NX Series Reader User Guide

NX-M00C	Master Box- No RM4 with connectors.
NX-M01C	Master Box- 1 X RM4 with connectors.
NX-M02C	Master Box- 2 X RM4 with connectors.
NX-M01CA	Master Box- 1 X RM4 with connectors with Antenna connectors
NX-M02CA	Master Box- 2 X RM4 with connectors with Antenna connectors
NX-R01	Reader Box- 1 X RM4 without connectors
NX-R02	Reader Box- 2 X RM4 without connectors
NX-R01C	Reader Box- 1 X RM4 with Power and R-Net connectors
NX-R02C	Reader Box- 2 X RM4 with Power and R-Net connectors
NX-R01CA	Reader Box- 1 X RM4 with Power, R-Net and Antenna connectors
NX-R02CA	Reader Box- 2 X RM4 with Power, R-Net and Antenna connectors

Version 1.00/Draft   02/12/2019

IMPORTANT!
This User Guide must be read in conjunction with Reader, prior to use.

ISO 9001 : 2000
REGISTERED FIRM

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REGULARITY NOTICES AND CONFORMITY

Australia and New Zealand RMA

This device has been tested and meets the Electromagnetic Compatibility requirements for CISPR 22 and Radio testing AS/AZS 4268

USA – FCC

Information to the user (FCC Part 15.105)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Modification warning (FCC Part 15.21)

Warning: Any changes or modifications not expressively approved by Allflex could void the user's authority to operate this equipment.

IC Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

ANTENNA WARNING

This device has been designed to operate with the antennas listed below. The NX Series Readers are only approved with the detachable antennas below. In accordance with RSS-GEN Issue 2 June 2007 Section 7.1.4 and FCC Part 15.21, antennas not included in this list are strictly prohibited for use with this device.

Allflex Part Number	Description
NX-AW30	Antenna Wand 30cm
NX-AW50	Antenna Wand 50cm
NX-AW100	Antenna Wand 100cm
NX-AW1500	Antenna Wand 150cm
NX-AW2000	Antenna Wand 200cm
NX-AW2500	Antenna Wand 250cm
NX-AW3000	Antenna Wand 300cm
NX-AP4030	Antenna Panel 40x 30cm
NX-AP6040	Antenna Panel 60x 40cm
NX-AP9045	Antenna Panel 90x 45cm
NX-AP12060	Antenna Panel 120x 60cm
NX-ANB805	Antenna Neck bar 80cm x 5cm

PRODUCT SAFETY NOTICES

The system should not be used in weather conditions where lightning strike may be possible.

The data ports are treated as TNV-1. The device (PC or other) to be connected to this unit should comply with the corresponding requirements for TNV-1 circuits as per AS/NZS 60950.1"

This device meets Electromagnetic Radiation Human Exposure Standard 2003 for EME -Meets Category A under the Compliance Labelling Notice 2014
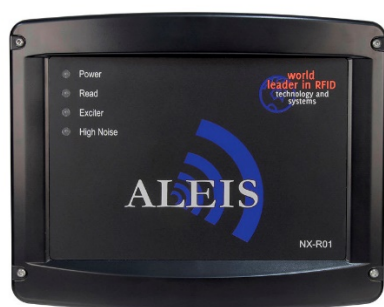
IMPORTANT
Must be read prior to using system

The following instructions must be wholly adhered to or permanent damage to the antenna/reader and/or permanent data loss can occur. Non-conformance to the handling and operating instructions will immediately void all warranties for the antenna/reader and software.

1. Have only one system at a time switched on unless Master/Slaved.
2. Do not hose or submerge antenna/reader in water.
3. Use only a very lightly damp cloth to clean antenna/reader.
4. Do not use chemicals to clean antenna/reader.
5. Do not drop reader boxes as electronics are contained within.
6. All boxes with seals are to be kept sealed.
7. Do not remove any VOID stickers from readers.
8. Do not drill holes in antenna.
9. Allflex Conditions of Sale apply.

1.0   THE NX SERIES

The NX Reader series is available in different configurations

NX-R01   NX-R02   NX-M

Model	Description
NX-R01	Reader Box – 1x RFM. No connectors. LED indicators for power, read, exciter and high noise.
NX-R02	Reader Box – 2x RFM. No connectors. LED indicators for power, read, exciter and high noise.
NX-R01C	Reader Box – 1x RFM. Connectors for power and Rnet. LED indicators for power, read, exciter and high noise. Includes 10m power cable and 6m serial data cable.
NX-R02C	Reader Box – 2x RFM. Connectors for power and Rnet. LED indicators for power, read, exciter and high noise. Includes 10m power cable and 6m serial data cable.
NX-R01CA	Reader Box – 1x RFM. Connectors for power, Rnet and antenna. LED indicators for power, read, exciter and high noise. Includes 10m power cable and 6m serial data cable.
NX-R02CA	Reader Box – 2x RFM. Connectors for power, Rnet and antenna. LED indicators for power, read, exciter and high noise. Includes 10m power cable and 6m serial data cable.
NX-M00C	Master Box – No RFM. Connectors for power and Rnet. High resolution touch screen LCD. Includes 10m power cable, 6m serial data cable, USB cable and slide on bracket.
NX-M01C	Master Box – 1x RFM. Connectors for power and Rnet. High resolution touch screen LCD. Includes 10m power cable, 6m serial data cable, USB cable and slide on bracket.
NX-M02C	Master Box – 2x RFM. Connectors for power and Rnet. High resolution touch screen LCD. Includes 10m power cable, 6m serial data cable, USB cable and slide on bracket.
NX-M01CA	Master Box – 1x RFM. Connectors for power, Rnet and antenna. High resolution touch screen LCD. Includes 10m power cable, 6m serial data cable and USB cable.
NX-M02CA	Master Box – 1x RFM. Connectors for power, Rnet and antenna. High resolution touch screen LCD. Includes 10m power cable, 6m serial data cable and USB cable.

The NX Antenna series is available in different configurations

NX-AP12060   NX-AP9045   NX-AP6040   NX-AP4030

NX-AW50

Model	Description
NX-AW30	Antenna Wand 30cm
NX-AW50	Antenna Wand 50cm
NX-AW100	Antenna Wand 100cm
NX-AW1500	Antenna Wand 150cm
NX-AW2000	Antenna Wand 200cm
NX-AW2500	Antenna Wand 250cm
NX-AW3000	Antenna Wand 300cm
NX-AP4030	Antenna Panel 40x 30cm
NX-AP6040	Antenna Panel 60x 40cm
NX-AP9045	Antenna Panel 90x 45cm
NX-AP12060	Antenna Panel 120x 60cm
NX-ANB805	Antenna Neck bar 80cm x 5cm

2.0   PREPARATION FOR USE

When you have mounted your Allflex Reader, and you are ready to use it, please ensure the following steps are closely followed:

When inserting or attaching a new electronic RFID device into or on an animal, keep all other electronic RFID devices a minimum of 3 meters away from the Allflex Reader. This will ensure you only read the device you are inserting or attaching.

Keep computers a minimum of 3 meters away from the Allflex Reader.

Securely fasten the computer lead into your scale indicator or computer – screw the connectors into place.

Some magnetic fields will affect reading, such as some computers, computer monitors, electric motors and generators. This may affect your read range and therefore your reader is being interfered with.

3.0   CARE AND MAINTENANCE

Keep all spare electronic RFID devices away from the Reader.

Protect computer and power leads from animals if the system is left in the yards.

Treat the system with care; Allflex has built this system for the cattle yards, but it is an electronic unit and must be treated accordingly.

Keep all reader connectors clean and screw covers on fittings when not in use.

MOST IMPORTANT: Allflex' customers are our highest priority, and if you have any queries, please feel most welcome to contact your Allflex distributor.
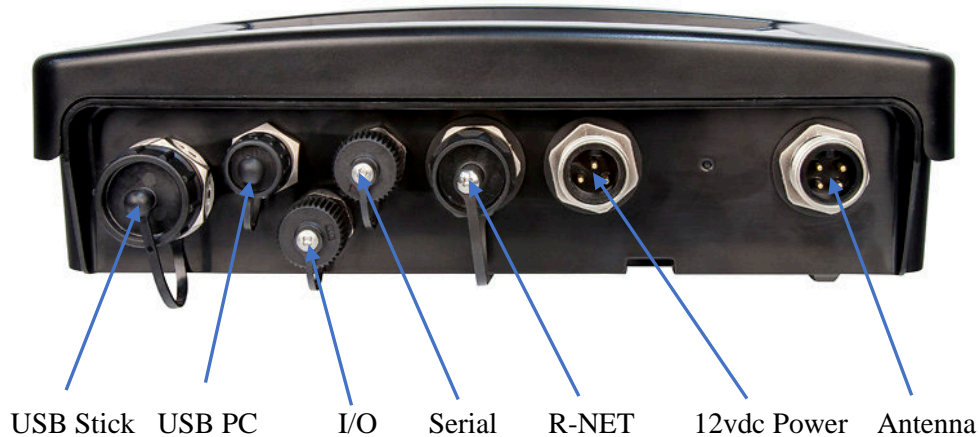
4.0   CONNECTIONS

There are two type of reader connection configurations, NX-M and NX-R.
1. NX-M Master Reader shown below as a NX-M01CA
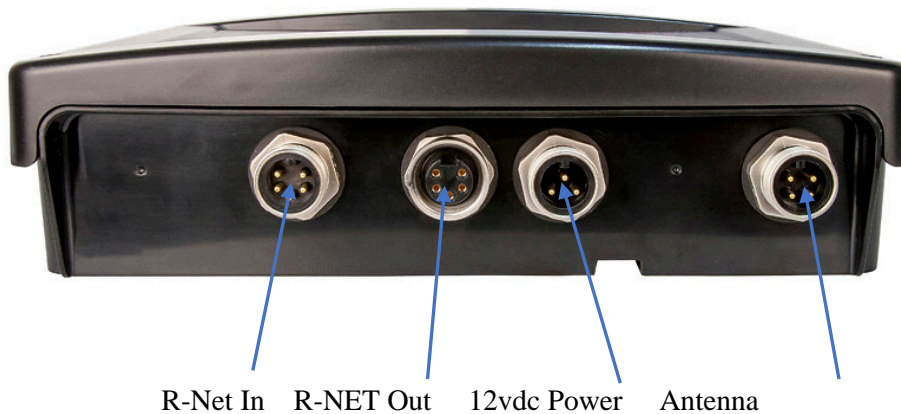2. NX-R Slave Reader shown as a NX-R01CA

Note: There are several variants of the NX-M and NX-R which have different connector configurations.

NX-M01CA

USB Stick   USB PC   I/O   Serial   R-NET   12vdc Power   Antenna

- USB Stick – Is used for downloading tags from reader and doing software updates.
- USB PC   - Is a USB connection to a PC. Can be used to communicate with Tag Manager.
- I/O - Input and Output. Use for controlling external devices. Refer later in manual.
- Serial - Has 2 x RS-232 communication ports.
- R-Net – Is used to connect other slave readers.
- 12vdc Power - Is the supply to the reader. Can be 12vdc -14vdc.
- Antenna – Connection to Antenna.

NX-R01CA

R-Net In   R-NET Out   12vdc Power   Antenna

- R-Net In – Is used to connect to the Master Reader NX-M.
- R-Net – Is used to connect other slave readers.
- 12vdc Power - Is the supply to the reader. Can be 12vdc -14vdc.
- Antenna – Connection to Antenna.

5.0   POWER

Power requirement. Use the 12vdc power cable supplied and connect to a 12vdc power source.
An external 12-volt battery can be used, or a regulated linear power supply. ***DO NOT USE A SWITCH MODE POWER SUPPLY*** as some switch mode power supplies can interfere with the performance of the system. Voltage range is 12vdc to 14vdc.
The power supply must be approved for use in your country and meet all your countries emission requirements
Only use high quality regulated linear power supplies or solar panels. Please contact Allflex with any queries, you may have. Some switch mode power supplies are NOT suitable and must not be used.

6.0   CONNECTION INTERFACE

The NX-M supports multiple connection methods to external devices. These include; Bluetooth, WiFi, Serial and USB. Each connection uses a common connection interface.

See the table below for a full list of commands included in the interface. Each command should be entered followed by a character return.

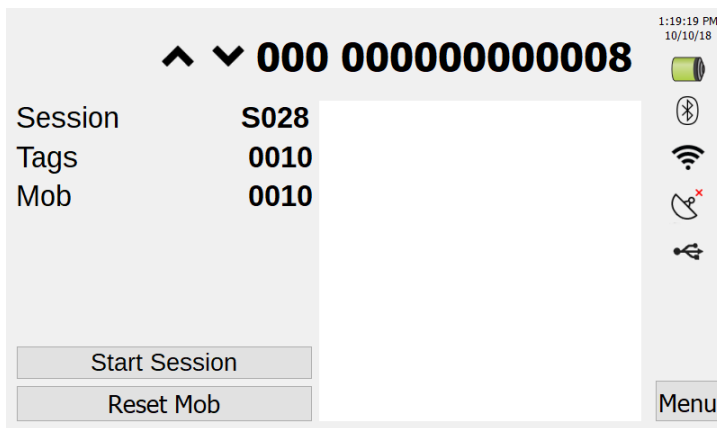| Commands	About
v	get software version
rhv	get hardware revision
rut	get unit type
rid	get unit name
rkv	get kernel version
help	list all command information
help 'cmd'	get information about a command
fla	list all files
fi 'file'	file information
sa	download all files
s 'file'	download a file
ca	erase all tag files
c	clear current session
c 'file'	erase a file
se	Same as s but with START/END
sae	Same as sa but with START/END
sla	list all settings
st 'id'	get current value of a setting
ss 'id' 'value'	change the value of a setting
pow	get power information
rar	exit and restart NX-M software
rbt	power off and back on
rpd	power off
load_defaults	Loads factory settings

F	list all files
G	download all files
G 'file'	download a file
time	Gets the systems current time
time_set	Set the systems current time using the following format:dd-MM-yyyy hh:mm:ss
dfl	list all deleted files
dfli	Deleted files info list
dfg 'file'	Download a deleted file
dfga	Download all deleted files
dfr 'file'	Restore a deleted file
dfra	Restore all deleted files
factory_reset	Factory Reset
relay_set '1,2,3,4(relay number)' '1(on) or 0(off)'	Turn relays ON/OFF
input_read '1 or 2(input number)'	Reads the analog input pins
write_session	Start a new empty session
write_session 'name'	Start a new empty session with a given name
write_header Field1,Field2,Field...>	Write a header to the current session. Add a $ char at the start of a field name to make it an numeric field eg. $Weight,$Height
write_tag CCode,TagID,Timestamp,Field1,Field...	Writes a tag to the current session. Timestamp format: dd-MM-yyyy hh:mm:ss Leave empty to use default current time
scd	send current draft

6.1 Bluetooth

If Bluetooth is enabled, you can access it's settings through the home screen by pressing the Bluetooth Icon on the right side of the screen. If disabled, you will need to access Bluetooth settings through the menu. Menu --> System Setup --> Comms --> Bluetooth. Once in Bluetooth settings press "Enable" top right of the screen.

6.2 Wi-Fi

If Wi-Fi is enabled, you can access it's settings through the home screen by pressing the Wi-Fi Icon on the right side of the screen. If disabled, you will need to access Wi-Fi settings through the menu. Menu --> System Setup --> Comms --> Wifi. Once in Wi-Fi settings press "Enable" top right of the screen.

7.0   RM4/SYNC MODULE DIAGNOSTICS

Open RM4/Sync module diagnostics, image below, through Menu --> Tools --> Noise.

7.1 Locating RM4s

By pressing the ID value for a RM4, you will send a find command to the associated device. This will cause a green LED to flash allowing you to see which devices are where in your system. Press the ID value again to stop the flashing.

7.2 Opening RM4/Sync Module settings

To open device setting you can press the Serial Number (S/N) value of a device. These settings are pin protected to prevent systems being configured incorrectly. Please contact a sales representative for the pin to access settings.
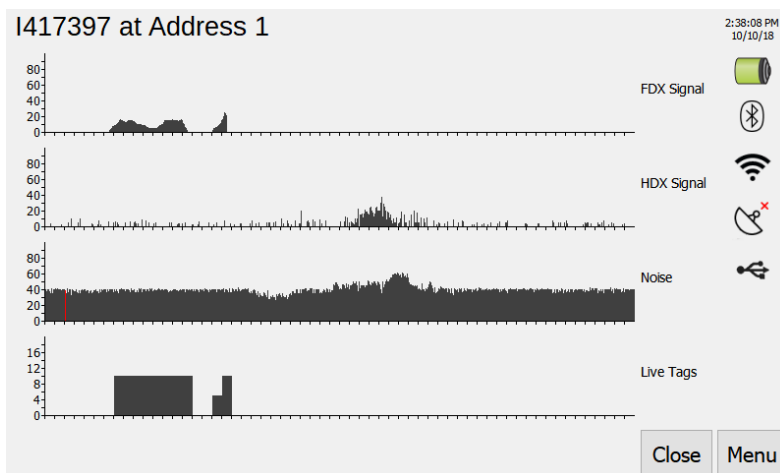
7.3 RM4 Tune and Phase

You can change the tune and phase values of an RM4 by pressing on there values.

7.4 RM4 update page

You can also access the RM4 update page through the config screen by pressing on a devices version number (Ver).

7.5 Real time diagnostics

To view real time noise, signal strength and tag reads data you can press on noise value on the diagnostics screen. This will open real time graphs, see image below, for the device you pressed. Not each mark on the x-axis represents one second.

8.0   TAG MANAGER

Tag Manager is an all in one Tag Management program for Allflex Readers. The software supports tag session reading, writing and deleting. Some readers are also configurable through the software. To get Tag Manager vist http://www.aleis.com/aleis-software-user-guides/tag-manager. Once downloaded be sure to check for updates through Help, Check for updates. To read more about Tag Manager, a user guide can also be found in the link provided above.

9.0   TAG READ ACTIONS

There are four main actions that are preformed on a tag read. These include filtering, alerts, sending and storing.
Each action can be configured through Menu -> Read Setup page.

10.0   TAG FILTERS

When a tag is read, it is first put through a tag filter. This can be configured to Ignore HDX or FDX tags as well as ignore animal or Industry tags. If a tag doesn't pass a filter it is completely ignored by the reader and will not cause alerts, sending or storing.

11.0   ALERTS

Audio or visual alerts can be configured for tag reads and errors.

12.0   STORING TAGS

Through the Memory menu option, you can configure when to store a tag, whether to ignore duplicates and a few more options.

13.0   SENDING TAGS

When a tag is read, you can configure the reader to send the tag out through USB-PC, USB Drive, Serial and Bluetooth.

14.0   NX SERIES READER SPECIFIACTIONS

General	
Frequency:	134.2Khz, Bit 1 124.2Khz +/-2Khz, Bit 0 134.2Khz +/-1.5khz
RFID Compatibility:	ISO 11784 &11785 HDX and FDX-B
User Interface:	RS-232 Serial Port. Bluetooth and WiFi NX-M only.
RS-232 Port:	9600bps, 8 Data Bits, No Parity, 1 Stop Bit.
RFID Code output:	Decimal or Hex
Antenna Tuning:	Auto or Manual
User Options:	Via Touchscreen on NX-M
Battery Power:	12-14 Volt DC

Physical	
Operating Temperature:	-20c to +60c
Storage Temperature:	-40c to +85c
Humidity:	0 to 100%
Hermeticity:	IP66

Performance	
HDX:	Up to 1.4M Antenna Dependant
FDX:	Up to 1.2M Antenna Dependent
Read Rate:	50/50 40/20 or 80/20
Read Error Rate:	less than 1 in 1 million.
Radiated Field Strength:	TBA dBuV/m at 10 meters