial rate sensors and three temperature sensors. Using the high speed processor which supports the 12-bit analog to digital converting and 1.6KHz high-speed sampling rates, it can calculate attitude, angular rates and accelerations very fast. YAT-ARS101 supports two digital output standards which are RS-232 and RS-485. Using these standards of ARS communication, you can get ARS output data any equipments you want.

Features

- ARS Pitch, Roll Output at 100Hz
- High Stability MEMS Sensors

Applications

- Robotics Systems
- Uncertified Avionics Systems
- Autopilot Systems
- Platform Stabilization

Architecture

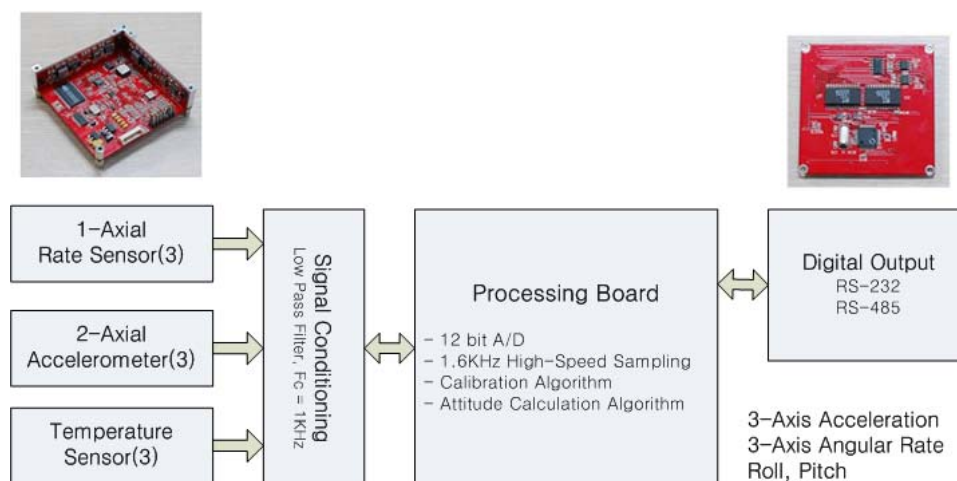
The YAT-ARS101 includes Processing Board based on TMS320F2812 DSP Chip and MEMS based inertial sensor system. Sample rate is 100Hz.



Specification

YAT - ARS101	
Performance	
Update Rate (Hz)	100Hz , Programmable
Start-Up Time (sec)	1
Fully Stabilized Data (sec)	< 180
Attitude	
Range: Roll, Pitch(°)	$\pm 180, \pm 90$
Accuracy (°)	< 0.75
Resolution (°)	< 0.1
Angular rate	
Range: Roll, Pitch, Yaw (°/sec)	± 150
Bias: Roll, Pitch, Yaw (°/sec)	< ± 0.25
Resolution (°/sec)	< 0.09
Bandwidth (Hz)	500
Acceleration	
Range: X/ Y/ Z (g)	$\pm 10(X/Y/Z), \pm 2(Y/Z)$
Bias: X/ Y/ Z (g)	< ± 0.020
Resolution (g)	< $\pm 0.011(10g), < \pm 0.003(2g)$
Bandwidth (Hz)	500
Physical	
Size(mm)(Board)	70 x 70 x 30 (W x D x H)
Size(mm)(Case)	100 x 90 x 47.2 (W x D x H)
Weight(gram)(Board)	70
Weight(gram)(Include case)	250
Electrical	
Input voltage(V)	8V-9V
Consumption current(A)	<0.500
Digital I/O format	RS-232, RS-485

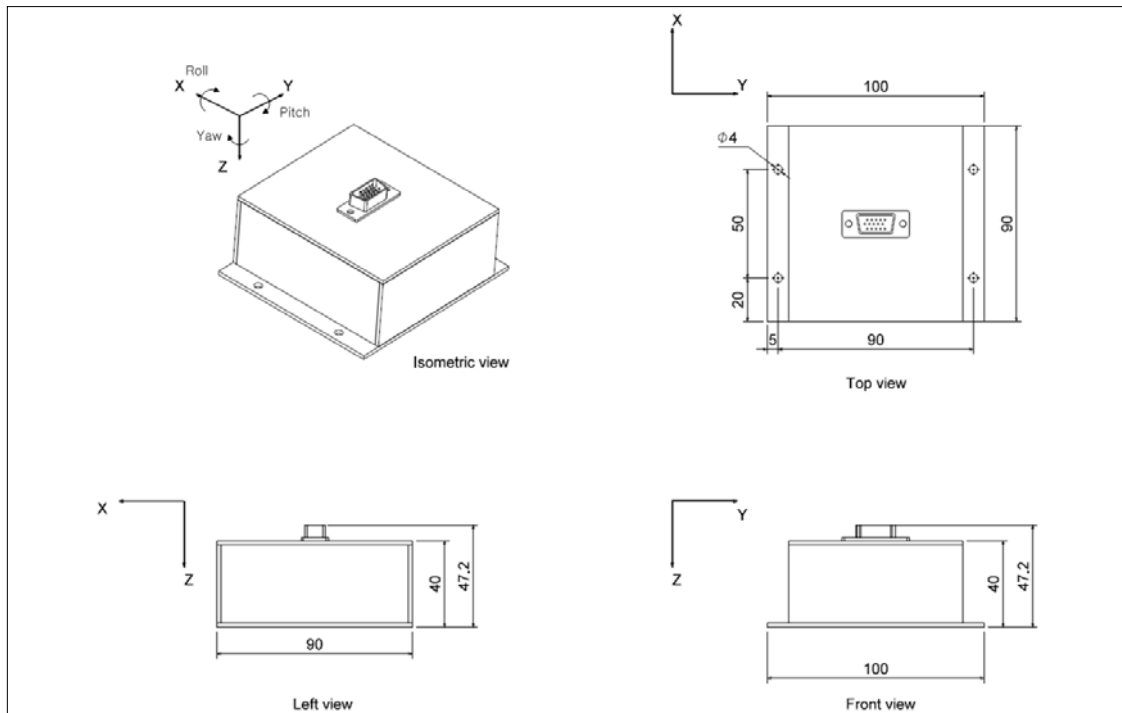
Block Diagram



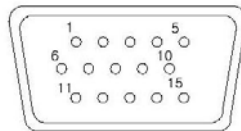
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ARS CASE



Pin Assign



Pin	Signal
1	VCC (8V)
2	GND
3	485A-A
4	485A-B
5	485A-GND
6	Reserved
7	Reserved
8	485B-A
9	485B-B
10	485B-GND
11	232-RX
12	232-TX
13	232-VCC (5V)
14	GND
15	Reserved