MNET CONMAND Details

Network Protocol for DRF1212D10C V1.11

The concentrator module (DRF1212D17C) communicates with the host (or server) in ASCII codes. Commands are not case sensitive. The ID of each node module is the same with the meter into which it is integrated. Usually the ID of node module (DRF1212D10N) consists 4 bytes in HEX format and the address ranges from 0X00000000 to 0XFFFFFFFF, among which 0X00000000 is the address of concentrator and 0XFFFFFFFF is reserved by system.

BASIC COMMAND FORMAT

Command_Para1_Para2..... ↙

E.g. CMD_Node ID↙

- CMD: the command below is for the host communicating with network nodes.
- **"_"** represents blank character (0X20) and **"↙"** for return character (0X0D,0X0A)
- Node ID is the ID of network node module in HEX format and it is not case sensitive.
- The responded data from the node module must also be output in ASCII format. For example the response data in HEX format is:

  0X68 0X01 0X23 0X45 0X67 0X89 0XAB 0XCD 0X68 0X02 0X02

  The corresponding ASCII data will be: ANS_68_01_23_45_67_89_AB_CD_68_02_02↙

  Please note that the characters are separated by blank character.

COMMAND

1. DELNET

Format: DELNET↙

Concentrator response: a. OK↙
b. ERR *↙

Notes: 1). The command will delete the ID of all existing nodes and network data.
2). After deleting the network, the system will not reconstruct the network.
3). * means the error type
- 1→ unknown command or wrong input
- 2→network busy

2. CMD

Format: CMD_Node ID↙

Concentrator response: a. OK 2 bytes delay↙

In 1~20 seconds, the concentrator again will respond: ANS_module data_module voltage↙. If no data is received in a certain period by concentrator, NO ANS↙ will be responded

b. ERR *↙

Notes: 1). 2 bytes delay (Max. response delay)

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy
- 3→ the ID of targeted node module doesn't exist

3). The concentrator must make response in 0.5 second after receiving data from the node module and send the first byte at least. The time gap between the continuous two bytes should be no more than 20ms and the total responded data should be less than 180 bytes

3. TST

Format: TST_Node ID_ Number of Bytes↙

Concentrator response: a. OK_Response-delay (2 bytes)↙

The value of Response-delay indicates the time gap between the first response and the second response. In 1~20 seconds, the concentrator will respond: ANS_module data↙ for the second time. If no data is received in a certain period by concentrator, NO ANS↙ will be responded

b. ERR *↙

Notes: 1). 2 bytes delay (Max. response delay)

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy
- 3→ the ID of targeted node module doesn't exist

3). This command is used to test the status of network

E.g. **TST_12345678_100↙**

The node ID is 12345678 and the node module will send back the concentrator with 100 bytes (0X00~0X63). After receiving it successfully, the concentrator will output:

ANS_00_01_02_03_04_05_06_07_08_09_0A_0B_0C_0D_0E_0F_10_
11_12_13_14_15_16_17_18_19_1A_1B_1C_1D_1E_1F_20_21_22_23
_24_25_26_27_28_29_2A_2B_2C_2D_2E_2F_30_31_32_33_34_35_3

6_37_38_39_3A_3B_3C_3D_3E_3F_40_41_42_43_44_45_46_47_48_49_4A_4B_4C_4D_4E_4F_50_51_52_53_54_55_56_57_58_59_5A_5B_5C_5D_5E_5F_60_61_62_63↙

4). If users input **TST_12345678_0**↙, the concentrator will respond: ANS_24_24_24_Battery-voltage (without load)_Battery-voltage (in transmitting) ↙. The actual voltage value will be Battery-voltage+200.

4. RDNODE

Format: RDNODE_Node x_ **N** (number of nodes)↙

Concentrator response: a. OK↙

The concentrator again will respond:

Node x connection status(1byte)_ Node x routing level(1 byte)_ Node x (8 bytes)

Node x+1 connection status(1byte)_ Node x+1 routing level(1 byte)_ Node x+1 (8 bytes)

… … … …

END↙

b. ERR *↙

Notes: 1). The concentrator reads N nodes starting from Node x to Node x+N-1.

2). If the number of available nodes is less than N, the end of package will be filled with END↙

3). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

4). If the command is input without parameters (RDNODE↙), the concentrator will respond: TOTAL_XXXX↙ among which XXXX refers to the total number of nodes.

5). If the command is input with Node x only (RDNODE_ID↙) and the ID happens to be in the network, the concentrator will respond: OK_Node x routing level↙ or else ERR 3↙.

5. FREQ

Format: FREQ↙

Concentrator response: a. OK_XXXXXX↙

b. ERR *↙

Notes: 1). XXXXXX represents the network frequency (KHz). If the frequency is 433.920MHz, the concentrator will respond: OK_433920↙

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

Format: FREQ_XXXXXX↙

Concentrator response: a. OK_XXXXXX↙

b. ERR *↙

Notes: 1). This command is used to set the frequency of concentrator and has no effect on node modules. After changing frequency, users should execute delete command in order to reconstruct the network.

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

6. NETID

Format: NETID↙

Concentrator response: a. OK_XXXX↙

b. ERR *↙

Notes: 1). XXXX represents the network ID which ranges from 0x0000 to 0xfffe. 0xffff is reserved for system.

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

Format: NETID_XXXXX↙

Concentrator response: a. OK_XXXX↙

b. ERR *↙

Notes: 1). XXXX represents the network ID which ranges from 0x0000 to 0xfffe. 0xffff is reserved for system. This command is used to set the network ID of concentrator and has no effect on node modules. After changing network ID, users should execute delete command in order to reconstruct the network

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

7. MTNET

Format: MTNET↙

Concentrator response: a. OK↙

b. ERR *↙

Notes: 1). The network will be in maintaining status after the command is executed. Users can inquiry if the maintaining is finished by STATUS command. In the progress the communication commands such as CMD, TST, etc. can't be executed.

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

8. STATUS

Format: STATUS↙

Concentrator response: a. BUSY↙
b. FREE↙
c. ERR *↙

Notes: 1). If the network is in maintaining status, the concentrator will respond: BUSY↙. If maintaining is finished, the concentrator will respond: FREE↙.

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

9. RATE

Format: RATE_XXXX↙

Concentrator response: a. OK↙
b. ERR *↙

Notes: 1). This command is used to set the serial data rate between concentrator and host (or server). XXXX can be the values: 9600 bps, 19200 bps, 38400 bps, 57600 bps and 115200 bps. Users can use higher data rate to improve the system speed of server or host. E.g. RATE 115200↙ the concentrator will respond OK↙ and change the data rate to 115200bps.

2). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

10. MRATE

Format: MRATE_XXXX↙

Concentrator response: a. OK↙
b. ERR *↙

Notes: 1). This command is used to calculate the network delay and can't change the serial data rate of node module. The serial data rage of concentrator and node module must be the same. XXXX can be the values: 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps and 57600 bps.

E.g. MRATE 19200↙ the concentrator will respond OK↙.

2). If the command is input without any parameter (MRATE↙), the concentrator will output preset parameter. E.g. OK_19200↙.

3). * means the error type

- 1→ unknown command or wrong input
- 2→network busy

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