

Technical Description

Analogue 4-times multiplex board
7265



Safety information

The Safety Instructions and Technical Data serve to ensure trouble-free operation and protection of operating personnel and equipment. Strict compliance with these instructions is therefore necessary.

Failure to comply with these Safety Instructions will VOID the Warranty and any claims made under its terms.

Further no liability will be assumed by **hopf**Elektronik GmbH, for ensuing consequential damages, resulting from non-compliance.

Safety of the Devices

This instrument has been manufactured in accordance with the latest technological standards and acknowledged safety regulations.

The instrument should only be operated and maintained by properly trained and qualified technical personnel.

Please ensure that all cable connections are laid and fixed in position correctly. The instrument should only be operated with the supply voltage indicated on the identification plate. Note that multiple input power options exist (factory installed).

If an instrument must be opened for repair, this should only be carried out by technicians or engineers with corresponding qualifications or by **hopf** Elektronik GmbH company, or its representatives.

If the maintenance work requires the opening of a device or if a fuse needs changing, the device must first be disconnected from all power supplies.

If there are reasons to believe that the operational safety can no longer be guaranteed the device must be taken out of service and labeled accordingly.

The safety may be impaired when the device does not operate properly or if it is obviously damaged. Contact your local **hopf**Elektronik GmbH representative for required action.

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1 General

This board can be used to multiply analogue signals of the system 7001 to 4 outputs. The input signals are switched through in-phase and in-amplitude to the output BNC connectors. The board also contains an IRIG-B generator.

2 Mode of Operation

The following signals can be entered into the board via the VG-strip.

1. frequency input A
2. frequency input B
3. square frequency
4. modulated IRIG signals

The IRIG-B signals in the B00x and B12x format and a PPS-pulse are produced on the board itself.

The input lines for the frequencies A and B and the external and internal IRIG-B signals are switched to a signal source each via analogue switches. The following signals are available for the 4 analogue output switches which are placed before the BNC outputs:

1. IRIG-B source
2. frequency source
3. square frequency source
4. pulse source

As the output switches switch the signals through in-phase and in-amplitude, the signals on TTL-level like IRIG-B 00x, square frequency and PPS-pulse are also putout on TTL level.

2.1 Selecting the Signal Source DS2

The DIP-Switch DS 2 can be used to select a different source for every output. Every analogue output switch is controlled by 2 switches in DIP-Switch DS2.

output 1

S2	S1	
on	on	IRIG-B internal/external
on	off	square- frequency input
off	on	frequency input
off	off	pulse output (see 2.4)

output 2

S4	S3	
on	on	IRIG-B internal/external
on	off	square- frequency input
off	on	frequency input
off	off	pulse output (see 2.4)

output 3

S6	S5	
on	on	IRIG-B internal/external
on	off	square- frequency input
off	on	frequency input
off	off	pulse output (see 2.4)

output 4

S8	S7	
on	on	IRIG-B internal/external
on	off	square- frequency input
off	on	frequency input
off	off	pulse output (see 2.4)

2.2 Frequency Input

The frequency can be supplied by two external sources. This allows to build up redundant systems by means of the system 7001. If a source sends an error message to the system 7001, the second source can take over immediately. DIP-Switch DS1 pre-selects which source is to be the master source.

Dip-switch DS1

S8		
off	frequency source A	(VG-ledge Pin C17)
on	frequency source B	(VG-ledge Pin C18)

2.3 IRIG-B Generator

The board contains an IRIG-B generator which produces TTL-compatible and amplitude modulated IRIG-B signals. Different time bases and IRIG-output strings can be selected. The output amplitude of the modulated signal is 2 V_{pp} at 50 Ω. The degree of modulation 3:1.

2.3.1 Content of Format

There are different groups of formats. Each format contains the minimum amount of the IRIG-B standards 200-98. i.e. the time information in the BCD-format for second, minute, hour and the current day of the year. The second of the day can also be included in the transmission in the binary format. The selection is done by means of DIP switch 1 switch 7.

S7

- off no binary seconds of the day inserted
- on binary seconds of the day inserted

2.3.2 Time Base

The local time and UTC are available as time bases, selected by DIP-Switch 1 switch 6.

S6

- off UTC time base
- on local time base

2.3.3 IRIG-B Selection of Format

Two different IRIG-B formats can be selected. The format following IEEE-1344-1995 and following Afnor NF S 87-500. The standard format IRIG STANDARD 200-98 is included as a subset in both formats selected by DIP-Switch 1 switch 5.

S5

- off Afnor NF S 87-500 standard 200-98 as subset
- on IEEE-1344-1995 standard 200-98 as subset

2.3.4 IRIG-B Selection of Source

As different sources are available for the output of the IRIG-B signal another analogue switch must be used to pre-select the signal which is to be putout i.e. DIP-switch 1 switches 4 and 3 .

S4 S3

- off off IRIG-B B12x format (1 kHz carrier, degree of modulation 3:1)
- off on IRIG-B B12x format (1 kHz carrier, degree of modulation 3:1)
- on off IRIG-B B00x format TTL-level
- on on IRIG-B Bxxx format external supply

2.4 Pulse Output

On the board a pps-pulse about 50 msec wide is produced. DIP-switch DS1 can be used to select the direction of the pulse. Another switch in the DIP-Switch DS1 allows to putout the internal IRIG-B signal B00x instead of the PPS-pulse. Therefore the IRIG-B format B12x as well as B00x can be putout to different BNC connectors.

S2	S1	
off	off	internal IRIG-B format B00x
on	off	internal IRIG-B format B00x
off	on	PPS-pulse positive logic
on	on	PPS-pulse negative logic

3 Technical Data

<p>Board dimensions:</p> <p>Power supply:</p> <p>Charging rate:</p> <p>Temperature range Storage: Operation:</p> <p>Humidity:</p> <p>Standards:</p> <p>Protection category:</p> <p>MTBF:</p> <p>Electrical features (on VG plug connector): Inputs / outputs:</p> <p>Analogue Outputs</p> <p>Load capacity:</p> <p>Digital Outputs (as TTL outputs)</p> <p>Load capacity:</p> <p>IRIG-B digital:</p> <p>PPS:</p> <p>Frequency input analogue</p> <p>Frequency:</p> <p>Amplitude:</p> <p>Frequency input digital (TTL-compatible)</p> <p>Frequency:</p> <p>Accuracy Board 7265</p> <p>IRIG-B (analogue/digital)</p> <p>PPS</p>	<p>Euro board 100mm x 160mm, 3U / 4HP</p> <p>+5V DC \pm 5% (via system bus) approx. 400 mA</p> <p>- 30 ... + 85 °C 0 ... + 70 °C</p> <p>95 %, no dew</p> <p>CE</p> <p>none</p> <p>> 440,000 hrs.</p> <p>TTL compatible</p> <p>3.1V_{pp} to 50Ω 3.6V_{pp} to 600Ω</p> <p>Output current I_{max} = 38mA 2.9V / -0.01V at 50Ω (high/low level) 2.9V / -0.01V at 600Ω (high/low level)</p> <p>High active High active / low active</p> <p>from 1kHz to 10MHz max. 2V_{pp}</p> <p>from 1kHz to 10MHz</p> <p>to PPS of the control board</p> <p>offset -30 μs \pm10 μs jitter \pm1 μs offset -40 ns \pm20 ns</p>
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