ANALOG to DIGITAL INTERFACE KW935

The KW935 typically connects to a ship's RPM indicator, thruster, rudder angle and telegraph. The voltages are turned into NMEA 0183 digital data.

The KW935 has four DC voltage input channels, all electrically isolated from ground and from each other. Inputs may vary from +/- 0.5v to 30 volts DC maximum and be either a single + or – polarity or both.

The input voltage is converted to an 8-bit byte by the analogue to digital converter. The translation of a variable voltage to a data output is made by the microprocessor, with look-up tables in the EPROM. (Example, +/- 5v = +/- 45 degrees rudder angle.) Generally, for a VDR, the "raw data" values of 0 to +/- 100 can be recorded and translated to actual values on replay. The KW935 has a data combining (pass-through) facility to allow several devices to be daisy-chained.

SPECIFICATION

INPUT: 4 channels +/- 0.5v to +/- 30 volts for full scale. (Extendable with additional resistor.)
Adjustable. 50 K ohm input impedance. Low pass filtered.
Isolated at more than 500 volts level. Sampled at 1.6 second interval.
Analogue to digital conversion of 8 bits. 256 values. 1 % accuracy typical.
4-20 mA signals can be measured by the voltage across the line, terminated in 100 to 500 ohms.
The KW935 is not intended to have low resistance and be inserted into a loop with other receivers.

INPUT: 1 NMEA 0183 port.
Acts as data pass-through input channel so that data can be combined.

OUTPUT: NMEA 0183 port. 5 volt level CMOS via 47 ohms.
Generally the data is scaled +/- 100 but two rudder angle options exist.
Sign: "-" sign if a negative value, port or astern.
It is possible to have different rudder angles by changing the look up table.
For VDR it is suggested that the raw value is recorded and translated on replay.

$ERRPM,S,0,Ch3 value, Sentence for a single shaft, +/- 100 scaling

$ERRSA,x.x,A,,*hh cr lf   Value is +/- 45 max.
Adjust the input potentiometer to suit the actual input voltage and scale.
Example you can make it read +/- 35 degrees.
Option "B" +/-40 degrees for a 0 to + voltage input with mid positive voltage = midships.

$PAMIT,Ch1, Ch2, cr lf. Proprietary thrust and telegraph data 0 to +/-100.

$PAMIV proprietary raw-data scaled +/-100 , switch position included in data
$PAMIV, s, ch1, ch2, ch3, ch4, cr lf. "s" = switch position. Ch1 to Ch4 = values
Switch positions 7, 8, 9, A, D, E, and F use this format sentence.

ALIGNMENT: The input potentiometer is adjusted for full scale reading with a full scale input voltage.

POWER: 18 to 30 volts DC at 2 watts. Isolated from ground.

ENCLOSURE: Diecast aluminium enclosure 222 x 155 x 55 mm. Black powder coating

FEATURES: LEDs to indicate function. Hexadecimal switch to select data output formats

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