UC-RF
(GN 9150)

Control unit for DD52R-E-RF (GN 9153)

ETHERNET/IP INTERFACE CONNECTION MANUAL

Release 0F3E1018

elesa®

UC-RF (GN 9150) - PLC data transfer

Control unit for
DD52R-E-RF (GN 9153)

This module connects the ELESA UC-RF wireless network (up to 36 DD52R-E-RF) to ETHERNET/IP network.

Power supply - 24VDC +/- 5%

Current consumption - 50mA

Reverse polarity - protected.

Voltage transitions - protected.

The IP address of the module has been preset to 192.168.1.10, subnet 255.255.255.0. DHCP off.

A different IP/subnet can be assigned by the PLC, or using IPConfig utility - downloadable from:

https://www.anybus.com/support/file-doc-downloads/compactcom-30-series-specific/?orderco-de=AB6224

The antenna must be fixed on the cabinet's wall or ceiling with its dome outside the cabinet, possibly facing the DD52R-E-RFs on the machine or in highest possible position.

The module handles 100 (0 to 99) network IDs, so up to 100 networks can coexist in the same space. Each module can handle up to 36 DD52R-E-RF; the 36 indicators are part of the networking with the same ID. The parameter **Net_id** in the **rAdio** submenu of DD52R-E-RF (default 0, range 0-99) must be programmed to match the ID of the network to which it is associated.

ETHERNET/IP

The EDS file is available. Use DAP V2.0 option.

Communication protocol

The module uses Class 1 (explicit) messaging:

Input assembly

UC-RF → PLC - instance 0x64 (100 DEC), 224 bytes transfer organized as follows:

- offset 0x00 - channel 1 - 4 bytes actual quote, followed by 2 bytes status word
- offset 0x06 - channel 2 - 4 bytes actual quote, followed by 2 bytes status word
- ...
- offset 0xD2 - channel 36 - 4 bytes actual quote, followed by 2 bytes status word
- offset 0xD8 - current network ID
- offset 0xD9 - UC-RF status
    - =0 - UC-RF waiting for networkID
    - =1 - networkID initialized, scanning enabled channels in progress
    - =2 to 255 reserved
- offset 0xDA - reserved
- offset 0xDB - reserved
- offset 0xDC - 4 bytes software release - this manual refers to the release 0F3E1018

Output assembly

PLC → UC-RF - instance 0x96 (150 DEC), 224 bytes transfer organized as follows:

- offset 0x00 - channel 1 - 4 bytes target, followed by 2 bytes command word
- offset 0x06 - channel 2 - 4 bytes target, followed by 2 bytes command word
- ...
- offset 0xD2 - channel 36 - 4 bytes target, followed by 2 bytes command word
- offset 0xD8 - config byte
- offset 0xD9 - config code
    - 0x00 - invalid config byte
    - 0x01 - config byte contains network ID
    - 0x02 to 0xff reserved

Attention!

- UC-RF will accept only values 0 to 99 (0x00 to 0x63) for the networkID. All others will be rejected.
- The UC-RF will not start the network scan until it receives a valid networkID from the PLC after power-on. The parameter config code can be left =1 - the UC-RF will check continuously the networkID coming from the PLC and will change it immediately.

- offset 0xDA - reserved
- offset 0xDB - reserved
- offset 0xDC - reserved
- offset 0xDD - reserved
- offset 0xDE - reserved
- offset 0xDF - reserved

The format is little endian, the actual quote/target is four bytes signed binary presenting ALLWAYS 0.01 mm counts.
Ex. 64 00 00 00 == 1.00 mm
1.00 mm = 100 ▪ 0.01 mm

100 → (hex) 00 00 00 64 → (little endian) 64 00 00 00

Status word:

bit0-bit5 - reserved

bit6-bit9 - units. These bits indicate the actual unit of measurement of the channel.
Source - DD52R-E-RF.

0000 - 0.01mm	0101 - 0.1 inch
0001 - 0.1mm	0110 - 1 inch
0010 - 1mm	0111 - 0.01 deg
0011 - 0.001 inch	1000 - 0.1 deg
0100 - 0.01 inch	1001 - 1 deg

bit10 - speed error. Indicates rotation speed superior to the programmed. The error is displayed on DD52R-E-RF. **Must** be cleared pressing the F key, then the origin setup **must** be done.
Source - DD52R-E-RF.

bit11 - in position. Set when target reached within the programmed tollerance. Cleared when outside.
Source - DD52R-E-RF.

bit12 - positioning. Set when outside target. Cleared when target reached within programmed tollerance.
Source - DD52R-E-RF.

bit13 - reserved

bit14 - battery low. Set when battery voltage low.
Source - DD52R-E-RF.

bit15 - channel off-air. If set, this bit indicates that the connection with the corresponding channel has been lost. Possible reasons:

- DD52R-E-RF is off
- Channel disabled
- Net_id not set correctly
- Excessive distance to UC-RF

Source - UC-RF.

Command word:

bit0 - enable channel. Set to enable the corresponding channel. Clear to disable. When disabled, the UC-RF will ignore it.

In case a quick connection with a single channel is needed, it is recommended to disable momentarily the other channels - then the UC-RF will communicate only with the channel enabled.

bit1-bit14 - reserved

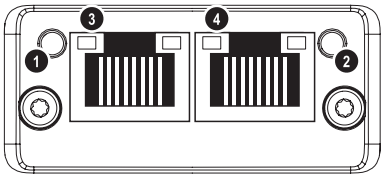
bit15 - Set to indicate the target field contains a valid target. If cleared, no target will be transmitted to the channel.

Once a valid target is sent to UC-RF, this bit can be left set - the target received from the PLC is transmitted continuously to the DD52R-E-RF.

Status LED:

Front View Connector

#	Item
1	Network Status LED[a]
2	Module Status LED[a]
3	Link/Activity LED (port 1)
4	Link/Activity LED (port 2)



Network Status LED

LED State	Description
Off	No power or no IP address
Green	Online, one or more connections established (CIP Class 1 or 3)
Green, flashing	Online, no connections established
Red	Duplicate IP address, FATAL error
Red, flashing	One or more connections timed out (CIP Class 1 or 3)

Module Status LED

LED State	Description
Off	No power
Green	Controlled by a Scanner in Run state
Green, flashing	Not configured, or Scanner in Idle state
Red	Major fault (EXCEPTION-state, FATAL error etc.)
Red, flashing	Recoverable fault(s)

LINK/Activity LED 3/4

LED State	Description
Off	No link, no activity
Green	Link (100 Mbit/s) established
Green, flickering	Activity (100 Mbit/s)
Yellow	Link (10 Mbit/s) established
Yellow, flickering	Activity (10 Mbit/s)

The Ethernet interface supports 10/100Mbit, full or half duplex operation.