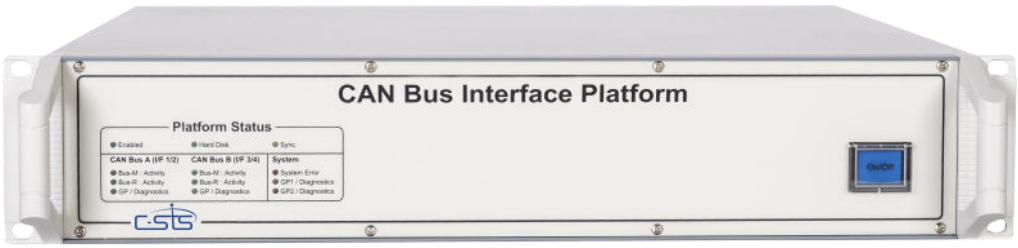
CELESTIA | C-STS

CANopen Front-End

CONTROL, MONITOR & SIMULATE THE DATA BUS

The CANopen Front-End (CFE) supports multiple functions in a 2U, 19-inch enclosure. A single platform can provide up to two, fully independent, dual redundant busses (Bus 1 A&B and Bus 2 A&B). The CFE is part of the suite of latest generation EGSE products from Celestia Satellite Test & Simulation (C-STS).

The platform can be configured to combine the following CANopen functions: Master node, Slave node simulator and, Bus Monitor.



The CFE operates as the electrical interface towards flight equipment and can be used during all AIT levels (module, unit, instrument and satellite) and provides all electrical interfacing (through opto-couplers), data extraction, protocol handling and status annotation functions.

The standard 2U/19” enclosure provides a small footprint that can be used in a table top setup or integrated into a 19” rack. The unit is powered from an external double isolated AC/DC adapter (included in delivery).

KEY FEATURES

General

- Compliant with CAN specification 2.0A (11-bit ID) & 2.0B (29-bit ID)
- Supporting multiple CANopen functions in a single platform;
  - CANopen Master
  - CANopen Slave node simulator
  - Bus Monitor
- LAN for Control and Monitoring via TCP/IP (using RJ45)

CANopen Channels

- Up to two Independent, Dual Redundant CANopen Busses
- Transceivers support 1Mbps high-speed CAN bit rate (ISO-11898-2)
- CANopen Object Dictionary (OD) based on Device Configuration File (DCF), includes flexible node-ID assignments
- Synchronous communications through SYNC object generated by Master (producer) and received by Slave nodes (SYNC consumer)

CAN Bus Monitor Features

- Simultaneous real-time and non-intrusive monitoring of multiple CAN channels in a single PC
- Richly featured windows GUI for set-up and extended analysis
- Long-term acquisition and storage of all or selected data
- Time-correlated data acquisition
- Dedicated user-configurable raw and filtered data displays
- Up to 100M events collected per session

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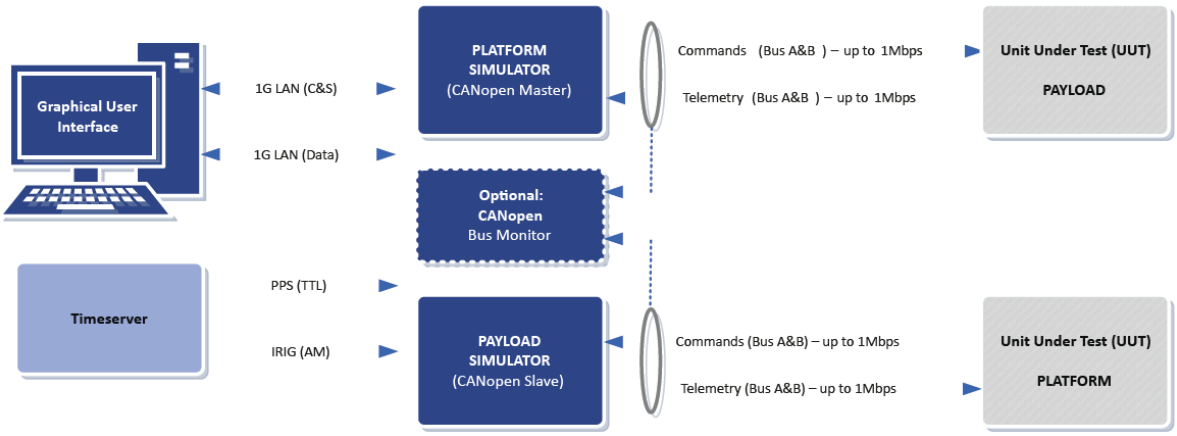
Datasheet version 2.0

CANOPEN FRONT END



CANopen Master

As a CANopen Master, the CANopen Front-End implements a periodic, deterministic CANopen Bus scheduler supporting synchronous and asynchronous data transfers. Operations are based on a CANopen Object Dictionary that is imported from a Device Configuration File (DCF).

Bus Monitor (BM)

The fully independent passive (or active) BM function can be used to monitor and archive including accurate timestamps CAN messages on both busses (Bus A & Bus B). Sophisticated user configurable filters can be applied to trigger on and capture specific bus conditions. Near real-time data analysis can be performed, while continuous storing all CAN traffic to disk in parallel. Optionally, the BM function can be equipped with a project specific decoder DLL, to support textual decodes and user specific colour schemes (simplifying CANopen data analysis).

CANopen Slave

The CANopen Slave node function uses a dedicated dual redundant channel to simulate one or multiple slave nodes. The operation of simulated nodes is based on a Device Configuration File (DCF) that describes the behaviour for each Slave independently.

Standard CANopen functions include; NMT operation, SYNC consumer, Heartbeat protocol, PDO management and SDO services including project specific SDO Block Up- and Down-load, SCET distribution as described in ECSS-E-ST-50-15C, Bus A/B switching and ABORT code handling and reporting.

The CANopen Front-End is part of the latest product suite from C-STS that provides a wide range of onboard interface front-ends, such as Discretes, Power (LCL), RS-422 (SDI), CAN, MIL-STD-1553, SpaceWire, WizardLink and, SpaceFibre.

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

Dimensions	H x W x D 133 x 448 x 443 mm
Weight	< 6 kg
Input Power Range	100-240VAC 50-60Hz
Operating Temperature Range	+10°C to +40°C
Operating Humidity	30% to 85% (non-condensing)
Storage Temperature	-20°C to +60°C
Storage Humidity	Up to 85% (non-condensing)