

GENERAL DESCRIPTION

DAQAHRs IS A HIGH PERFORMANCE ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS), INERTIAL MEASUREMENT UNIT (IMU) AND GLOBAL POSITIONING SYSTEM (GPS) PROVIDING POSITION AND INERTIAL NAVIGATION INFORMATION.

DAQAHRs PROVIDES CALIBRATED SENSOR DATA AND A DRIFT FREE ORIENTATION SOLUTION USING AN EXTENDED KALMAN FILTER.

DAQAHRs IS +28V DC POWERED WITH A WIDE INPUT VOLTAGE RANGE.

DAQAHRs DATA IS AVAILABLE ON A NUMBER OF DIGITAL SERIAL INTERFACES:

- 1 OFF ARINC 429 TX (HIGH OR LOW SPEED)
 - 2 OFF RS232 RX/TX OR 1 OFF RS422/485 RX/TX
 - 1 OFF ARINC 825/CAN SPEC 2.0B RX/TX
 - TERMINATION RESISTOR SELECTABLE IN CONNECTOR
- THE PARAMETERS OUTPUT ON EACH INTERFACE ARE CONFIGURABLE

GENERAL SPECIFICATION

POWER REQUIREMENTS: 10V TO 33V DC (2W MAX),

WEIGHT: 0.220kg MAX

TEMPERATURE:

- OPERATING TEMPERATURE -15°C TO +55°C
- STORAGE TEMPERATURE -20°C TO +60°C
- OPERATING TEMPERATURE -40°C TO +70°C (OPTION E SUFFIX)
- STORAGE TEMPERATURE -45°C TO +75°C (OPTION E SUFFIX)

PRODUCT SPECIFICATION

DAQAHRs-MKXX-PS

INTERFACE CONTROL DOCUMENT (ICD)

DAQAHRs-MKXX-ICD

SOFTWARE

SOFTWARE DEVELOPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF DO-178B LEVEL E

COOLING

FREE AIR CONVECTION

PRODUCT REVISION IDENTIFICATION

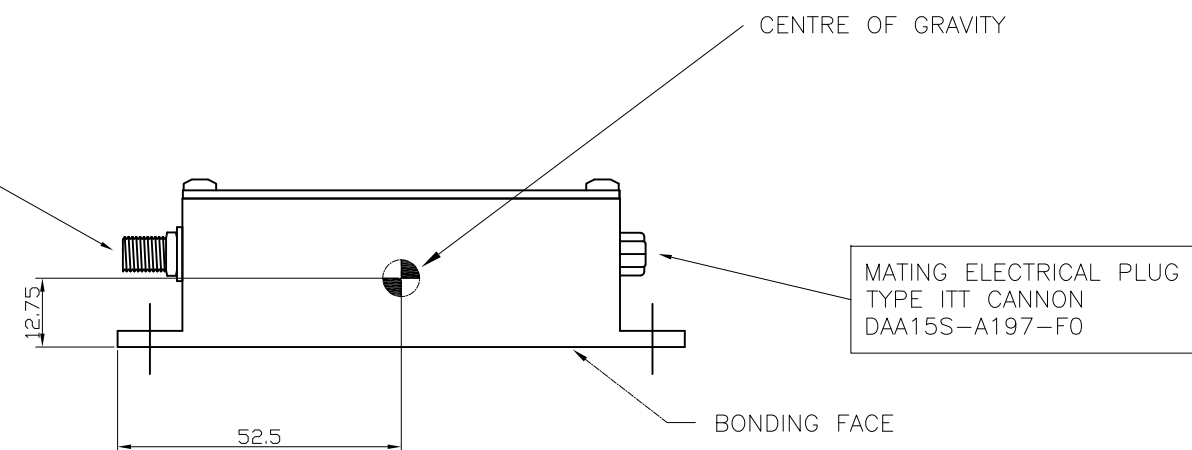
THE PRODUCT FOR WHICH THIS DOCUMENT RELATES SHALL BE IDENTIFIED WITH THE MAJOR REVISION NUMBER ONLY.

FOR EXAMPLE

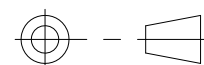
DOCUMENT REVISION 2.03 REFERS TO PRODUCT REVISION 2

MINOR REVISIONS ARE RESERVED FOR DOCUMENTATION UPDATES THAT DO NOT AFFECT FORM FIT OR FUNCTION OF THE PRODUCT.

MATING ELECTRICAL PLUG
TYPE SMA MALE PLUG
AMPHENOL SF2906-6002



THIRD ANGLE PROJECTION TO B.S. 8888.
FOR GENERAL TOLERANCES & FINISHES
SEE NGINITY STANDARD NCP001.



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|----------------------------|---|--|---|---|--|--|--|--|--|--|--|--|--|--------------------------------|--|--------------|--|------------|--|
| APPROVED CHECKED NSK | MATERIAL:- PRINCIPALLY ALUMINIUM ALLOY TO BS1470/1474 6082-T6 | FINISH:- ALOCROM 1200 TO DEF-STAN-03-18 PLUS PART NUMBER COLOUR OPTION | TOLERANCES .XX +/-0.75 .XXX +/-0.25 | ISSUE 1 DATE 25.04.14 CHANGE NEW | | | | | | | | | | | | | | | |
| DRAWN PDC | | | SCALE: 1:1 DIMS: MM | TITLE DAQAHRs - GPS / INERTIAL SENSOR | | | | | | | | | | DRAWING NUMBER DAQAHRs-MKXX | | SHEET 1 OF 2 | | SIZE A2 | |

ELECTRICAL CONNECTIONS

J1 - DAA15P (POWER & SIGNAL)

| PIN | FUNCTION | NOTES |
|-----|------------------------|---|
| 1 | +28VDC POWER INPUT | AIRCRAFT POWER +10 TO +33 VDC (+28V NOMINAL) |
| 2 | 0V POWER INPUT | AIRCRAFT GROUND |
| 3 | RESERVED | DO NOT CONNECT |
| 4 | ARINC-429 TX A | SEE NOTE 3 |
| 5 | ARINC-429 TX B | SEE NOTE 3 |
| 6 | RS-232 TX 2 | RS-232/422/485 TX 2 (SEE NOTE 4) |
| 7 | RS-232 TX 1 | RS-232/422/485 TX 1 (SEE NOTE 4) |
| 8 | CAN HI | CAN BUS/ARINC 825 HI (SEE NOTE 4) |
| 9 | CAN TERMINATION ENABLE | SEE NOTE 5 |
| 10 | RESERVED | DO NOT CONNECT |
| 11 | RESERVED | DO NOT CONNECT |
| 12 | DIGITAL GROUND | GROUND FOR ARINC-429, CAN & RS-232 INTERFACES |
| 13 | RS-232 RX 2 | RS-232/422/485 RX 2 (SEE NOTE 4) |
| 14 | RS-232 RX 1 | RS-232/422/485 RX 1 (SEE NOTE 4) |
| 15 | CAN LO | CAN BUS/ARINC 825 LO (SEE NOTE 4) |

J2 - SMA FEMALE SOCKET (GPS ANTENNA)

| PIN | FUNCTION | NOTES |
|-----|-------------|------------------------|
| 1 | GPS ANTENNA | 50 OHM IMPEDANCE CABLE |

NOTES:

- +28V DC POWER IS SUPPLIED TO DAQAHS ON PIN 1 WITH POWER GROUND ON PIN 2 RECOMMENDED CIRCUIT BREAKER RATING 2A
- ALL INSTALLATION WIRES SHOULD BE SCREENED AND TERMINATED TO THE CONNECTOR BACKSHELL EXCEPT FOR POWER INPUT (PINS 1 & 2)
- OUTPUT REFERENCE TO PIN 12
- INPUT & OUTPUT REFERENCE TO PIN 12
- LINK PIN 9 TO PIN 8 (CAN HI) FOR 120R CAN LINE TERMINATION
- INTERNAL OVER CURRENT PROTECTION 0.5A (SELF RESETTING)
- INTERNAL OVER TEMPERATURE PROTECTION (+105°C)
- INTERNAL REVERSE POLARITY PROTECTION (SERIES DIODE)

DAQAHS PERFORMANCE DATA

ATTITUDE & HEADING
 RANGE: HEADING, ROLL: ±180°
 RANGE: PITCH: ±90°
 ACCURACY (HEADING): 2.0°
 ACCURACY (PITCH/ROLL): 0.5°
 ANGULAR RESOLUTION: < 0.05°
 MAXIMUM OUTPUT RATE: 200Hz

GYRO
 3 AXIS ANGULAR RATE
 RANGE: ±500°/s (±2000°/s OPTIONAL)
 IN-RUN BIAS STABILITY: 10°/HR
 LINEARITY: < 0.1% FS
 NOISE DENSITY: 0.005°/s/root Hz

GPS RECEIVER
 RECEIVER: L1 C/A CODE
 CHANNELS: 66 ACQUISITION/22 TRACKING
 TRACKING SENSITIVITY: -165dBm TYP.
 UP TO 10Hz UPDATE RATE
 DIFFERENTIAL GPS ENABLED (1Hz UPDATE RATE): RTCM 104, SBAS (WAAS, EGNOS, MSAS)
 AIRSPEED INERTIAL AUGMENTATION: FROM GPS OR EXTERNAL AIRSPEED DATA SOURCE

GPS ANTENNA POWER:
 ACTIVE SUPPLY WITH 3.3V OR +5V POWER UP TO 60mA

ACCELEROMETER
 3 AXIS ACCELERATION
 RANGE: ±8g (±16g OPTIONAL)
 RESOLUTION: 0.5mg
 LINEARITY: < 0.5% FS
 NOISE DENSITY: 0.4 mg/root Hz

COMPASS
 3 AXIS MAGNETOMETER
 RANGE: ±250µT
 LINEARITY: < 0.1%
 NOISE DENSITY: 14nT/root Hz

STATIC PRESSURE
 RANGE: 10 TO 1200mbar
 ACCURACY: ±2.5mbar

CONFIGURATION OPTIONS

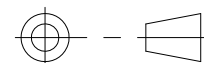
| INTERFACE | CONFIGURATION OPTIONS (SEE CCS OPTIONS) |
|--------------------|---|
| ARINC-429 | 12.5 kHz OR 100kHz |
| SERIAL INTERFACE 1 | 1200 TO 115,200 BAUD |
| SERIAL INTERFACE 2 | 1200 TO 115,200 BAUD |
| ARINC 825/CAN | 125kbps, 250kbps, 500kbps, 1Mbps |

FULL CONFIGURATION INFORMATION IS DETAILED IN THE DAQAHS MK SPECIFIC CONFIGURATION SPECIFICATION

PART NUMBER OPTIONS

DAQAHS-MKXX BASE PART NUMBER
 DAQAHS-MKXX-X-X PART NUMBER OPTIONS AS DETAILED BELOW
 -B BLACK PAINT FINISH
 -F FLIGHT TEST ORANGE PAINT FINISH
 -N NATURAL, ALOCROM 1200 (OR BLANK)
 -E EXTENDED TEMPERATURE RANGE
 (COLOUR OPTION CAN BE OMITTED)

THIRD ANGLE PROJECTION TO B.S. 8888.
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