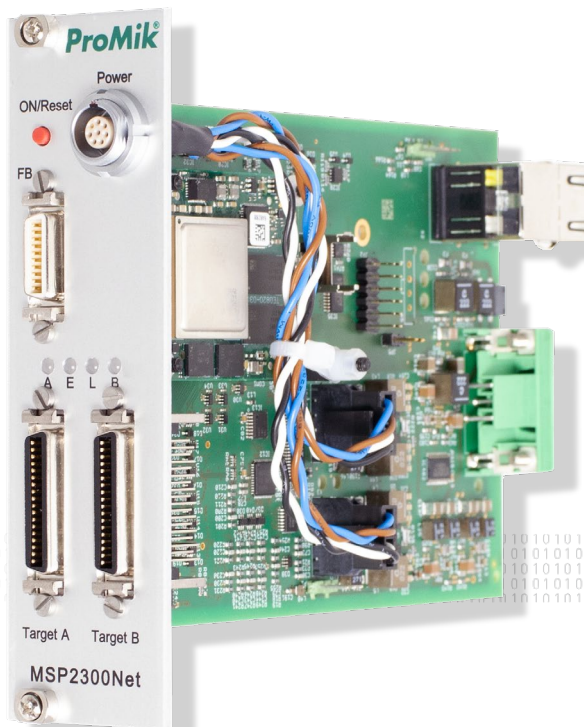# ProMik

MSP2300NET

Multi Standard In-System Programmer

MSP2300NET

Overview

The MSP2300NET is a high-speed flash programming device supporting all common and proprietary communication interfaces. Applicable for any use case of on-board programming and testing in electronic series production. Achieves lowest programming times by reaching the physical flash speed of the target device and therefore reduces production costs for demanding applications that include high density MCUs, NAND and NOR memories, Car Multi-Media, Infotainment Instrument Clusters, Battery Management, Driver Information Platforms, Navigation Systems, Key applications, IoT applications and many more. The most powerful system for parallel programming and testing of multiple targets in the market.

Key Features

→ Integrated operating system for efficient file handling

→ Xilinx Zynq UltraScale+ SoC running Linux 5.10 operating system

→ Multi Standard Programmer with 24 configurable I/Os supporting mixed high-speed target interfaces with individual ground return lines for each signal

→ Automotive Bus Interfaces: 4x CAN FD, 2x Ethernet 100/1000BASE-T1, 2x FlexRay, 2x LIN

→ USB3 high-speed host for data download to target

→ Advanced communication concepts enable physical flash speed programming

→ Software controlled high current Target Power Supply (TPS):
  – 4 channels High Range Target Power Supply
  – 4 channels Low Range Target Power Supply

→ Voltage and current measurement functionality
  – 8 channels for voltage monitoring and Brownout Detection
  – Current measurement capability for high range TPS

→ Host Ethernet uplink 10/100/1000 MBit/s (auto sensing speed and full/half duplex mode, auto cross over capability)

→ ProMik 19" Rack compatibility

Typical Data

Protocol	Speed	Target	Cable length
JTAG	50 MHz	up to 4	1.5m
SPI	50 MHZ	up to 6	1.5m
SWD	30 MHz	up to 6	1.5m
CAN FD	8 Mbit/s	up to 4	10m
1000BASE-T1	1000 Mbit/s	up to 2	10m

Electrical Data

Target Channel Power Supply - High-Range

Configurable Overcurrent Detection for the High Range Target Power supply channels: The current is first limited, then turned off after 1-2s, until the hardware reaches the normal temperature range, then turned on again, cycling on/off if the short circuit persists.

Voltage Range:	$2.7 < U < 14.0V$
Permanent Current Limits:	$500mA < I < 1.5A$
Inrush Current Limits:	$500mA < I < 3.5A$
Inrush Current Time Limit:	$7ms < t < 500ms$
Short-circuit Output Current:	Equals Inrush Current Limit
Reverse Protection:	max. 71V

Target Channel Power Supply - Low-Range

Voltage Range:	$1.5 < U < 5.5V$
Current limit:	$I_{max} = 300mA$

Target Programming Lines

Voltage Range:	$1.5 < U < 5.5V$
Current limit:	$I_{max} = 25mA$
Switchable pull-up resistors	$2,2k\Omega$
Protection	max. 40V

Voltage Measurement and Monitoring

Voltage Range:	$0 < U < 5.5V$
Measurment Accuracy:	$\pm 10mV$
Protection limits:	$U_{max} \pm 40V$

Current Measurement

Current Range:	$0 < I < 3.5A$
Measurement Accuracy:	$\pm 1mA$

Operating Characteristics

Power Supply:	15V DC (±5%)
Current consumption (TPS inactive):	typ. 300 mA
Current consumption (TPS active):	max. 4A
Temperature range:	$0 – 50°C$

Mechanical Dimensions

The following data applies to the MSP2300NET-R with front panel including the CPU module but without enclosure:
- Size: 160 x 100 x 35mm
- Weight: 180g

The MSP2300NET is a standard 7BU unit for a 19" ProMik Rack.