







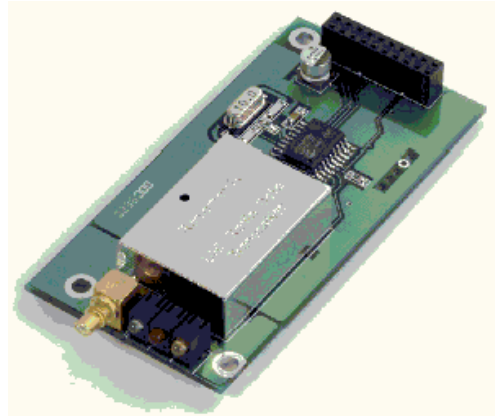




Features

-  Compatible with the LonWorks SMX interface standard
-  Low power RF transceiver on-board
-  License exempt operation on 433MHz, ETS 330
-  SAW controlled FM transmission at -6dBm ERP
-  -107dBm receive sensitivity
-  Up to 19.5 kilobits per second half-duplex network bit rate
-  *30 - 100 metre typical range within buildings,
-  *350-400 metres open ground at 433 MHz.



*subject to construction, topology and aerial technology

Description

The CNSRFSMX provides a modular, flexible way of adding LonWorks® technology to any control system where local conditions make an RF solution ideal for network communications. LonWorks® devices such as the PCNSS card, the PCLTA LonTalk Adapter, the Nodebuilder Development Tool, and Control Network Solutions' CNSRTRC-SMX Router comply with the SMX interface standard, to allow a plug-and-play solution to interfacing to the RF medium. In addition, the CNSRTRC-SMX Router allows rapid interfacing between any media supported by SMX transceivers and the 433RF network.

The common form factor of SMX transceivers allows the development of LonWorks® products, which are media independent, without requiring a unique product for each media type. The CNSRFSMX conforms to the standard length SMX layout as with Echelon's FTT and Twisted Pair SMX transceivers. The

transceiver ID is defined as custom (1E hex) and the product is documented with the transceiver parameters required to operate the RF network correctly.

Operation is indicated by three LED's - green for power on, red for packet transmitted and yellow for packet received. An SMA jack is provided for connection to an antenna.





The board integrates a low power UHF transceiver and a digital signal-processing chip, which runs an especially developed DSP filter providing reliable operation of the LonTalk protocol over RF.





Connector

20-Pin SMX Connector Pinout

- | | |
|---------------------------|-----------------------------|
| 1. VCC +5vDC input | 2. GND ground |
| 3. XID0 Transceiver ID 0 | 4. CP4 Neuron comms port 4 |
| 5. XID1 Transceiver ID 1 | 6. CP2 Neuron comms port 2 |
| 7. XID2 Transceiver ID 2 | 8. CP1 Neuron comms port 1 |
| 9. XID3 Transceiver ID 3 | 10. CP0 Neuron comms port 0 |
| 11. XID4 Transceiver ID 4 | 12. CP3 Neuron comms port 4 |
| 13. N/C Not Connected | 14. N/C Not Connected |
| 15. N/C Not Connected | 16. ~RST Reset input |
| 17. N/C Not Connected | 18. N/C |
| 19. VCC +5vDC input | 20. GND ground |

Specification

-  RF Module 433MHz license exempt ETS300-220 single channel FM module
-  Network Bit Rate 19.5Kb/s
-  Operating Input Voltage +5vDC 5%
-  Operating Input Current 40mA

-  I/O Connectors 2 x 10 pin socket on 0.1"(2.54mm) centres
-  Suitable Plugs 2 x 10 pin plug, e.g. - Samtech MTSW-110-09-G-D-400 or Samtech TSW-110-14-G-D
-  Mounting Pillars 3 x metal pillars 16mm/0.5" in height M3 pitch, required for mechanical mounting and good grounding connection for EMC compliance
-  Operating Temperature 0°C to + 55°C

Antenna

A SMA socket is provided for connection to an antenna. Helical stub or whip antennas are suitable types. A whip antenna can be formed from a straight length of wire 15.5cm long for 433MHz. A helical stub antenna can be formed from 0.5mm enamelled copper wire, close wound on a 3.2mm diameter former: 24turns for 433MHz. It is preferable to source these items encapsulated in a plastic or rubber sheath to prevent damage to the RF module during EMC susceptibility testing. Stub helical aerials can be supplied by CNS or appropriate aerial technology can be bought from any local Radio Specialist.

RF Type Approval

In order to maintain conformance the following rules must be applied:

1. The RF module used in these products is approved to MPT1340 for use in the UK and ETS-300-220 for use in Europe.
2. The transmitting antenna must be one of 3 types; whip, helical stub, or loop. Antenna structures, which yield ERP gain, are not permitted.
3. The module must be directly and permanently connected to the transmitting antenna without the use of an external feeder. Increasing the RF power by any means is not permitted.
4. The module must not be modified nor used outside its specification limits.
5. The equipment in which the module is used must carry an inspection mark located on the outside of the equipment and be clearly visible. The minimum dimensions of the inspection mark shall be 10x15mm and the letter and

figure height must be no less than 2mm. The wording shall read: "MPT 1340 W.T. LICENSE EXEMPT"

6. Products intended for UK commercial application must be notified to the Radio Communications Agency (RA) on form RA249 (Cat I), web site: www.radio.gov.uk

Ordering Information

CNSRFSMX-433 SMX Transceiver with 433MHz-radio module fitted

Contact Details

Control Network Solutions Ltd

Daneshill House,
Lutyens Close,
BASINGSTOKE,
Hampshire, RG24 8AG, England

Tel: +44 (0) 1256 818700

Fax: +44 (0) 1256 305778

Email: cns@control-network-solutions.co.uk

Web: <http://www.control-network-solutions.co.uk>

No part of this publication may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, in part or in whole, without prior permission of Control Network Solutions or Open Automation and Control. We reserve the right to make changes without notice to any products herein as part of its continued product development and improvements. We do not assume any liability arising out of the application or use of any product or circuit described herein.