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Multi-Purpose Interface Platform

TEST AND SIMULATE ELECTRICAL INTERFACES FOR SPACECRAFT

The Multi-Purpose Interface Platform (MPIP) is a **modular**, **scalable** electrical ground support equipment (EGSE) that enables test and simulation of **electrical interfaces** for spacecraft in a fast, flexible and cost-efficient manner.

The MPIP can combine a large variety of interfaces into a single platform, and is scalable to the customer needs. In total, the system can provide **up to 400 ECSS compliant interfaces**.

The MPIP supports up to 16 interface modules fitted onto a backplane. Each module represents a dedicated electrical interface type and all modules can run simultaneously.

Each MPIP is equipped with the MPIP Controller Module (MCM).
The MCM provides status and control for the equipped interface modules (i.e. through a GUI running on a User Workstation). The module also includes isolated interface circuitry for medium data rate applications up to 800Mbps, and can act as an interface module itself. It provides interfaces such as standard RS422/RS485/LVDS, SpaceWire, SERDES and Parallel/Serial LVDS.

KEY FEATURES

General

- 2U or 4U 19” rack mountable or tabletop chassis
- Supports up to 16 interface modules of any type and combination
- Discrete TM/TC, Power and Digital Data Interfaces
- Custom interfaces and protocol support
- 2x Gigabit Ethernet ports for Control and Data via TCP/IP (RJ45)
- PPS/Trigger output for synchronization of external equipment
- External Time inputs, such as PPS and IRIG
- In-field upgradable

Interface Modules

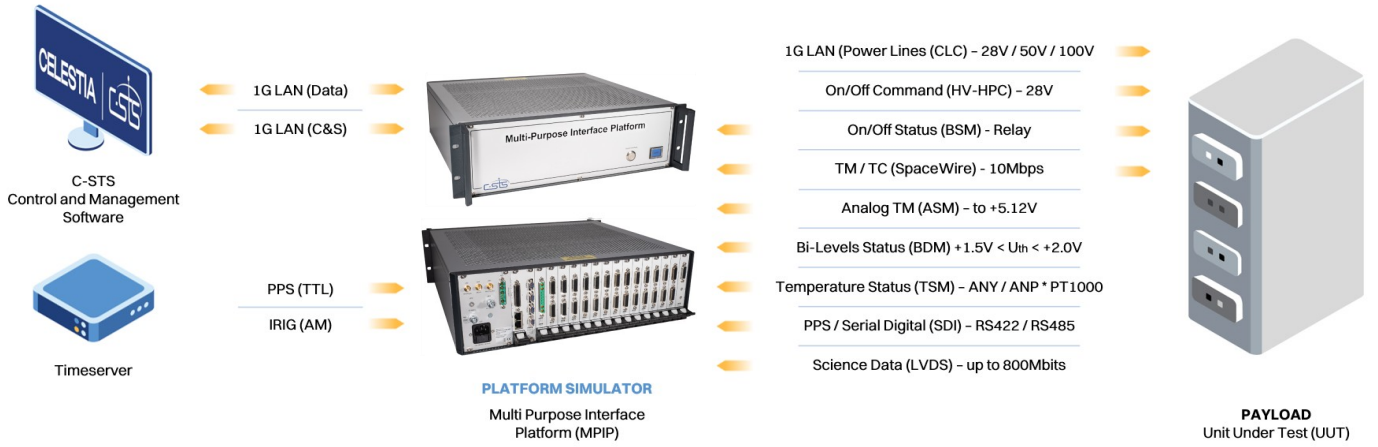
- 19x Different pluggable module types available
- Up to two different bus voltage inputs for LCL and Heater Interfaces
- All interfaces to/from UUT are galvanically isolated
- FMEA Report available for all interface modules
- Fully compliant interfaces with ESA/ECSS standards

Software Support

- Graphical User Interface
- Local scripting using Python
- Logging and archiving
- Remote Control via EDEN, C&C, RPC, etc.

ECSS Compliant Interfaces

MULTI-PURPOSE INTERFACE PLATFORM



The MPIP is a versatile system that can be used to test and/or simulate electrical interfaces of spacecraft sub-systems such as:

- On-Board Computers (OBC)
- Power Conditioning Units (PCDU)
- Instrument Control Units (ICU)
- Payload and Platform Elements

NEW INTERFACE MODULES COMING IN 2024

- WizardLink (up to 2.5Gbps)
- SpaceFibre (up to 6.25Gbps)
- Custom FPGA Transceiver (up to 12.5Gbps)

LIST OF MPIP INTERFACE MODULES AVAILABLE TODAY

Interface Type	Function or Protocol	I/O per Card	Direction	Basic Specifications
Latching Current Limiter - LCL	Latching Current Limiter	2	Output	28V, 50V, 100V, Class 0.5A to 20A
Heater Latching Current Limiter - HLCL	Heater Latching Current Limiter	12	Output	28V, 50V, 100V, 4A per output
Secondary Level Protection Module - SLP	Secondary Level Protection	1	Output	28V, 50V, 100V, UVP/OVP/OCP, <2µs
Analogue Signal Monitor - Simulation	Digital to Analog Converter	24	Output	16-Bit DAC, ≤2 LSBs
Analogue Signal Monitor - Acquisition	Analog to Digital Converter	24	Input	16-Bit ADC, ≤2 LSBs
Temperature Sensor Monitor - Simulation	Digital Rheostat	24	Output	0Ω to 1MΩ, 0.1%
Temperature Sensor Monitor - Acquisition	Analog to Digital Converter	24	Input	16-Bit ADC, ≤2 LSBs
Bi-Level Discrete Monitor - Simulation	Digital to Analog Converter	24	Output	0V to +5V
Bi-Level Discrete Monitor - Acquisition	Analog to Digital Converter	24	Input	0V to +5V
Bi-Level Switch Monitor - Simulation	Relay/Switch	24	Output	≤ 50Ω and ≥ 1MΩ
Bi-Level Switch Monitor - Acquisition	Analog to Digital Converter	24	Input	0V to +5V
High-Power Command - Simulation	Low-, High-voltage and High-Current	24	Output	+12V to +29V, 4ms to 1024ms
High-Power Command - Acquisition	Low-, High-voltage and High-Current	24	Input	+11V to +29V, ≥100us
Low-Power Command - Simulation	Low Power Pulsed or Bi-Level	24	Output	0V to +5V, 4ms to 120ms
Low-Power Command - Acquisition	Low Power Pulsed or Bi-Level (opto)	24	Input	0V to +5V, ≥100us
Serial Digital Interfaces - Bi-directional	RS-422, RS485 or LVDS	20 / 40 / 60	In & Output	Standard & custom protocols/signals
SpaceWire Interfaces - Bi-directional	SpaceWire (LVDS)	4	In & Output	Up to 200Mbps per channel
Parallel LVDS Interfaces - Bi-directional	Parallel LVDS	2	In & Output	Up to 400Mbps per channel
Serialiser/Deserialiser Interfaces - SERDES	LVDS217/LVDS218	1 / 1	In & Output	Up to 800Mbps (Tx and Rx)

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Scan the QR code to access the C-STS website for all data sheets and more information

Datasheet version 3.0