

# NetModule

# Accessories

# Catalogue

Date: January 2023

## Cables & Connectors

### Adapter-CMC48-01

### Adapter Cable Multipurpose Molex CMC-48

For NG800 Products

#### Description

This adapter cable provides access to the various interfaces available on the Molex CMC48 connector of the NG800. The purpose of the cable is to facilitate easy commissioning of the product, it is not meant to be used in permanent installations.

#### Connectors

- 1x Power 4mm/Banana Connector
- 1x Fast Ethernet RJ45
- 1x Console USB
- 2x CAN D-Sub 9 female
- 2x BroadR RCY

#### Order Code

Adapter-CMC48-01



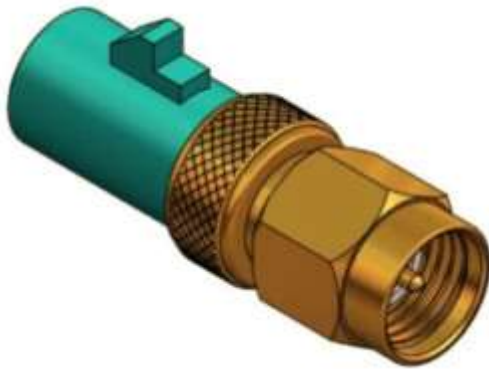
### Adapter-FAKRAf-SMAf

### Adapter FAKRA-Z-f to SMAf

For NB2800 Series

#### Order Code

Adapter-FAKRAf-SMAf



**Adapter-SMAM-FAKRAM**  
**Adapter SMAM to FAKRA-Z-m**

For NB2700 and NB800 E-Mark Series

**Order Code**

Adapter-SMAM-FAKRAM



**Con-M12-4Pol-f**  
**M12 Power Connector (4pol female)**

For NB3800 Series

**Order Code**

Con-M12-4Pol-f



**Pwr-Cable-01-ES3300-M12-2**  
**ES3000 Power cable, M12-Litze, ECE R118, 2m**

For ES3300 Series

**Compliance**

ECE R118

**Order Code (2 m)**

Pwr-Cable-01-ES3300-M12-2



**Pwr-Cable-Railway-01-M12**  
**Power Cable M12 to Litze**

For NB3000 Line

**Compliance**

EN45545-2

**Order Code (0,5 m)**

Pwr-Cable-Railway-01-M12-0.5

**Order Code (3 m)**

Pwr-Cable-Railway-01-M12-3



**USB-Cable-01-ES3300-M12-USB**  
**ES3300 Adapterkabel M12 to USB Typ A Buchse female**

For ES3300 Series

**Order Code**

USB-Cable-01-ES3300-M12-USB

## Power Supplies



### Power-Supply 230 V - 12 V PSU EU/CH

5 mm pitch

#### Input

230 V

#### Output

12 V

#### Connector

5 mm pitch, 2 positions

#### Order code

Power-Supply



**Power-Supply-3.5P**  
**230 V - 12 V PSU EU/CH**

3.5 mm pitch

**Input**

230 V

**Output**

12 V

**Connector**

3.5 mm pitch, 2 positions

**Order Code**

Power-Supply-3.5P



**Power-Supply-Int-24V-3.5P**  
**110/230 V - 24 V PSU Interational**

3.5 mm pitch

**Input**

110/230 V

**Output**

24 V

**Current**

1.25 A

**Power**

30 W

**Connector**

3.5 mm pitch, 2 positions

**Order Code**

Power-Supply-Int-24V-3.5P





**Power-Supply-Int-24V-IGN**  
**110/230 V - 24 V PSU International**

5 mm pitch and Ignition Sense

**Input**

110/230 V

**Output**

24 V

**Current**

1.25 A

**Power**

30 W

**Connector**

5 mm pitch, 3 positions

**Order Code**

Power-Supply-Int-24V-IGN

## Kits (Bundles)



### Accessory-Starter-Kit Accessory Starter Kit

5 mm pitch

#### The kit consists of

- 230 V to 12 V (1.5 A, 18 W) power supply unit with 5 mm pitch for EU/CH
- 2x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)

#### Order Code

Accessory-Starter-Kit



**Accessory-Starter-Kit-3.5P**  
**Accessory Starter Kit**

3.5 mm pitch

**The kit consists of**

- 230 V to 12 V (1.5 A, 18 W) power supply unit for EU/CH with 3.5 mm pitch
- 2x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)

**Order Code**

Accessory-Starter-Kit-3.5P



**Accessory-Starter-Kit-Int**  
**Accessory Starter Kit International**

5 mm pitch

**The kit consists of**

- 110/230 V to 24 V (1.25 A, 30 W) PSU International with 5 mm pitch
- 2x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)

**Order Code**

Accessory-Starter-Kit-Int



**Accessory-Starter-Kit-Int-3.5P**  
**Accessory Starter Kit International**

3.5 mm pitch

**The kit consists of**

- 110/230 V to 24 V (1.25 A, 30 W) PSU International with 3.5 mm pitch
- 2x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)

**Order Code**

Accessory-Starter-Kit-Int-3.5P



**Accessory-Starter-Kit-Int-IGN**  
**Accessory Starter Kit Ignition Sense**

5 mm pitch

**The kit consists of**

- 110/230 V to 24 V (1.25 A, 30W ) PSU International for Ignition Sense Input with 5 mm pitch
- 3x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)
- 3x Adapter FAKRA-f-SMA-f

**Order Code**

Accessory-Starter-Kit-Int-IGN



### Accessory-Starter-Kit-Int-Railway Railway Accessory Starter Kit International

#### The kit consists of

- 110/230 V - 24 V (1.25 A, 30 W) PSU international
- 2x digital I/O connector
- 4x Antenna-Port-N (5G, LTE, UMTS, GSM and WLAN)
- 1x Antenna-Roof-2LG
- 7x Antenna adapter TNCm to SMAf
- 1x Ethernet adapter M12 to RJ45
- 1x Ethernet adapter M12 to RJ45 GbE

#### Order Code

Accessory-Starter-Kit-Int-Railway

## Switches



### ES3300-2Eg8Ef Managed Switch for Road and Rail Vehicles

2x Gigabit Ethernet + 8x Fast Ethernet

#### Description

##### Internet enabled and redundant Gigabit vehicle backbone

The ES3300 Ethernet Switch for transportation applications is the perfect combination with NB3800 and NB2810 routers.

#### Ethernet

2x Gigabit Ethernet, M12 X-coded female

8x Fast Ethernet, M12 D-coded female

#### USB

Configuration via an USB flash drive:

1x USB host port for configuration, M12 A-coded female

#### Power

1x M12 A-coded male

PoE Operation: 12 to 48 VDC (-12 % / +20%), 5 W

#### Software

Managed layer 2 switch:

- General: Configuration via web WebGUI or USB
- Layer 2 Features: Jumbo frames switching, VLAN 802.1Q, VLAN groups, port mirroring, IGMP snooping, storm protection, STP, MSTP, RSTP
- Networking Services: DHCP Server, SNMP v1/v2/v3
- Security: 1:N NAT, PAT, L3 stateless firewall
- ITxPT Services: module Inventory



## Environment

- Operating temperature: -40 °C to +70 °C
- Ingress protection level: IP54

## MTBF

- 901.789 hrs @ 25°C
- 337.103 hrs @ 60°C

## Compliance

CE, Vehicle according to UN ECE R10, UN ECE R118, Railway according to EN 50155, EN 45545-2, ITxPT

## Order Code

**ES3300-2Eg8Ef**

## Accessories

[Pwr-Cable-01-ES3300-M12-2](#)

[USB-Cable-01-ES3300-M12-USB](#)

- [Product Information ES3300 Managed Switch](#)



## ES3300-2Eg8Eq

### Managed Switch for Road and Rail Vehicles

2x Gigabit Ethernet + 8x Fast Ethernet with PoE+

## Description

### Internet enabled and redundant Gigabit vehicle backbone

The ES3300 Ethernet Switch for transportation applications is the perfect combination with NB3800 and NB2810 routers.

## Ethernet

**2x Gigabit Ethernet**, M12 X-coded female

**8x Fast Ethernet with PoE+**, M12 D-coded female, PoE max. 30 W per port (60 W in total)

## USB

Configuration via an USB flash drive:

**1x USB host port for configuration**, M12 A-coded female

## Power

**1x M12 A-coded male**

Non PoE Operation: 12 to 48 VDC (-12 % / +20%), 5 W

PoE Operation: 24 to 48 VDC (-33 % / +8 %), 70 W

## Software

**Managed layer 2 switch:**

- General: Configuration via web WebGUI or USB
- Layer 2 Features: Jumbo frames switching, VLAN 802.1Q, VLAN groups, port mirroring, IGMP snooping, storm protection, STP, MSTP, RSTP
- Networking Services: DHCP Server, SNMP v1/v2/v3
- Security: 1:N NAT, PAT, L3 stateless firewall
- ITxPT Services: module Inventory

## Environment

- Operating temperature: -40 °C to +70 °C
- Ingress protection level: IP54

## MTBF

729.604 hrs @ 25°C

173.505 hrs @ 60°C

## Compliance

CE, Vehicle according to UN ECE R10, UN ECE R118, Railway according to EN 50155, EN 45545-2, ITxPT

## Order Code

**ES3300-2Eg8Eq**

## Accessories

[Pwr-Cable-01-ES3300-M12-2](#)

[USB-Cable-01-ES3300-M12-USB](#)

## Licenses

### Software Key FMS2IP FMS to IP Gateway

#### Features

Enables the automatic translation of CAN messages into IP datagrams according to FMS Standard. ITxPT services:

- FMStoIP
- VEHICLEtoIP

#### Product Support

Ask for product support

#### Order Code

F

### Software Key GNSS GNSS Daemon

#### Features

GNSS location service with Server with JSON-, NMEA stream (if supported by hardware)

#### Product Support

Ask for product support

#### Order Code

G

### Software Key ITxPT ITxPT Services

#### Features

ITxPT specifications S01 v2.0.1 & S02 v2.0.1 with the following services:

- Module inventory service
- Time service
- GNSS Location service (requires -G option)
- FMStoIP service and related sub-services (requires -F option)
- VEHICLEtoIP service (requires -F option)

#### Product Support

Ask for product support

#### Order Code

Ix

#### Compliance

ITxPT hardware compliance can be achieved with appropriate product hardware.

## Software Key RF Enhanced Enhanced WLAN Configuration

### Features

Allows the enhanced WLAN configuration for professionals:

- Frequences
- Antenna gain
- Regulatory domain

### Product Support

Ask for product support

### Order Code

Rf

## Software Key Server

### OpenVPN Server License (up to 25 clients)

### Features

Extends number of OpenVPN clients from 10 to 25 and enables DynDNS server

### Product Support

Ask for product support

### Order Code

S

## Software Key eUICC

### Remote eUICC SIM profile management

### Features

Remote eUICC SIM profile update with static profile management. According to the remote subscriber provisioning standardized by GSMA in SGP.21 and 22 and validated according to SGP.23.

### Product Support

Ask for product support

### Order Code

Se

### Prerequisite

Use of an eUICC compatible SIM card or a product with a built-in eSIM chip (e.g. NG800).

## Software Key Voice Voice Gateway

### Features

Versatile voice gateway for seamless call routing  
Routes 2G/3G/4G, POTS, VoIP and PTT calls (if supported by hardware)

### Number Voice Channels

Up to 4 voice channels, depending on the product type.  
*Comment: each circuit switched call requires a modem*

### Product Support

Ask for product support

### Order Code

V

## Software Key Virtualization LXC Container

### Features

Environment supporting LXC container deployment to run customer applications separated from the NRSW (edge computing)

### Product Support

Ask for product support

### Order Code

Vi

## Approvals

### E-Mark Approval

### E-Mark / UN ECE R10

### Label

Declares the product E-Mark approval according to UN ECE R10

### Product Support

Ask for product support

### Order Code

E

## Cellular & WLAN

### LTE Cat 6 Modem

### LTE Advanced, UMTS for APAC

#### 4G – LTE

B1 (2100), B3 (1800), B7 (2600), B8 (900), B18 (800), B19 (800), B21 (1500), B5 (850), B38 (TDD2600), B40 (TDD2300), B28 (700), B39 (TDD1900), B41 (TDD2500)

#### 3G - DC-HSPA+/UMTS

B1 (2100), B5 (850), B6 (800), B8 (900), B9 (1700), B19 (800)

#### 2G - GSM/GPRS/EDGE

n.a.

#### Category

LTE Cat 6

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

300 Mbps / 50 Mbps

#### Voice

n.a.

#### Model

Sierra Wireless MC7430

#### Form Factor

miniPCIe (USB)

#### Product Support

Ask for product support

#### Order Code

Lc

## LTE Cat 6 Modem

### LTE Advanced, UMTS for EMEA, NA

#### 4G – LTE

B1 (2100), B2 (1900), B3 (1800), B4 (AWS), B7 (2600), B12 (700ac), B13 (700c), B20 (800DD), B5 (850), B25 (1900), B26 (850), B29 (700), B41 (TDD2500), B30 (WCS)

#### 3G - DC-HSPA+/UMTS

B1 (2100), B2 (1900), B3 (1800), B4 (1700), B5 (850), B8 (900)

#### 2G - GSM/GPRS/EDGE

n.a.

#### Category

LTE Cat 6

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

300 Mbps / 50 Mbps

#### Voice

n.a.

#### Model

Sierra Wireless MC7455

#### Form Factor

miniPCIe (USB)

#### Product Support

Ask for product support

#### Order Code

Ld

**LTE 450 MHz Modem**

**LTE 450 MHz, UMTS for EMEA**

**4G – LTE**

B3 (1800), B7 (2600), B20 (800), B31 (450)

**3G - DC-HSPA+/UMTS**

B1 (2100), B8 (900)

**2G - GSM/GPRS/EDGE**

B8 (900), B3 (1800)

**Category**

LTE Cat 3

**Antenna ports**

2x2 MIMO

**Datarate down / up (max)**

100 Mbps / 50 Mbps

**Voice**

n.a.

**Model**

MPL200

**Form Factor**

miniPCIe (USB)

**Order Code**

La

**Product Support**

Ask for product support



**5G/4G Rel. 15 Cat 20 Modem**  
**5G-NR, LTE-Advanced Pro, UMTS for EMEA**

**5G - NR**

n1, n3, n7, n8, n20, n28, n38, n40, n77, n78

**4G – LTE**

B1, B3, B7, B8, B20, B28, B38, B40

**3G - DC-HSPA+/UMTS**

B1 (2100), B3 (1800), B8 (900)

**Category**

5G/4G Rel. 15 LTE Cat. 20

**Antenna ports**

4x4 MIMO

**Datarate down / up (max)**

5.5 Gbps / 2.7 Gbps

**Voice**

-

**Model**

Telit FN980

**Form Factor**

M2 (with miniPCIe adapter)

**Order Code**

N

**Product Support**

Ask for product support

## LTE Cat 4 Modem

### LTE, UMTS, GSM Modem for EMEA

#### 4G – LTE

B1, B3, B7, B8, B20, B28A

#### 3G - DC-HSPA+/UMTS

B1 (2100), B3 (1800), B8 (900)

#### 2G - GSM/GPRS/EDGE

B3 (1800), B8 (900)

#### Category

LTE Cat 4

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

150 Mbps / 50 Mbps

#### Voice

CSFB, VoLTE

#### Model

Telit LE910C4-EU

#### Form Factor

miniPCIe (USB)

#### Order Code

L

#### Product Support

Ask for product support

## LTE Cat 12 Modem

### LTE Advanced Pro, UMTS for EMEA

#### 4G – LTE Advanced Pro

B1, B3, B7, B8, B20, B28, B38, B39, B40

#### 3G - DC-HSPA+/UMTS

B1, B8

#### Category

LTE Cat 12

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

600 Mbps / 150 Mbps

#### Voice

-

#### Model

Telit LN920A12-WW

#### Form Factor

M.2 (with miniPCIe adapter)

#### Order Code

Lp

#### Product Support

Ask for product support

## LTE Cat 4 Modem

### LTE, UMTS, GSM Modem for NA

#### 4G – LTE

B2 (1900), B4 (1700), B5 (850), B7 (2600), B17 (700)

#### 3G - DC-HSPA+/UMTS

B1 (2100), B2 (1900), B4 (AWS), B5 (850), B8 (900)

#### 2G - GSM/GPRS/EDGE

B2 (1900), B3 (1800), B5 (850), B8 (900)

#### Category

LTE Cat 4

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

150 Mbps / 50 Mbps

#### Voice

CSFB

#### Operators

AT&T, Rogers

#### Model

u-blox TOBY-L200

#### Form Factor

miniPCIE (USB)

#### Order Code

Lbb

#### Product Support

Ask for product support

## LTE Cat 4 Modem

### LTE, UMTS, GSM Modem for EMEA

#### 4G – LTE

B1 (2100), B3 (1800), B5 (850), B7 (2600), B8 (900), B20 (800)

#### 3G - DC-HSPA+/UMTS

B1 (2100), B2 (1900), B5 (850), B8 (900)

#### 2G - GSM/GPRS/EDGE

B2 (1900), B3 (1800), B5 (850), B8 (900)

#### Category

LTE Cat 4

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

150 Mbps / 50 Mbps

#### Voice

CSFB

#### Model

u-blox TOBY-L210

#### Form Factor

miniPCIe (USB)

#### Order Code

L

#### Product Support

Ask for product support

## LTE Cat 4 Modem

### LTE, UMTS, GSM Modem for APAC

#### 4G – LTE

B1 (2100), B3 (1800), B5 (850), B7 (2600), B8 (900), B28 (750)

#### 3G - DC-HSPA+/UMTS

B1 (2100), B2 (1900), B5 (850), B8 (900)

#### 2G - GSM/GPRS/EDGE

B2 (1900), B3 (1800), B5 (850), B8 (900)

#### Category

LTE Cat 4

#### Antenna ports

2x2 MIMO

#### Datarate down / up (max)

150 Mbps / 50 Mbps

#### Voice

CSFB

#### Model

u-blox TOBY-L280

#### Form Factor

miniPCIe (USB)

#### Product Support

Ask for product support

#### Order Code

Lg

## GSM-R Modem

### GSM-R for EMEA

#### 4G – LTE

n.a.

#### 3G - DC-HSPA+/UMTS

n.a.

#### 2G - GSM/GPRS

GSM-R (876-880 / 921-925), B8 (900), B3 (1800)

#### Category

GPRS Multislot class 10

#### Output Power

GSM-R Power Class 4 (2W)

#### Antenna ports

SISO

#### Datarate down / up (max)

85.6 kbps / 42.8 kbps

#### Voice

GSM (HR/FR/EFR/AMR)

#### Model

Triorail TRM-5

#### Form Factor

miniPCIe (USB)

#### Order Code

Gr

#### Product Support

Ask for product support

## WLAN module

### Dual-band WLAN 2.4/5 GHz a/b/g/n

#### Wireless standard

IEEE 802.11a/b/g/n (Wi-Fi 4)

#### Frequency

2.4/5 GHz

#### Diversity

2x2 MIMO

#### Datarate (max)

300 Mbps

#### Modes

Station or access point (up to 100 clients)

#### Model

Compex WLE200NX

#### Form Factor

miniPCIe (PCIe)

#### Order Code

W

#### Product Support

Ask for product support

## WLAN module

### Dual-band WLAN 2.4/5 GHz a/b/g/n/ac

#### Wireless standard

IEEE 802.11a/b/g/n/ac (Wi-Fi 5)

#### Frequency

2.4/5 GHz

#### Diversity

2x2 MIMO

#### Datarate (max)

300 Mbps (2.4 GHz) / 866 Mbps (5 GHz)

#### Modes

Station or access point (up to 100 clients)

#### Model

Compex WLE600VX

#### Form Factor

miniPCIe (PCIe)

#### Order Code

Wac

#### Product Support

Ask for product support



## Modules

### Mod-Audio

#### Audio/Voice Module

2x line-in, 2x line-out, miniPCIe

#### Features

2x Analog line-in, 2x Analog line-out

#### Analog Signals

Line in +/-, line out: +/-

#### Analog Line-In

21 k $\Omega$ , signal level 1.9 V<sub>pp</sub>, 100 Hz- 15 kHz

#### Analog Line-Out

600  $\Omega$ , signal level 3.6 V<sub>pp</sub>, 300 Hz- 4 kHz

#### Form Factor

miniPCIe (USB)

#### Software Support

Voice Gateway (Lic-V) and SDK in NRSW or LXC Container

#### Product Support

Ask for product support

#### Order Code

A

## **Mod-2xCAN CAN Module**

2x CAN, miniPCIe

### **Features**

2x Controller Area Network V2.0B (ISO 11898)

### **CAN Signals**

CANH, CANL

### **CAN Signal Level**

High > 2.75 V, low < 2.0 V

### **CAN Bitrate**

Up to 1 Mbps

### **CAN Isolation**

1500 VDC, galvanic isolation

### **CAN Termination**

No internal bus termination

### **Bus access**

Passive: read access only

Active: read + write access

### **Form Factor**

miniPCIe (USB)

### **Software Support**

NRSW via SDK or LXC Container

### **Product Support**

Ask for product support

### **Order Code**

2Cm - 2x CAN Passive (ready only)

2Cn - 2x CAN Active (read + write)

CmCn - 1x CAN Passive and 1x CAN Active

## Mod-CAN/RS485

### CAN, RS-485 Module

1x CAN, 1x RS-485, miniPCIe

#### Features

1x Controller Area Network V2.0B (ISO 11898),  
1x RS-485 serial interface

#### CAN Signals

CANH, CANL

#### CAN Signal Level

High > 2.75 V, low < 2.0 V

#### CAN Bitrate

Up to 1 Mbps

#### CAN Isolation

1500 VDC, galvanic isolation

#### CAN Termination

No internal bus termination

#### CAN Bus access

Active: read + write access

#### RS-485 Signals

A, B

#### RS-485 Signal Level

Differential output voltage, loaded 1.5 VDC – 3.6 VDC

#### RS-485 Bitrate

Up to 460'800 bps

#### RS-485 Isolation

1500 VDC, galvanic isolation

#### Form Factor

miniPCIe (USB)

#### Software Support

NRSW via SDK or LXC Container

#### Product Support

Ask for product support

#### Order Code

Cn (CAN Active), Sa (RS-485)

## Mod-DIO

### Digital-IO Module

2x digital inputs, 2x digital outputs, miniPCIE

#### Features

2x digital input

2x digital output

#### DI Signals

+, -

#### DI Level

Low: 0 - 5 VDC, high 9 - 60 VDC

#### DI Isolation

1500 VDC, galvanic isolation

#### DO Level

0 - 60 VDC/1A

#### DO Signals

NO, NC, COM

#### DO Isolation

1500 VDC, relais

#### Form Factor

miniPCIE (USB)

#### Software Support

NRSW via SDK or LXC Container

#### Product Support

Ask for product support

#### Order Code

2D

## **Mod-GNSS-ADR (NEO-M8L) GNSS-DR Module**

Multi-GNSS with Dead Reckoning, miniPCIe

### **Features**

GNSS with BeiDou, Galileo, GLONASS, GPS/QZSS

72-channel u-blox M8 engine

3 concurrent GNSS channels

Integrated motion sensors

### **Dead Reckoning Modes**

UDR: Untethered Dead Reckoning (without wheel tick)

ADR: Automotive Dead Reckoning (requires wheel tick)

### **Antennas**

Active or passive

### **Accuracy**

Up to 2.5 m CEP

### **Sensitivity**

Up to -160 dBm

### **Form Factor**

miniPCIe (USB)

### **Software Support**

Supported in NRSW

### **Product Support**

Ask for product support

### **Order Code**

Gd

## **Mod-IBIS/RS232**

### **IBIS, RS-232 Module**

1x IBIS slave, 1x RS-232, miniPCIe

#### **Features**

1x IBIS peripheral device according to VDV 300 (Slave)

1x RS-232 serial interface

#### **IBIS Signals**

WBED, WBME, WBSD, WBMS

#### **IBIS Signal Level**

High > 5VDC, low < -5 VDC

#### **IBIS Bitrate**

1200 bps

#### **IBIS Isolation**

1500 VDC, galvanic isolation

#### **RS-232 Signals**

TX, RX, CTS, RTS

#### **RS-232 Signal Level**

High > 5 VDC, low < -5 VDC

#### **RS-232 Bitrate**

Up to 1 Mbps

#### **RS-232 Isolation**

1500 VDC, galvanic isolation

#### **Form Factor**

miniPCIe (USB)

#### **Software Support**

IBIS support on request, RS-232 in NRSW SDK or LXC Container

#### **Product Support**

Ask for product support

#### **Order Code**

I (IBIS), Sb (RS-232)

## Mod-Audio-PTT

### Push-to-Talk Module

Line in/out + digital in/out, miniPCIe

#### Features

1x Analog line-in, 1x Analog line-out

1x Digital-input, 1x Digital-output

#### Analog Signals

Line in +/-, line out: +/-

#### Analog Line-In

21 k $\Omega$ , signal level 1.9 V<sub>pp</sub>, 100 Hz- 15 kHz

#### Analog Line-Out

600  $\Omega$ , signal level 3.6 V<sub>pp</sub>, 300 Hz- 4 kHz

#### Digital-In Signals

+, -

#### Digital-In Levels

Low 0 - 5 VDC, high 7.2 - 60 VDC

#### Digital-Out Signals

NO, COM

#### Digital-Out Levels

0 - 60 VDC/1A

#### Digital-Out Isolation

100 VDC

#### Form Factor

miniPCIe (USB)

#### Software Support

Voice Gateway (Lic-V) and SDK in NRSW or LXC Container

#### Product Support

Ask for product support

#### Order Code

Ap

## Mod-SSD

### Solid State Disk Module

32, 64, 128, 256, 512, 1024 GB SSD

#### Features

SSD storage card for application data

#### Capacity

32 GB, 64 GB, 128 GB, 256 GB, 512 GB, 1 TB

#### Technology

SSD (Solid State Disk)

#### Data

Application data such as logs, media content, ...

#### Form Factor

SATA Disk

#### Software Support

SDK in NRSW or LXC Container

#### Product Support

Ask for product support

#### Order Code

Da, Db, Dc, Dd, De, Df



**Shield-CAN**  
**CAN Shield**

2x CAN, shield

**Features**

2x Controller Area Network V2.0B (ISO 11898)

**CAN Signals**

CANH, CANL

**CAN Signal Level**

High > 2.75 V, low < 2.0 V

**CAN Bitrate**

Up to 1 Mbps

**CAN Termination**

No internal bus termination

On request: 120 Ω configurable by software

**Bus access**

Passive (read access only)

On request: write access

**Form Factor**

Shield

**Software Support**

NRSW via SDK or LXC Container

**Product Support**

Ask for product support

**Order Code**

2C

## Shield-COMIO COM-I/O Shield

1x RS-232/485, 1x digital input, 1x digital output, shield

### Features

1x RS-232/485

1x digital input

1x digital output

### RS-232 Signals

TX, RX

### RS-232 Signal Level

High > 5 VDC, low < -5 VDC

### RS-232 Bitrate

Up to 1 Mbps

### RS-485 Signals

A, B

### RS-485 Signal Level

Differential output voltage, loaded 1.5 VDC – 3.6 VDC

### RS-485 Bitrate

Up to 1 Mbps

### RS-485 Termination

120 Ω for RS-485 configurable by software

### DI Signals

+, -

### DI Level

Low: 0 - 3 VDC, high: 9 - 32 VDC

### DO Signals

NO, NC, COM

### DO Level

0 - 32 VDC/1A

### DIO Isolation

1500 VAC

### Order Code

Sc

### Form Factor

Shield

### Software Support

NRSW via SDK or LXC Container

### Product Support

Ask for product support

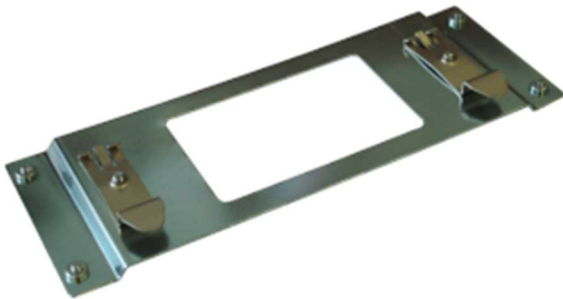
## Mounting



### DIN-Rail-Mounting-Clip DIN-Rail Mounting Clip for NB800

#### Order Code

DIN-Rail-Mounting-Clip



### DIN-Rail-Mounting-Kit DIN-Rail Mounting Kit for NB2000 Line

#### Order Code

DIN-Rail-Mounting-Kit

## Antennas



### Antenna-Coach-2L

#### Coach Roof Antenna with MIMO LTE + UN ECE R118 2 x Cellular 0 x WLAN 0 x GNSS



### Antenna-Coach-2L2WG

#### Coach Roof Antenna with MIMO LTE + MIMO WLAN + GNSS + UN ECE R118 2 x Cellular 2 x WLAN 1 x GNSS



### Antenna-Coach-2LG

**Coach Roof Antenna with MIMO LTE + GNSS + UN ECE R118**  
**2 x Cellular 0 x WLAN 1 x GNSS**



### Antenna-Coach-2W

**Coach Roof Antenna with MIMO WLAN + UN ECE R118**  
**0 x Cellular 2 x WLAN 0 x GNSS**



### Antenna-Coach-2WJs

## Coach Roof Antenna with MIMO WLAN + UN ECE R118 0 x Cellular 2 x WLAN 0 x GNSS



### Antenna-Coach-4N

## Coach Roof Antenna with 4x4 MIMO 5G + UN ECE R118 4 x Cellular 0 x WLAN 0 x GNSS



### Antenna-Coach-4N4W

## Coach Roof Antenna with 4x4 MIMO 5G + 4x4 MIMO WLAN + UN ECE R118

4 x Cellular 4 x WLAN 0 x GNSS



### Antenna-Coach-4N4WG

## Coach Roof Antenna with 4x4 MIMO 5G + 4x4 MIMO WLAN + GNSS + UN ECE R10 + UN ECE R118

4 x Cellular 4 x WLAN 1 x GNSS



### Antenna-Coach-4NG

**Coach Roof Antenna with 4x4 MIMO 5G + UN ECE R118 + GNSS**  
**4 x Cellular 0 x WLAN 1 x GNSS**



### Antenna-Coach-4NGJs

**Coach Roof Antenna with 4x4 MIMO 5G + UN ECE R118 + GNSS**  
**4 x Cellular 0 x WLAN 1 x GNSS**





### Antenna-Coach-4NJ

## Coach Roof Antenna with 4x4 MIMO 5G + UN ECE R118 4 x Cellular 0 x WLAN 0 x GNSS



### Antenna-Coach-Indoor-2W

## Coach Indoor Antenna with MIMO WLAN + UN ECE R118 0 x Cellular 2 x WLAN 0 x GNSS



### Antenna-Port-N

## Directly mountable rod antenna for 5G, LTE, UMTS, GSM and WLAN networks

1 x Cellular 1 x WLAN 0 x GNSS



### Antenna-Railway-2L

## Railway Antenna with MIMO LTE + EN50155 + 3m Cable

2 x Cellular 0 x WLAN 0 x GNSS



Antenna-Railway-2L2WG

**Railway Antenna with MIMO LTE + MIMO WLAN + GNSS + EN50155 +  
3m Cable**  
**2 x Cellular 2 x WLAN 1 x GNSS**



Antenna-Railway-2LG

**Railway Antenna with MIMO LTE + GNSS + EN50155 + 3m Cable**  
**Multiband train antenna with antenna cables**  
**2 x Cellular 0 x WLAN 1 x GNSS**



### Antenna-Railway-4L

#### Railway Antenna with 4x4 MIMO LTE + EN50155 + 3m Cable

Multiband train antenna with antenna cables

4 x Cellular 0 x WLAN 0 x GNSS



### Antenna-Railway-4L2WG

#### Railway Antenna with 4x4 MIMO LTE + MIMO WLAN + GNSS + 3m Cable

Multiband train antenna with antenna cables

4 x Cellular 2 x WLAN 1 x GNSS



### Antenna-Railway-4LG

**Railway Antenna with 4x4 MIMO LTE + GNSS + EN50155 + 3m Cable**  
**4 x Cellular 0 x WLAN 1 x GNSS**



### Antenna-Railway-4N

**Railway Antenna with 4x4 MIMO 5G + EN50155 + 3m Cable**  
**Multiband train antenna**  
**4 x Cellular 0 x WLAN 0 x GNSS**



**Antenna-Railway-4N2W**

**Railway Antenna with 4x4 MIMO 5G + MIMO WLAN + 3m Cable**

**Multiband train antenna**

**4 x Cellular 2 x WLAN 0 x GNSS**



**Antenna-Railway-4N2WG**

**Railway Antenna with 4x4 MIMO 5G + MIMO WLAN + GNSS + 3m Cable**

**Multiband train antenna**

**4 x Cellular 2 x WLAN 1 x GNSS**



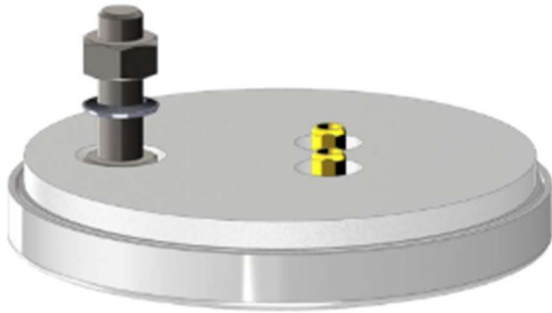
### Antenna-Railway-4NG

**Railway Antenna with 4x4 MIMO 5G + GNSS + EN50155 + 3m Cable**  
**4 x Cellular 0 x WLAN 1 x GNSS**



### Antenna-Railway-Indoor-01-2W

**Railway Indoor Antenna with MIMO WLAN + EN50155 + 3m Cable**  
**0 x Cellular 2 x WLAN 0 x GNSS**



Antenna-Railway-Indoor-01-2WJq

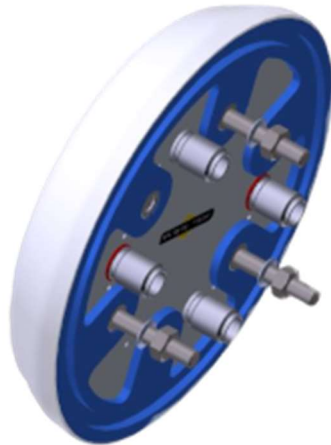
**Railway Indoor Antenna with MIMO WLAN + EN50155 + 3m Cable**  
0 x Cellular 2 x WLAN 0 x GNSS



Antenna-Railway-Indoor-2W

**Railway Indoor Antenna with MIMO WLAN + EN50155 + 3m Cable**  
0 x Cellular 2 x WLAN 0 x GNSS





Antenna-Railway-Indoor-4W

Railway Indoor Antenna with 4x4 MIMO WLAN + EN50155 + 3m Cable  
0 x Cellular 4 x WLAN 0 x GNSS



Antenna-Roof-2L

Roof Antenna with MIMO LTE  
2 x Cellular 0 x WLAN 0 x GNSS



Antenna-Roof-2L2W

**Roof Antenna with MIMO LTE + MIMO WLAN**  
**2 x Cellular 2 x WLAN 0 x GNSS**



Antenna-Roof-2L2WG

**Roof Antenna with MIMO LTE + MIMO WLAN + GNSS**  
**2 x Cellular 2 x WLAN 1 x GNSS**



### Antenna-Roof-2LG

#### Roof Antenna with MIMO LTE + GNSS 2 x Cellular 0 x WLAN 1 x GNSS



### Antenna-Roof-2W

#### Roof Antenna with MIMO WLAN 0 x Cellular 2 x WLAN 0 x GNSS



Antenna-Roof-L

**Roof Antenna with LTE**  
**1 x Cellular 0 x WLAN 0 x GNSS**



Antenna-Roof-W

**Roof Antenna with WLAN**  
**0 x Cellular 1 x WLAN 0 x GNSS**



**Antenna-Wall-2L**

**Wall Antenna with MIMO LTE or WiFi**  
**2 x Cellular 0 x WLAN 0 x GNSS**



**Antenna-Wall-L**

**Wall Antenna with LTE**  
**1 x Cellular 0 x WLAN 0 x GNSS**