



UC-RF (GN 9150)

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

MODBUS/TCP INTERFACE CONNECTION MANUAL

Release 0F3E1018

elesa[®]

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

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/?ordercode=AB6223>

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.

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.

Communication protocol

READ/WRITE - updated by the PLC

- 0x00, 0x01 - channel 1 - 4 bytes target, RW
- 0x02, 0x03 - channel 2 - 4 bytes target, RW
- ...
- 0x46, 0x47 - channel 36 - 4 bytes target, RW

- 0x48 - channel 1 - command, RW
- 0x49 - channel2 - command, RW
- ...
- 0x6B - channel 36 - command, RW

- 0x6C - config, RW
 - LSB - config byte
 - MSB - config truth
 - 0 - config byte not valid
 - 1 - config byte contains network ID
 - 0x02 to 0xff reserved
- 0x6D - reserved, RW
- 0x6E - reserved, RW
- 0x6F - reserved, RW

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.

READ only - updated by the UC-RF

- 0x100, 0x101 - channel 1 - 4 bytes position, R
- 0x102, 0x103 - channel 2 - 4 bytes position, R
- ...
- 0x146, 0x147 - channel 36 - 4 bytes position, R

- 0x148 - channel 1 status, R
- 0x149 - channel2 status, R
- ...
- 0x16b - channel 36 status, R

- 0x16c - R
 - LSB - current network ID
 - MSB - reserved
- 0x16d - reserved, R
- 0x16e-0x16f - 4 bytes software release - this manual refers to the release 0F3E1018

The format is little endian, the actual quote/target is four bytes signed binary presenting ALWAYS 0.01 mm counts.

Ex. 64 00 00 00 == 1.00 mm
1.00 mm = 100 * 0.01 mm

100	→	00 00 00 64	→	64
hex		little endian		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 tolerance. Cleared when outside.

Source - DD52R-E-RF.

bit12 - positioning. Set when outside target. Cleared when target reached within programmed tolerance.

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, and channel off-air flag will be set.

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

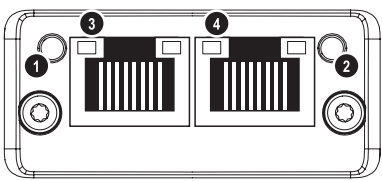
bit15 - Set to indicate the target field contains a valid target. If cleared, no target will be transmitted to the channel.

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
2	Module Status LED
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	Module is in Process Active or Idle state
Green, flashing	Waiting for connections
Red	Duplicate IP address, or FATAL event
Red, flashing	Process Active Timeout.

Module Status LED

LED State	Description
Off	No power
Green	Normal operation
Red	Major fault; module is in state EXCEPTION (or FATAL event)
Red, flashing	Minor fault in diagnostic object IP conflict

LINK/Activity LEDs

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

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