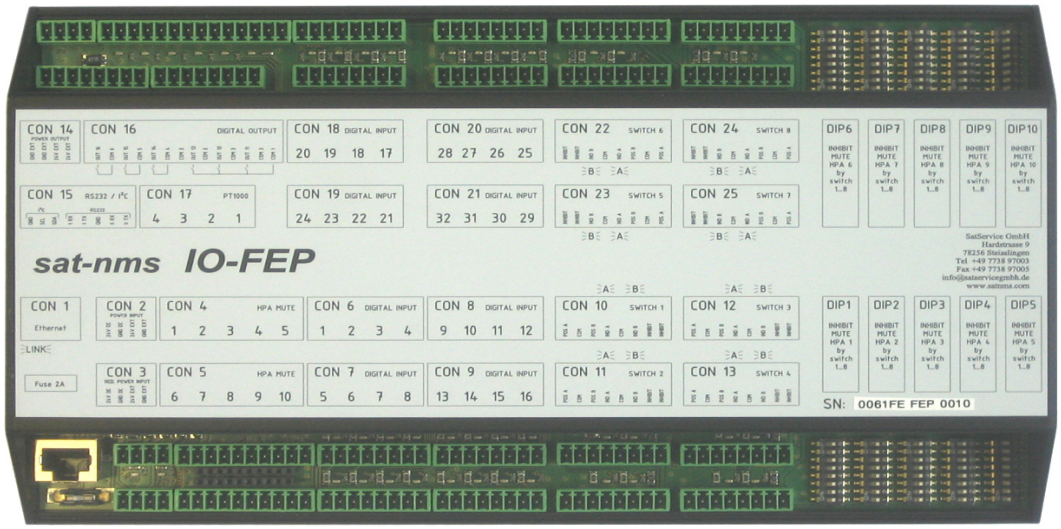
sat-nms IO-FEP – I/O Front-End-Processor

The ***sat-nms*** IO-FEP M&C Front-End-Processor interfaces to any "low level" interface commonly used in satellite ground stations like equipment alarm contacts, waveguide- or coaxial-switches and other status signals. It provides opto-coupled in- and outputs and potential free relay output contacts. All these interfaces are monitored and controlled locally in the ***sat-nms*** IO-FEP. As additional feature the IO-FEP can also perform during the switch-overtime of waveguide switches automatic RF-inhibit of high power amplifiers (HPA). With this feature the selective RF inhibit in a n:1 redundant configuration of only affected HPAs is possible. If the waveguide switches used in the ground station do not provide the RF inhibit feature at all, the IO-FEP takes care about the correct sequence in switching a waveguide switch if it is also connected to an HPA.



Standard module of IO-FEP with two 24V power supplies mounted in DIN-rail

The IO-FEP can be used as stand-alone equipment via its web based user interface, but interfaces also smoothly with the ***sat-nms*** or any other Monitoring & Control and Network Management System either via Ethernet or serial interface for remote control. The web browser interface provides a user friendly interface to the operator for local remote control.

The standard module provides 32 opto-coupler inputs, 16 digital outputs and 8 input/output interfaces to monitor & control waveguide switches including the selective management of inhibit contacts of up to 8 TWTAs. 6 of the digital outputs have relays to operate up to 48V; the other 10 are open collector outputs. An extended version, the IO-FEP-E, with additional 16 opto-coupler inputs and altogether 16 waveguide switch connectors is available.

Key Features

- Ethernet (SNMP and HTTP), web browser and RS232 interface
- 32 or 48 digital inputs
- 6 relay outputs and 10 opto-coupler outputs
- interfaces for 8 or 16 waveguide switches
- Supports RF inhibit contacts of waveguide switches and HPAs.
- Can generate RF inhibit signals for HPAs generated by switch commands
- Temperature measurement with external PT1000 sensors
- Integrated alarm/ event logging
- Mounted on a DIN-rail
- Interfaces to any higher level M&C System

Applications

- Monitoring of alarm contacts
- Redundancy switching with RF Inhibit of HPA's
- Control of waveguide and coaxial switches

Contact Information

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Technical Specification

General Interfaces	IO-FEP	IO-FEP-E	
System Interfaces			All interfaces (except Ethernet-interface) have to be connected via Mini Combicon MCV1,5/XX-G-3,5
external temperature measurement	4x	4x	External PT1000 sensors, accuracy +/-3°C, range: -40 to +60°C
internal temperature measurement	1x	1x	Internal on-chip-sensor, accurancy +/-3°C
internal clock/ calendar			Real-time clock/calendar. If power supply is missing, a goldcap capacitor keeps the clock running for min. 7 days
digital input	32x	48x	Optocoupler, indication current: ~3mA @ 24V DC
digital output	16x	16x	Relay contacts, max. continuous current: 1A, max continuous voltage: 24V DC
Digital output for HPA RF inhibit	10x	10x	Photomos-relays, per relay max. continuous current: 130mA, max. continuous voltage: 48V, on-state-restistance ~25Ohm
HPA RF inhibit matrix	10x8	10x16	Software HPA-muting or DIP-switches for hardware-HPA-muting
waveguide switches	8x	8x	
position control			Maximum peak switching current: 5A
position indication			Optocoupler, indication current: ~3mA @ 24V DC
inhibit indication			Indication current ~5mA @ 24V DC
power output	1x	1x	24V DC, max 500mA
RS232	1x	1x	Serial remote monitoring & control interface
Ethernet	1x	1x	RJ45, 10/100-Base-T, Via http GET requests and SNMP

Electrical and Mechanical Specification, Environmental conditions

	IO-FEP	IOFEP-E
Supply Voltage	24 V unregulated D/C	24 V unregulated D/C
Power consumption 24V DC	Max. 150mA	Max. 200mA
Power consumption 24V EXT	Max. 450mA (excluding power output at CON14 and the switching current of the waveguide switches)	Max. 650mA (excluding power output at CON14 and the switching current of the waveguide switches)
Temperature range	5° to 50° C	5° to 50° C
Humidity	Up to 90% non condensing	Up to 90% non condensing
DIN rail module	264 x 165 x 60 mm	434 x 165 x 60 mm
Weight	1,5 kg	2,2 kg