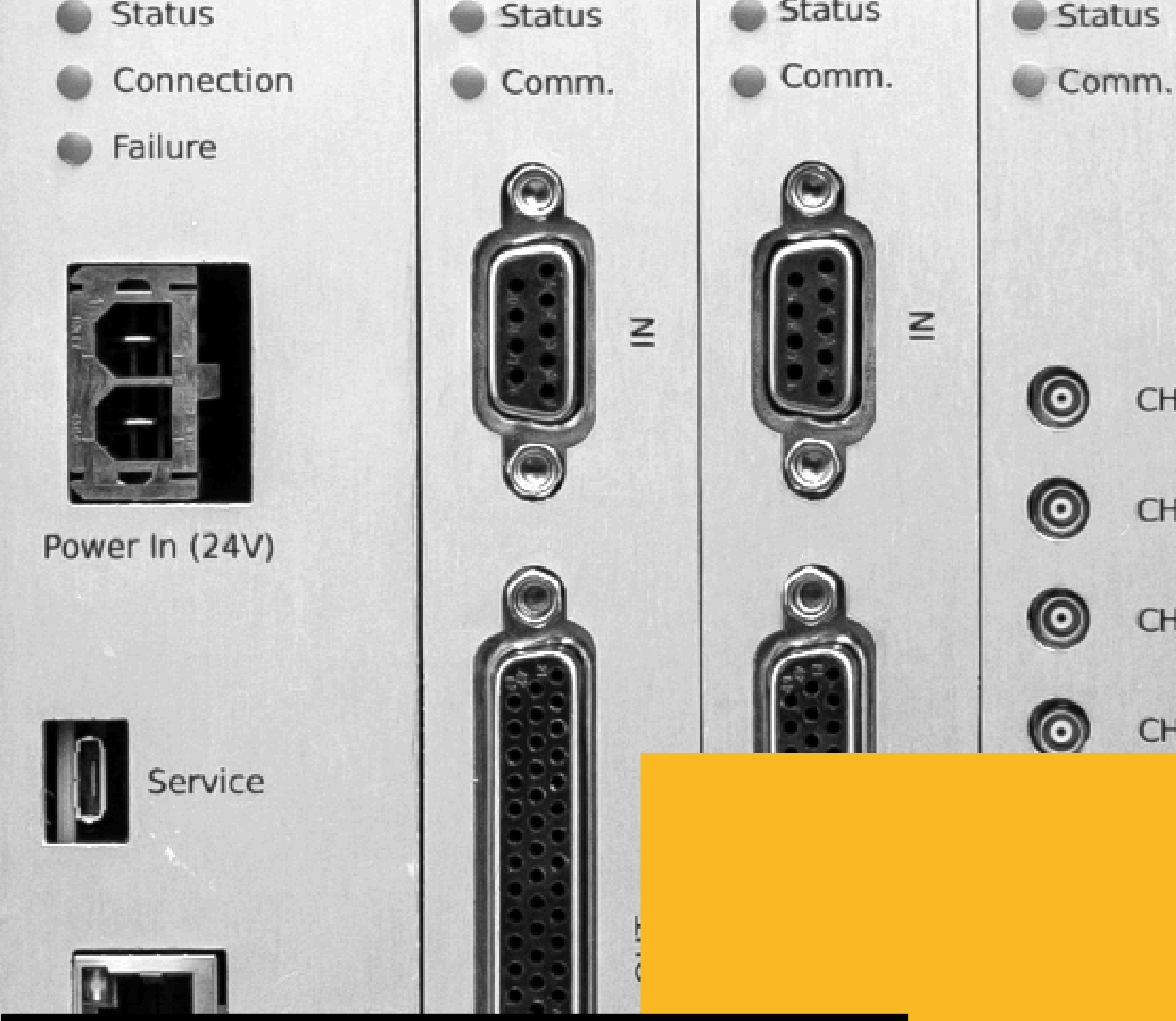


Signal Multiplexing Platform

25.08.2025 v1.2

PRODSP TECHNOLOGIES

Features and Benefits

- **Universal 19” rack enclosure:** Ensures complete compatibility with most production line test systems.
- **Customizable card layout:** 15 slots are available to be configured with different cards.
- **Designed for Automated Testing:** Special care is being taken to ensure optimal instrument and signal routing.
- **Growing variety of cards:** Expanding number of cards and card types.
- **Seamless integration into existing systems:** Universal connectors and Modbus over TCP control.
- **Quick card swap capabilities:** In case of failure, the cards can be easily replaced.
- **Easy status check:** Card status and communication LEDs are present on the front.
- **Highly configurable multiplexing:** Solutions are optimised to cover most scenarios.
- **High flexibility:** It is possible to design custom cards for your applications.
- **Standalone usage supported:** Single card mode is supported.

Applications

- Automated bulk testing
- Electrical ICT and EOL testers
- Industrial Automation
- Research and Development

Description

This **rack mountable highly configurable multiplexing platform** is the ideal choice for automatization personnel. The rack supports up to 15 cards in one enclosure. Each slot can be filled with one of the multiplexing cards from our portfolio. Cards are easily serviceable and interchangeable.

Technical Data

General information

Parameter	Value	Unit
Card capacity*	15	pcs
Communication ethernet interface speed	100	Mbit/sec
Operating temperature	20-30	°C
IP rating	IP31	-
CE certification	yes	-
Mounting options**	Rack mount	-
	Desktop	-

** The control card is mandatory, 14 freely configurable slots available*

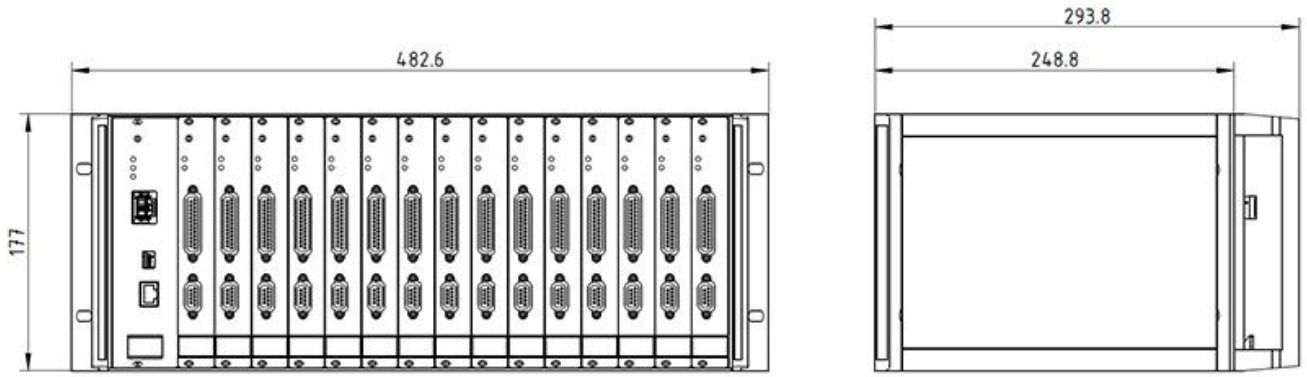
*** Enclosure should always be grounded to Protective earth when installing this unit*

Electrical Specifications

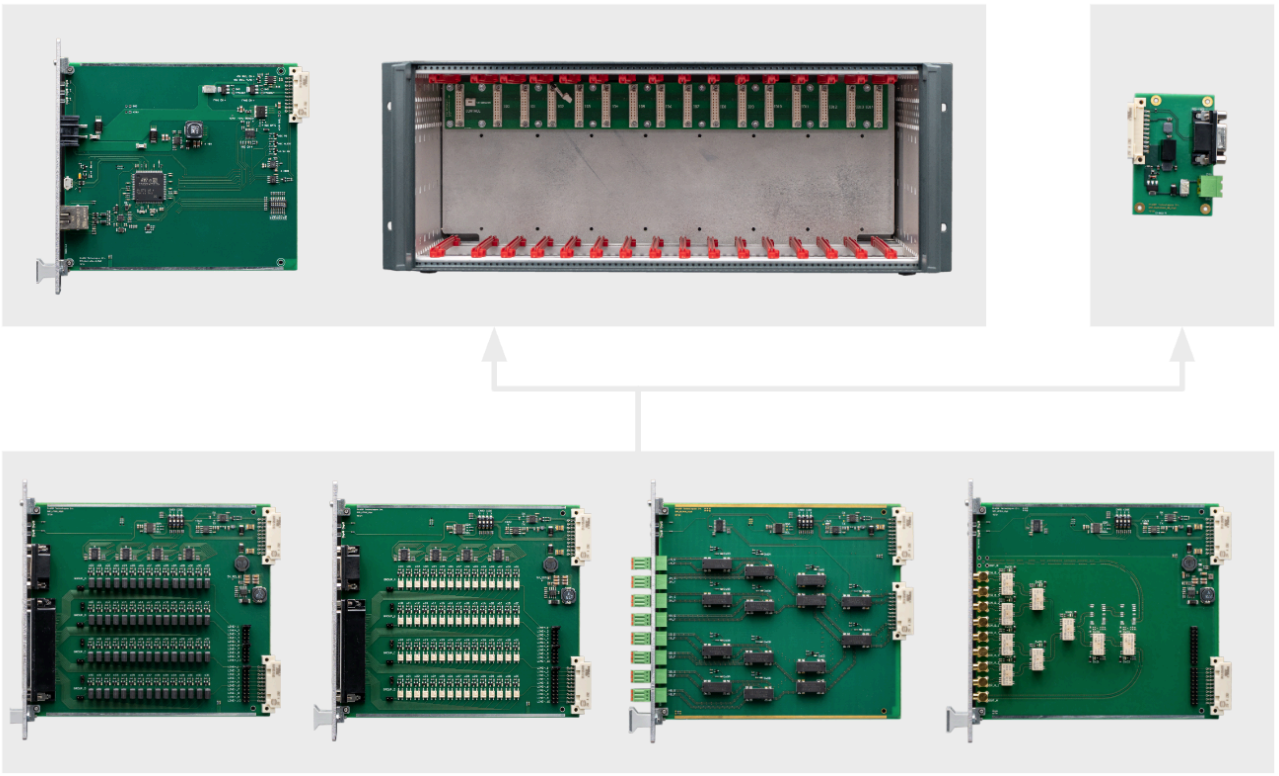
Parameter	Test condition	Symbol	Min	Typ	Max	Unit
Input voltage	T_A=25°C	VIN	23	24	24.5	VDC
Supply current*	T_A=25°C	IC	0.5	-	8	A

** Highly dependent on card configuration*

Dimensions

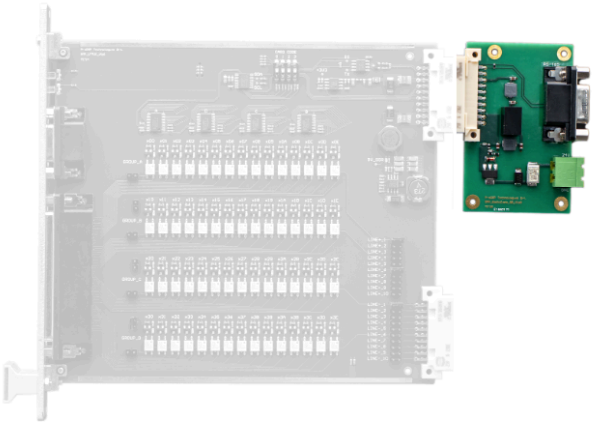


Standalone and rack use



Rack and single use of cards

The cards can be used both in **rack** (**SMP_ControlCard** is mandatory) or any multiplexer card can be used **standalone** without the rack. For this application the **SMP-Backplane-SingleBoard** is recommended.



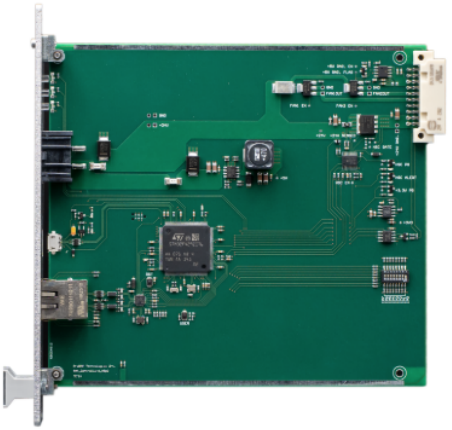
The SMP-Backplane-SingleBoard

Available Cards

A variety of cards can be used to configure the custom multiplexing needs. **Further information about the technical details of cards is available on separate datasheets here:** https://prodsp.hu/en/products/production-line-testers/67-smp

ProDSP can design and manufacture costume cards if that's what our customer requires.

SMP_ControlCard_V3p0

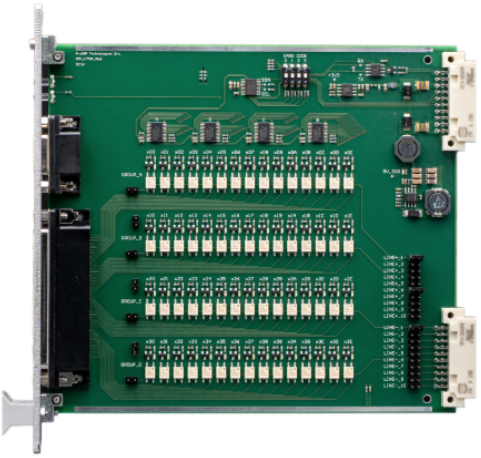


This is the main control and power input card for the system. It receives instruction via Ethernet link and forwards the command to the desired card via the rack back plane. Mandatory for rack use.

This card is also the main power input for the whole system. The rack operates from a single +24V power supply.

Default IPv4 address: 25.31.12.1
Default Port: 502

SMP_LFMUX_V1p1

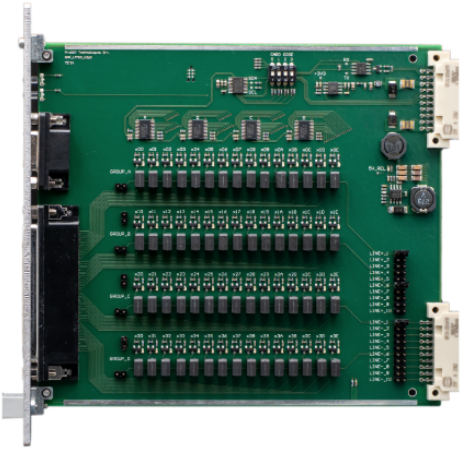


This card utilises **solid state relays** in order to switch DC or low frequency and low power signals.

Signals can be multiplexed from the front panel or from a backplane. The multiplexer configuration is modifiable via jumpers links. Valid configurations are the following; 1x 1:60 or 2x 1:30 or 4x 1:15.

From the backplane four signals can be muxed at the same time, but there is a line selector function that allows the muxing of 10 different signal pairs.

SMP_LFMUX_V2p0

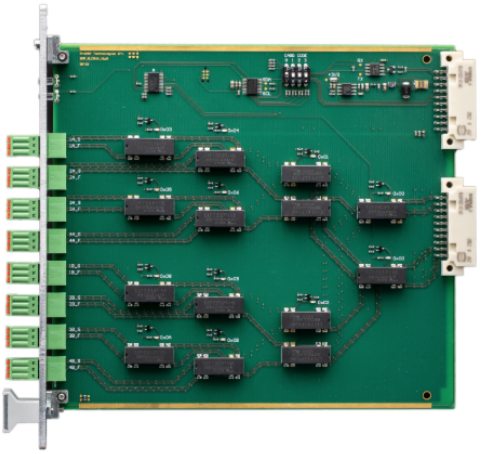


This card utilises **reed relays** in order to switch DC or low frequency and low power signals.

Signals can be multiplexed from the front panel or from a backplane. The multiplexer configuration is modifiable via jumpers links. Valid configurations are the following; 1x 1:60 or 2x 1:30 or 4x 1:15.

From the backplane four signals can be muxed at the same time, but there is a line selector function that allows the muxing of 10 different signal pairs.

SMP_RLCMUX_V1p0

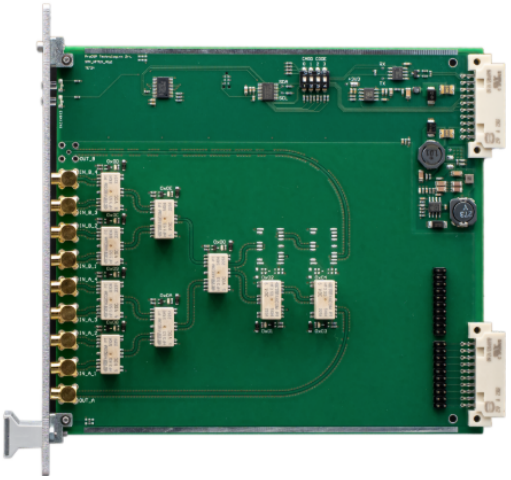


The purpose of the card is to multiplex LCR meter signals up to 300kHz from the backplane to the front panel's eight port.

The ports are organised into a four to four pairing so in total sixteen measurements may be taken between four point pairs of interest.

The structure facilitates symmetrical measurements so that no additional wiring is needed to flip the polarity of the test voltage on any DUT.

SMP_HFMUX_V1p1 - 1x 1 to 8



The purpose of this card is to multiplex high frequency signals up to 400MHz from the front panel to the front panel (or to the backplane).

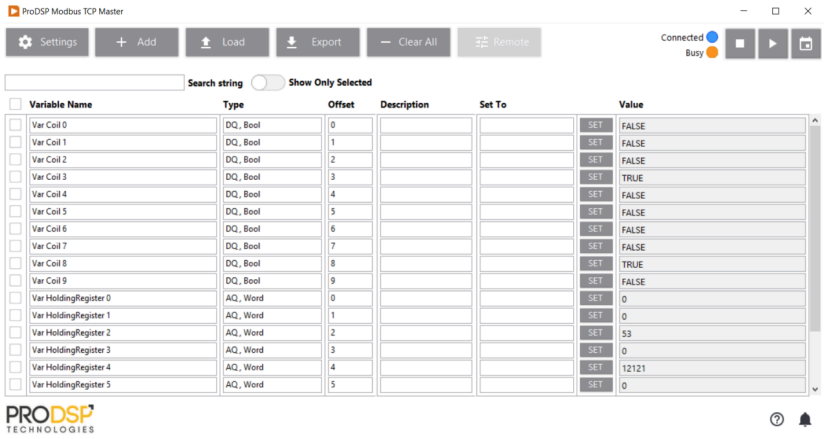
From front panel to front panel all signal paths have 50 ohm impedance. From front panel to the backplane paths are not impedance controlled, high frequency measurements are not possible.

The card is assembled with MCX type front connectors, but SMB is also available.

Interfacing with ProDSP Modbus TCP Master

After connecting the SMP box to power and to the local network, the **ProDSP Modbus TCP Master client** can control every card in the rack.

The **ProDSP Modbus TCP Master** (client) is developed to help system integrators, automation engineers and hobbyists to test and manually control Modbus TCP ready slave (server) devices (such as smart sensors, PLCs, instruments, automation actuators, etc.). The program can be installed on any Windows 10 (or higher) PCs. The convenient user interface enables to set up any Modbus table configurations according to the slave device description, use labels for read/write parameters, poll and control Modbus table entries.



The program is commercially free to use. The program is periodically polling the configured Blocks (see later), and displays their current values on the screen. The writable variables can be modified asynchronously from the UI. Users can also rename all the variables and add descriptions to help the testing process.

The control software can be downloaded from our website:

https://prodsp.hu/en/products/software/182-modbus-tcp-server **Download**

For further setup information, please refer to our manual:

https://prodsp.hu/images/softwares/ProDSP-Modbus-TCP-Master-User-Manual.pdf **Manual**