

DISCUSSION 0183 WIRING AND INSTALLATION

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Ref.Doc.NMEA 0183 Installation and Operating Guideline

BACKGROUND.

In 1990 there was a requirement to establish a Standard Data Buss for navigation and marine equipment to meet industry and IMO data messages.

The industry was plagued with proprietary sentences and other data that was not compatible between manufacturer equipment or systems.

1. Vers.1.0 0183 Protocol. 1990 to 1997.
 - A. Vers.1 was established using RS-232 Buss structure. A single talker and multiple listeners.
 - B. A library of data messages common to 0183 Protocol was established to meet industry and safety requirements.
 - C. Equipment.
 - a. Class A or Commercial grade provided RS-232 Buss and proprietary Buss structure.
 - a-1.Multible outputs talker and listener.
 - a-2.Wiring was by connector, terminal strips and wiring pigtails.
 - a-3.Circuit required a talker output and a listener input. Two separate connections.
 - a-4. Common problems are noisy buss, short cable runs and mismatch of connectors.ie BNC, DIN, mini micro etc connected to the wrong ports.
 - b. Light marine, recreation and non inspected vessels.
 - b-1. Pigtail wiring.
 - b-2. Limited message library.
 - b-3. Common problems using the pigtail are the RS-232 buss common or ground was connected to equipment ground or power negative. The system was noisy with ground loop which could cause data loss.

This provided a requirement to upgrade the system with Vers2.0 0183 Protocol in 1997.This has become the Standard with RS422 Buss, 0183 Protocol and installation and operating guidelines. (Doc.NMEA-183 Installation and Operating Guidelines.)

2. Vers.2.0 NMEA 0183 Protocol. 1997 to Date.

A. Establish RS – 422 Buss as a Standard. Two wire high /low differential with a shield Buss. System still requires separate talker and listener ports.

B. Continue to upgrade the message library to meet industry and IMO requirements.

C. Equipment.

a. Class A commercial and IMO equipment provide RS-232.RS-422 and proprietary Busses and messages.

a-1. Multiple ports input and output of all Busses.

a-2. Complete current message library to date.

a-3. Wiring using terminal boards, Wago terminals, mini Euro or similar connections.

a-4. Quiet buss with longer cable runs.

b. Recreation, Light marine and non inspected vessels.

b-1. Data Buss RS-232,RS-422 and proprietary selectable. You cannot mix data ports. I.e. you can only send data to compatible protocol ports. RS-232 to RS-232 etc.

b-2. Requires an ELECTRONIC DEVICE for conversion of data buss (cost 75.00 to 200.00 dollars) to interconnect RS-422 to RS-232 or RS-232 to RS-422. Equipment prior to 1997 would be RS-232.

b-3. Establish Guide lines for Interfacing, wiring and installation Guidelines.
DOC.NMEA 0183 Installation and Operating Guidelines.

Conclusion.

It appears Vers.2.0 0183 has addressed the problems of the 0183 Protocol Buss. IMO has accepted Vers.2.0 0183 and NMEA 2000 as a Standard as has industry.

The older RS-232 equipment will phase itself out due to cost for compatibility and problems of not being able to read the new data messages in there software and hardware. The connector problem for light marine again becomes a cost if not a physical problem due to the nature of the beast. Since a talker and listener port is required. RS-232 and RS-422 would require four connectors per equipment plus the pin out for a talker is different then the listener. The Doc. NMEA183 Installation and Operating Guideline explain in detail wiring size, color code and connections.

It is recommended this Doc and Installation and Operating Guide be disseminated in Marine Media,NMEA,CG,FCC and GMDSS Task Force Web sites to provide a simple and correct format to interfacing 0183 Protocol Buss .

Respectfully Submitted,
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