

PREMIS – Vehicle Unit

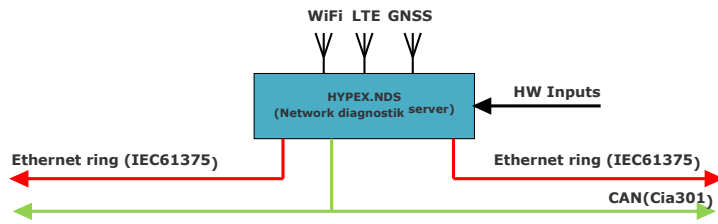
Vehicle's subsystem of complex predictive maintenance system for all types of rail vehicles

Key features

- Vehicle part of system PREMIS, see catalog list PREMIS
- Based on SKODA DIGITAL's own HYPEX vehicle platform.
- Collects data and provides them securely to the cloud services using GSM/WiFi connection.
- Provide data:
 - operational diagnostics events from TCMS
 - elementary signal data from other subsystems for analyse in cloud applications or in itself vehicle unit
- Applicable for both new vehicles and customer's current fleet as a retrofit package
- Easily customizable per-project based on customer's requirements
- Supported vehicle buses:
 - Ethernet bus, using TRDP protocols by the IEC 61375, up to 27 ports
 - Optionally CanBus using CanOpen protocol by the DS301.
 - Optionally can be supported "old" RS48X busses.
- Optionally supported HW inputs
- Standardly is unit combined together with Ethernet Switches and MCG

Description

The PREMIS vehicle unit primarily provides gathering, recording the data and their transmitting into cloud services of PREMIS system during connectivity window of GSM/WiFi technology. For connection into the cloud system is used efficient modern IOT technology. Together with other SW compression is achieved high efficiency of data throughput during the transmission into cloud, so generally it is possible to transmit all useful data into cloud with minimal limitation. That property is very important for the whole philosophy of the system PREMIS. It means take all data to be ready to any situation which happens on the vehicle. Standardly it is the case that it is not definable which all data will be required for diagnosing various nonstandard situations/faults/etc., so the best way is to collect as much as possible. For some analyses which require on the input really high real-time data it is possible to provide this analysis directly in the vehicle unit and generate other virtual signals, which already do not consume as much data throughput for transfer into cloud.



Ideological integration in to the vehicle

Operating conditions

PARAMETER	VALUE	NOTE
Operating temperature	-40 to +70 °C	class TX pursuant to EN50155
Power supply voltage	24V DC, 110V DC, Class S2	Independent power supply for device and PoE
Power Consumption	< 50W (device) / 150W (PoE)	
Galvanic Isolation	1000V AC, 50 Hz	
Shock & Vibration	Category 1, Class B	
Altitude	up to 1400 m	class A1 according to EN 50125-1
Dimensions BOX.B / BOX.C / BOX.E	206x133x123 / 280x133x123 / 304x133x123	
Weight BOX.B / BOX.C / BOX.E	< 3.5 kg / < 4 kg / < 4.5 kg	
Protection	IP20	
CPU	QorIQ LS1043A, 4x Cortex-A53 64-bit cores at 1.0 GHz	RACK 3U
Memory	1GB DDR RAM / 256MB NOR Flash / 2MB MRAM / SD Card slot	
RTC	RTC with battery backup	
Ethernet ports	Maximum 27 Ethernet ports: 4x 1000BASE-T with bypass relays 2x 1000BASE-T 21x 100BASE-TX / 1000BASE-T Up to 16 ports with PoE support.	Modular design, see different models below.
PoE power output	Max. 15W per port Max. 120W total	

Device models

NAME	DESCRIPTION	POWER SUPPLY	BOX
HYPEX.NDS.W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB	24V	A
HYPEX.NDS.F3G9W1L1GNSS512G.B	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 12 ports	110V	B
HYPEX.NDS.PF8G4W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 12 ports with PoE	24V	C
HYPEX.NDS.F13G4W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 17 ports	24V	B
HYPEX.NDS.PF11G6W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 17 ports with PoE	24V	C
HYPEX.NDS.F11G6W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 17 ports	24V	B
HYPEX.NDS.F5PF11G6W1L1GNSS512G.A	1x GNSS, 1x WIFI, 1x LTE, SSD 512GB, Ethernet switch 22 ports with PoE	24V	E

Additional models with further configurations available. Complete list of models available upon request.

Standards

EN 50155:2018, EN 61373:2011, EN 50121-3-2:2017, EN 50124-1: 2002, IEC 61375-1:2012, IEC 61375-3-4:2017