



Article Number - 00025-2011

Date - 7th June 2011

Article applies to - **AIT250, AIT1000 and CLB1000**

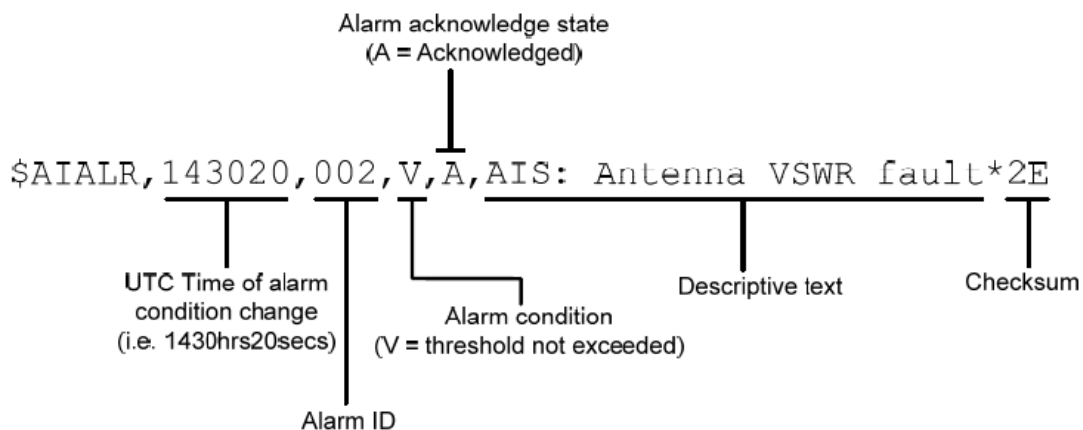
ISSUE: **How to Diagnose Class B Transponder Alarm Codes**

The Digital Yacht and Digital Deep Sea Class B Transponder models listed above all incorporate a sophisticated, automatic self test routine that is constantly monitoring for possible problems with the Transponder operation. If a problem is detected, the Yellow or Red LEDs will illuminate and an Alarm message will be output on the NMEA 0183 and USB interfaces.

The supplied Windows based proAIS software has a very good diagnostics page for displaying alarms and problems with the transponder, but in some situations it is not possible to run this software, for instance if the transponder is connected to a Mac or a dedicated chart plotter. In these situations, it is necessary to look at the raw NMEA 0183 data and read the AIS Alarm sentence to understand what is going wrong.

Procedure

All the transponders output the following NMEA alarm sentences every minute which are described below...



Alarm ID **Descriptive text & meaning**

- | | |
|------------|--|
| 001 | TX Malfunction
A transmitter malfunction has been detected. Possible causes are: <ul style="list-style-type: none">• TX synthesiser not locked |
| 002 | Antenna VSWR fault
The measured antenna VSWR is outside of the specified range. Possible causes are: <ul style="list-style-type: none">• Antenna is short circuit• No antenna connected• Poor antenna connections• Connected antenna does not meet VSWR specification |

Alarm ID Descriptive text & meaning

003	Rx channel 1 malfunction A malfunction has been detected on receiver 1. Possible causes are: <ul style="list-style-type: none">• RX synthesiser not locked
004	Rx channel 2 malfunction A malfunction has been detected on receiver 1. Possible causes are: <ul style="list-style-type: none">• RX synthesiser not locked
026	No sensor position in use No GPS fix has been acquired or GPS fix has been lost. Possible causes are: <ul style="list-style-type: none">• GPS antenna obstructed• GPS antenna disconnected• GPS antenna does not meet specification• GPS antenna short circuit• GPS module failure
029	No valid SOG information No Speed Over Ground information is available. Possible causes are: <ul style="list-style-type: none">• GPS fix not acquired yet (this alarm may be output whilst GPS position fix is being acquired)• See GPS faults under alarm ID 026
030	No valid COG information No Course Over Ground information is available. Possible causes are: <ul style="list-style-type: none">• GPS fix not acquired yet (this alarm may be output whilst GPS position fix is being acquired)• See GPS faults under alarm ID 026
067	Noise threshold exceeded Chan A. Possible causes are: <ul style="list-style-type: none">• Excessive background noise levels on AIS channel A• Exceptionally high levels of VDL radio traffic in the area
068	Noise threshold exceeded Chan B. Possible causes are: <ul style="list-style-type: none">• Excessive background noise levels on AIS channel B• Exceptionally high levels of VDL radio traffic in the area
057	12V alarm The 12V power supply to the unit is outside of the allowable range. Possible causes are: <ul style="list-style-type: none">• Supply voltage too high• Supply voltage too low• Transient over or under voltage condition
058	6V alarm The internal 6V power supply is outside of the allowable range. Possible causes are: <ul style="list-style-type: none">• 12V power supply is outside of allowable range:• Internal failure

Alarm ID Descriptive text & meaning

076 3V3 alarm

The internal 3V power supply is outside of the allowable range. Possible causes are:

- 12V power supply is outside of allowable range:
- Internal failure

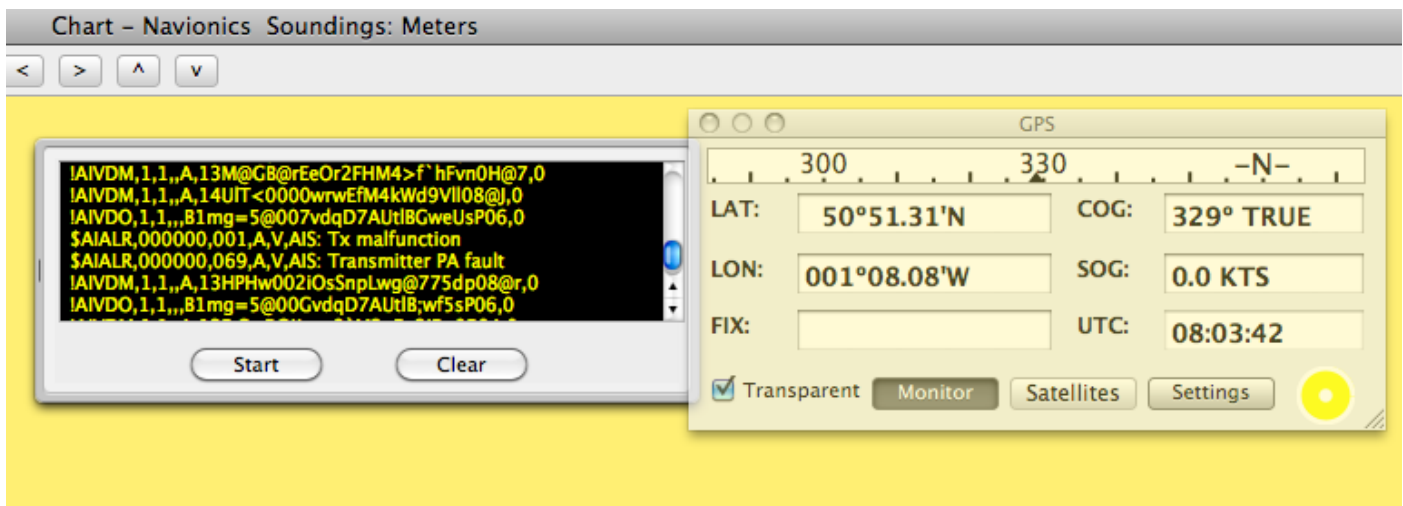
069 Transmitter PA fault

The transmitter forward power is below a minimum preset level. Possible causes are:

- Antenna short circuit or misconnection
- Internal failure

Most navigation systems have a method for displaying the raw NMEA 0183 data that they are receiving. On dedicated chart plotters this is usually in the System Setup Menus or in a special System Test Mode. Please consult the User Manual of your unit to see how to view the NMEA 0183 data.

If you are using MacENC, then it has an NMEA Port Monitor as shown below and in this screen capture you can see two AIS Alarm messages that are reporting a TX Malfunction and Transmitter PA fault.



Some Alarms are caused by installation or antenna problems while other Alarms can indicate a fault in the transponder that will require further testing and repair by Digital Yacht or one of their Service Agents. Be sure to list any Alarm codes when reporting a fault.