



TELE DATA S.r.l.

Via Vincinella 14 - 19035 - S.Stefano M. (SP)

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Interface board NMEA - SYNCHRO NSI12 - 02

P.N. P56-001-02.01

Configuration: MULTIFUNCTION

Conversion unit from digital data on serial line to 2 analog signals in synchro format on independent or correlated channels

Multiple operative modes: by means of dip-switches different NMEA sentences and Synchro gear ratio can be set in according with the table "SELECTABLE OPERATIVE MODES".

A bright display with operative and diagnostic functions is present: it shows scrolling writings advising conversion type and possible anomalies, as the absence or the invalidity of the NMEA sentence or the reference signals absence.

The device is microController managed with Analog/Digital/Serial line galvanic insulation, especially suited for on-board installation. Voltages presence luminous signalling.

INPUT: RS422 optoinsulated serial line – MNEA 0183 Protocol (IEC 61162-1)

Messages - baud rate 38400, 8bit/data, No parity, 1bit stop.

\$--HDT,x.x,T*hh<CR><LF> Heading, Degrees True - Converted data: Heading = Course

\$--XDR,A,xx.xx,D,R,A,xx.xx,D,P,*hh<CR><LF>

\$--XDR,A,-xx.xx,D,R,A,-xx.xx,D,P,*hh<CR><LF> negative values (anticlockwise)

A: Angular displacement, D: Degree, R: Roll, P: Pitch

Converted data: Roll, Pitch

Messages - baud rate 4800, 8bit/data, No parity, 1bit stop.

\$--VBW,y.y,x.x,Y,z.z,x.x,Z,x.x,A,x.x,A*hh<CR><LF>

\$--VBW,-y.y,x.x,Y,-z.z,x.x,Z,x.x,A,x.x,A*hh<CR><LF> negative values (astern)

y.y = Longitudinal water-referenced speed data, Knots, Y=A: data valid, Y=V: data invalid.

z.z = Longitudinal ground-referenced speed data, Knots, Z=A: data valid, Z=V: data invalid.

VBW - Water-referenced and ground-referenced speed data. Converted data: Speed.

OUTPUT: 2 synchro channels in Double speed coarse-fine or independent format.

S Signals: 90Vll rms – 400Hz. Protected against short circuit and overload.

R Signals: 115V/400Hz external references with insulation transformer.

0,5A Resettable fuse on R1 line of both outputs.

Accuracy: ± 8 min. for each channel vs. 360° range.

Power: 2VA each channel.

OUTPUT "STATUS REPORT":

On the out channel of the serial line which has the NMEA sentence as input, and therefore with the same electrical parameters, (RS422, baud rate, etc.) an ASCII message, in VT100 mode, is sent to indicate the unit condition: the selected operative mode, presence and acknowledgement of the input message, presence of the reference signal RL-RL for the synchro outputs, angular data (on 360° range) for either synchro channels.

This message has diagnostic usability, to employ with any terminal emulator program installed on every PC.



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SELECTABLE OPERATIVE MODES

| Nr. | Dip - switch | | | | NMEA message | Converted data | Synchro Gear ratio | | Display notice |
|-----|--------------|-----|-----|-----|--------------|----------------|--|---|--------------------|
| | 1 | 2 | 3 | 4 | | | Channel 1 | Channel 2 | |
| 1 | off | off | off | off | HDT | Course | 1x | 36x | ----heading_1_36_ |
| 2 | on | off | off | off | XDR | Roll | 2x | 36x | ----roll_2_36_ |
| 3 | off | on | off | off | XDR | Pitch | 2x | 36x | ----pitch_2_36_ |
| 4 | on | on | off | off | XDR | Roll | 1x | 36x | ----roll_1_36_ |
| 5 | off | off | on | off | XDR | Pitch | 1x | 36x | ----pitch_1_36_ |
| 6 | on | off | on | off | HDT | Course | 1x | 1x | ----heading_1_1 |
| 7 | off | on | on | off | VBW | Speed | Water-referenced 120 Knots/revolution | Ground-referenced 120 Knots/revolution | ----speed_120_120g |

- Board dimensions: 230x120mm, Components max height: 26mm, Connectors max height: 30mm
- Temperature: Operating 0°C ÷ +50°C - Storage - 10°C ÷ +60°C
- 5,08mm pitch terminal Connectors

TERMINAL PINOUT

JX2 CONNECTOR: Electrical supply ±12÷18V, 1Amax - 1,3A Resettable fuse
 1- +13Vdc
 2- -13Vdc
 3- 0V

JX4 CONNECTOR: RS422 serial line
 1- Output STATUS line True
 2- Output STATUS line Complement
 3- Serial line GND
 4- Input NMEA line Complement
 5- Input NMEA line True
 6- Serial line GND
 7- Connection to NMEA line Complement (to connect the line to an additional user)
 8- Connection to NMEA line True (to connect the line to an additional user)

Note: Near the connector a two pins header is present (JP4) which, when shunted, inserts on the RS422 input serial line a termination resistor. To be applied if the device is the unique or the last user in the transmission line.

JX1 CONNECTOR: Synchro 1 output / References input
 1- R1 / RH in
 2- R2 / RL in
 3- R1 out
 4- R2 out
 5- S1 out
 6- S2 out
 7- S3 out
 8- S4 out (NOT used)

JX3 CONNECTOR: Synchro 2 output
 1- R1 out
 2- R2 out
 3- S1 out
 4- S2 out
 5- S3 out
 6- S4 out (NOT used)