cns-enocean Connectivity Kit/N4 Datasheet

Introduction

cns-enocean for Niagara, is a smart IoT convergent product, empowering any suitable Niagara Framework® platform to be used for the commissioning and operation of networks of EnOcean® wireless energy harvesting devices through Ethernet connected wireless interfaces.

EnOcean wireless technology is a global ISO/IEC 14543-3-10 standards based wireless sensor, switch and actuator device solution for use in smart and intelligent building control installations. It is an extremely low power technology enabling devices to harvest operational power from their surroundings or through mechanical interaction. Therefore, sensors and switches can be installed with no wires or batteries required to operate.

This all that is required to simply connect networks of Enocean wireless energy harvesting devices directly to smart IoT Building Management and Control multi-vendor platforms using Tridium's Niagara Framework®, and be delivered, operated and maintained by any suitably qualified Niagara Systems Integrators (SI).

CNS's cns-**enocean** Connectivity Kit is part of CNS's Niagara wireless commissioning, control, maintenance, management and analytics products and solutions comprising:-

For more details on the entire **cns-**enocean product and solution range visit www.cns-enocean.com .

Features

Each licensed **cns-**enocean Connectivity Kit/N4 enables –

- A suitable Niagara platform to connect via an Ethernet EnOcean wireless interface to a network of EnOcean sensors and switches
- The discovery and commissioning of networks of EnOcean Ethernet transceiver devices from within Niagara Workbench
- The learning and commissioning networks of EnOcean wireless switches and sensors via Niagara Workbench
- Automatic EnOcean device modelling according to EnOcean Equipment Profiles (EEP 2.1). No data IO mapping or labelling required, reducing commissioning time and cost
- Seamless access to EnOcean device data
- Use with any EnOcean product manufacturer's wireless switches and sensors that conform to EEP.
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cns-enocean for Niagara N4 conforms to the international standard ISO/IEC 14543-3-10, does not limit the number of EnOcean wireless devices per **cns-**enocean Connectivity Kit*, may operate up to 100 metres open field range, see additional details below and is available in licensed 868Mhz, 902Mhz & 921MHz options

There is **absolutely no** requirement for Third Party commissioning tools.

***NB: Subject to available computing resources on the chosen Niagara4 platform/'s installed to meet specific application requirements.**

Benefits of Niagara Lighting Controllers with elitedali

Lower cost of installation –

Less hardware, leveraging N4 platform lower costs, better utilisation & ROI.

Simpler network architecture –

Less to go wrong, less parasitic power consumption, more sustainable.

Easier & faster to commission –

Familiar Niagara environment, tools and methods, highly automated, easier to support and maintain, NO mapping, labelling or enumeration checking required. Full EnOcean learn in capability and bind operation supported.

Future Proof –

Interoperable open standards based, highly vendor independent, multiple suppliers & installers globally.

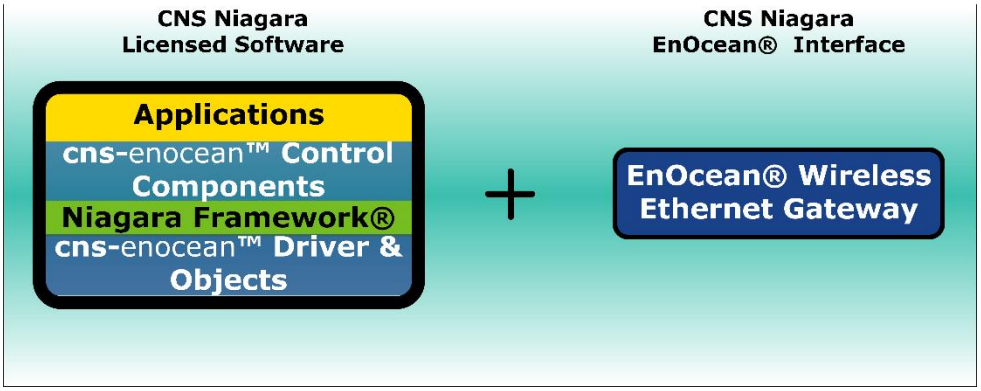
Total Integration –

Seamless native Niagara EnOcean solution guaranteeing total integration with all other sub-systems connected to the Niagara Framework, offering better user experience, lower energy costs and less equipment.

Seamless access to real-time data –

Enables complete control and management of assets in real-time both locally and remotely via smart mobile and cloud based tools.

The **cns-**enocean Connectivity kit/N4 seamlessly connects EnOcean wireless networks directly to any suitable Niagara4 platform, such as a **JACE™8K,** via its Ethernet port and comprises:-



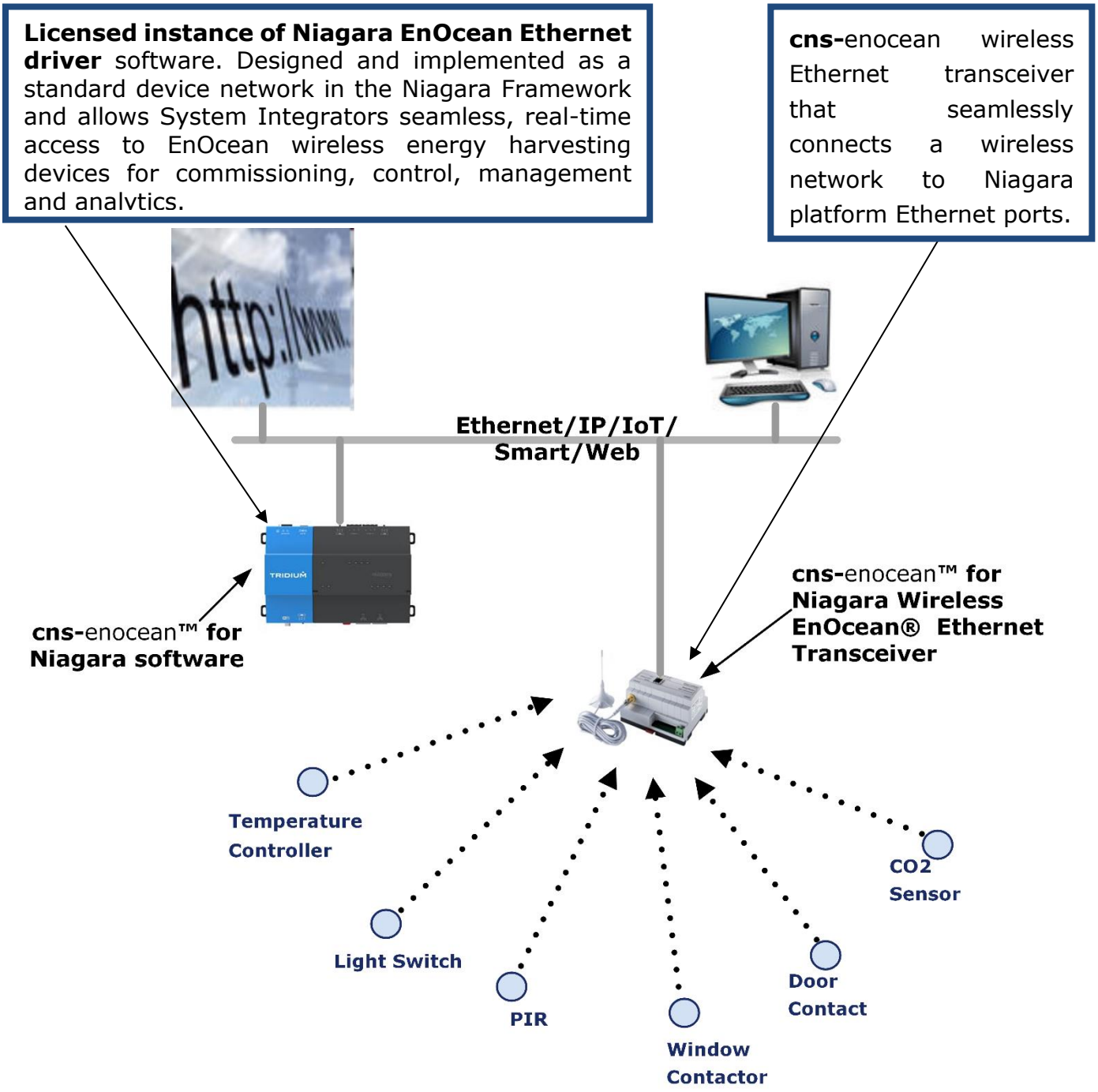
- **Each cns-**enocean* **Connectivity Kit consists of-**
  - 1 x Licensed instance of Niagara **cns-**enocean software comprising –
    - Native Niagara EnOcean Ethernet interface driver software, device modelling, addressing and commissioning tools
  - 1x EnOcean wireless Ethernet transceiver Module for open Interoperable Standard EnOcean wireless energy harvesting devices that conform to EnOcean Equipment Profiles (EEP) standards.
  - Full documentation including User and Reference manuals

Enables the full learn in & binding, commissioning, control, management, visualisation and analytics of one Enocean wireless network minimum of 31 Enocean devices that conform to the relevant EEP standard.

*__cns-__enocean strictly conforms to the current published EnOcean ISO/IEC 14543-3-10 and EnOcean-Alliance EEP 2.1.

cns-enocean Connectivity Kit/N4 comprises:-

All the basic components required to commission, control, maintain and manage a single open standard EnOcean wireless network connected to a Niagara platform constituting the Building Control, Management, Automation or Energy solution.



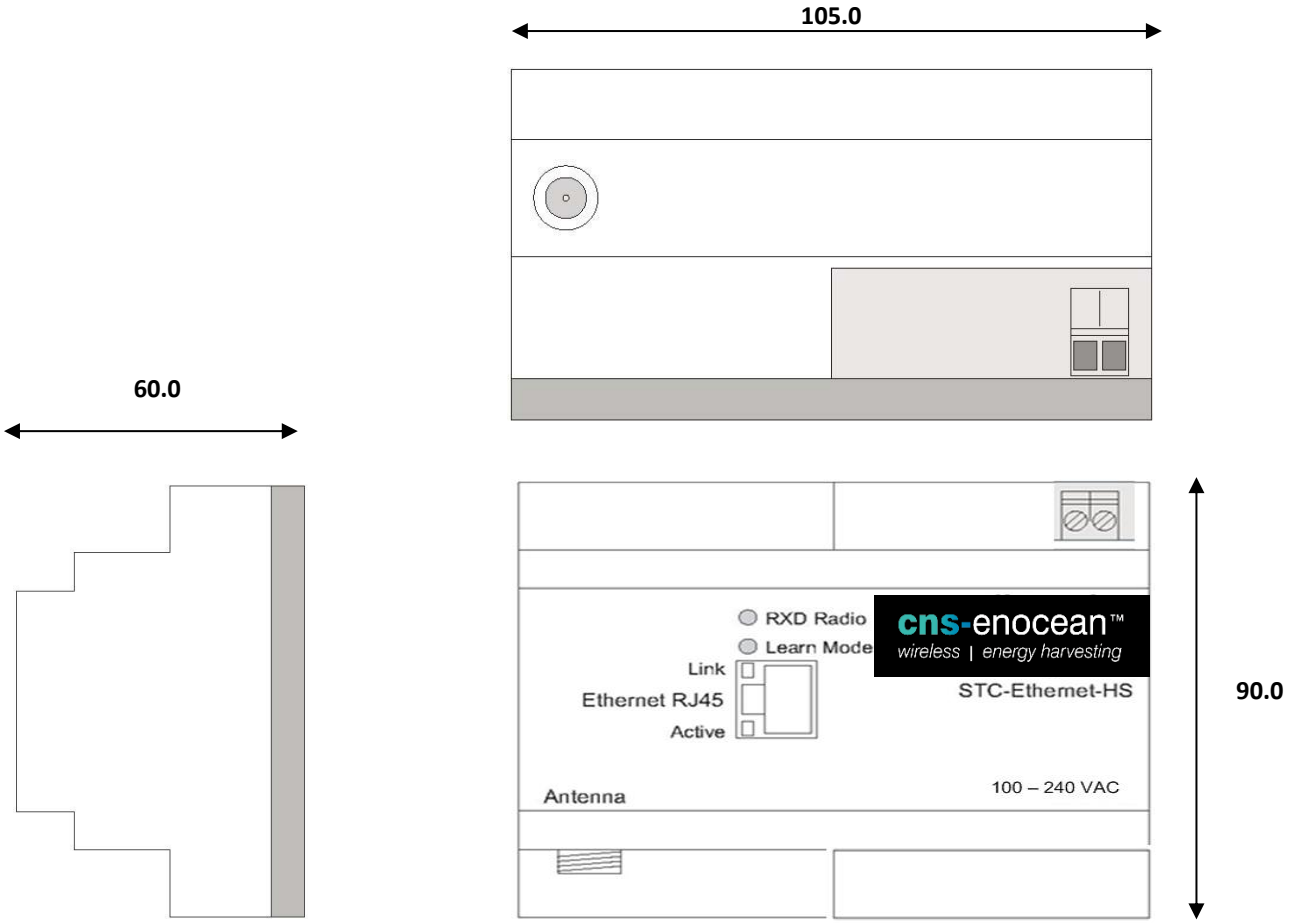
cns-enocean may be installed on a single Niagara4 controller or across many Niagara controllers.

cns-enocean EnOcean Driver Software Specification

- Native Niagara driver for Niagara4 version 4.1 onwards
- Uses device modelling so **NO** I/O mapping, labelling or enumeration checking required
- Standard functions such as creating new devices, adding devices, device discovery and matching devices are all included
- Enhanced functionality has been included specifically for the management of Enocean wireless networks.
- Utilises familiar Niagara methods and tools for learning in/ binding, discovery, logging alarming, scheduling etc..
- Seamless access to all Enocean device value data
- Integrates with all Niagara services including but not limited to reporting, tagging, scheduling, alarming etc..
- Supports EnOcean ISO/IEC 14543-3-10 and EnOcean-Alliance EEP 2.1.
- User information is fully documented and supplied with the licensed software

cns-enocean Connectivity Kit Hardware Specifications

DIMENSIONS (MM)



Electrical Input

Rated supply voltage	24V AC/DC, ± 10%
Mains frequency & 24VAC	50 / 60 Hz
Power, maximum	5 VA

Connections

Ethernet: Female RJ-45
Wireless:
Transmission Freq./Power: at 868.3MHz/max. Is 10mW
External antenna with magnetic holding (included in delivery).
Connector female FME
Mains Power: Terminal screw max.1.5mm²
Enclosure: ABS, Colour light grey similar to RAL7035

Environmental

Ambient temperature, ta: 0 ... +60 °C
Storage temperature: -20 ... +70 °C
Humidity: 0...75%rH, without dew permeation
Type of protection: IP20, according EN 60529
Weight: approx. 0.3Kg, excluding antennae

Standards

CE-Conformity:	2004/108/EG Electromagnetic compatibility
	R&TTE 1999/5/EC Radio and Telecommunications
	Terminal Equipment Directive
Product safety:	2001/95/EG Product safety
Standards:	EN 61000-6-2: 2005
	EN 61000-6-3: 2007
	ETSI EN 301 489-3:2001
	EN 61000-3-2: 2006
	EN 61000-3-3: 1995 + A1 +A2
Product safety:	EN 60730-1:2002

Enocean Ethernet Transceiver User Information

Safety Advice Caution 100 - 230V AC!!!!

Caution: The installation and assembly of electrical equipment may only be performed by a skilled and appropriately licensed or certified electrician. Isolate installation before removal of cover (Disconnect fuse).

The modules must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

Electrical Connection

The devices are constructed for operation at 100 - 230V AC. The devices must be operated at a constant supply voltage. When switching the supply voltage on/off, power surges must be avoided on site.

Mounting Advice

The housing of the module is designed for an installation on standard mounting rails according to DIN EN 50022. For operation, a separate external receiving antenna is necessary.

The antenna has a magnetic flux and must be mounted in the middle of a metal plate with the minimum dimensions 180mm x 180mm (material: galvanized sheet steel, please see "accessories"). The ideal mounting place in rooms is found approx. 1m under the ceiling (optimum radio transmission range). The antenna should be adjusted vertically downwards and should have a minimum distance of approx. 90mm to the wall. The distance to other senders (e.g. GSM/DECT/Wireless LAN/ EnOcean senders) should be 2m at least. To match the colour of the room, the antenna can be painted, accordingly (do not use any metallic lacquers).

Cable Laying Notice

- Cable laying should be made in an electric conduit.

- Crushing of cable should be avoided.

- The minimum bending radius of the extension cable should not be less than 50mm

- Do not use an active pull-up device for the cable laying, in order to avoid any damages of the sheathing respectively of the connectors.

For an optimum location of the antenna and an optimum radio transmission range, please see information below and separate EnOcean device datasheets, click here.

EnOcean Wireless Information

VERY IMPORTANT: Before designing or deploying any wireless solution, it is critical that a proper wireless site survey is carried out. Tools for assisting with this task are available, click here for more details.

Transmission Range 868.3 Mhz

As the radio signals are electromagnetic waves, the signal is damped on its way from the sender to the receiver. That is to say, the electrical as well as the magnetic field strength is removed inversely proportional to the square of the distance between sender and receiver ($E,H \sim 1/r^2$).

Beside these natural transmission range limits, further interferences must be considered: Metallic parts, e.g. reinforcements in walls, metallised foils of thermal insulations or metallised heat-absorbing glass, all reflect electromagnetic waves. Thus, a so-called radio shadow is built up behind these parts.

Radio waves can penetrate walls, but this does create additional wireless signal attenuation.

Penetration of radio signals:

Material	*Penetration*
Wood, gypsum, glass uncoated	90...100%
Brick, pressboard	65...95%
Reinforced concrete	10...90%
Metal, aluminium pasting	0...10%

In practice, this means that the building material used in a building is of paramount importance for the evaluation of the transmitting range. For an evaluation of the environment, some guide values are listed:

Radio path range/-penetration:

Visual contact or Open field:
Typ. 30m range in passages, corridors, up to 100m in halls

Rigypsum walls/wood:
Typ. 30m range through max. 5 walls

Brick wall/Gas concrete:
Typ. 20m range through max. 3 walls

Reinforced concrete/-ceilings:
Typ. 10m range through max. 1 ceiling

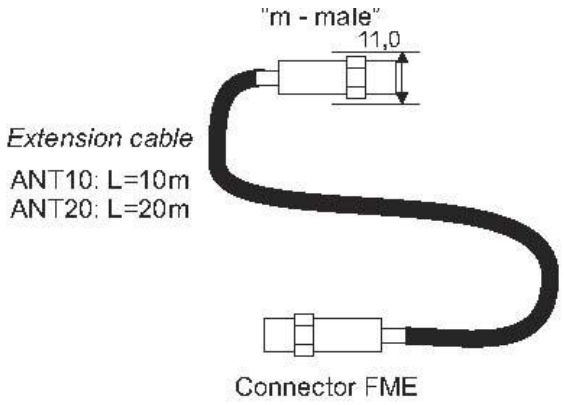
Supply blocks and lift shafts should be seen as a compartmentalisation

In addition, the angle with which transmitted signal arrives at the wall is of great importance. Depending upon this angle and the effective wall strength, the attenuation of the signal changes. Where possible, the signals should be perpendicularly run through the masonry. Wall recesses should be avoided.

Other Interference Sources

Devices that also operate with high-frequency signals, e.g. computer, audio-/video systems, electronic transformers and ballasts etc. are also considered as an interference source.
The minimum distance to such devices should amount to 0,5m.

EnOcean Ethernet Transceiver Optional Accessories



cns-enocean Connectivity Kit/N4 Order Details

Description:	Part No:
cns-enocean **Connectivity Kit/868MHz,**	**efnENO-ETH/N4/868MHz**
cns-enocean **Connectivity Kit/902MHz,**	**efnENO-ETH/N4/902MHz**
cns-enocean **Connectivity Kit/921MHz,**	**efnENO-ETH/N4/921MHz**

Power supply options are:

All EnOcean transceivers are supplied as standard with 24V AC/DC power supply option. However, 868, 921MHz are available with 100 – 240VAC by special order, please confirm at time of ordering

902 MHz is only available with 24V AC/DC option

CNS can also supply cns-enocean compatible EnOcean wireless energy harvesting products click here for more details.

Contact Details

Control Network Solutions Ltd

Unit 9b, Intec 2, Intec Business Park, Wade Road
BASINGSTOKE,
Hampshire, RG24 8NE, England

Tel: +44 (0) 1256 818700
Fax: +44 (0) 1256 812520
Email: Sales@control-network-solutions.co.uk
Email: Sales@control-network-solutions.co.uk
Web: cns-enocean.com
Twitter: twitter.com/cns_enocean
LinkedIn: cns-enocean for Niagara Group
Facebook: @CNSLTDUK