

**GRAPHTEC Recorder/Logger
UDP Command Specifications**

Rev. 01
GRAPHTEC
Corporation

1. Overview

This document describes single-packet communication commands that use the UDP communication.

Unlike the TCP communication, the UDP communication is a non-connection type, and thus is more likely to allow communications even in a failure event in the TCP communication (particularly in the case that a disparity occurs in the connection phase between server and client due to disconnection etc. in the circuit).

In addition, since it allows one-to-many communication (broadcast), it can search for a recorder/logger with an unknown IP address.

2. Packet contents

The basic packet contents are shown below.

Address	+0	+1	+2	+3
+0	Packet identification header String "GRAPHTEC-RD"			
+4				
+8				
+12				
+16	Communication ID (32-Bit integer)			
+20	Flag (32-Bit integer)			
+24	Command code (32-Bit integer)			
+28 : +255	Parameter area (contents depend on the command code)			

The packet size is set to 256 bytes.

The integers are stored in big-endian.

The strings are terminated with a null character at the end.

Packet identification header:

With this header, a packet is identified as the one for GRAPHTEC recorder/logger.

The header always stores 11 characters "GRAPHTEC-RD" (not including double quotation marks) plus a termination code of 0x00 with the offset of +11. Although a total of 16 bytes are reserved, only 12 bytes are used including the termination code, and the remaining space shall not be used.

Communication ID:

This ID is unique to each packet. When a reply packet is received, this ID is used for identifying which transmitted command the reply corresponds to. If this ID is not used, it may be any numeric. However, since the UDP communication does not guarantee the communication order of packets, it is recommended to check the communication ID as they are used.

Flag:

An attribute flag for packet.

Bit	+7	+6	+5	+4	+3	+2	+1	+0
+0							Res	BC
+8								
+16								
+24								

BC: Broadcast flag 0: Unicast
 1: Broadcast

This flag tells whether a packet has been transmitted by broadcast or by unicast.

Res: Response flag 0: Query
 1: Response

This flag identifies query or response. Normally the direction from the PC to the recorder/logger indicates query, and the direction from the recorder/logger to the PC indicates response.

Command code:

According to these codes, packets are processed.

Command code	Description
0x00000000	Not used
0x00000001	NOP (ECHO)
0x00000002	Network restart
0x00000003	Search (INQUIRY)
0x00000004 and after	Not used

NOP (ECHO) command:

This command performs no particular operations (NOP: No Operation)

It rearranges the flag area of the received NOP command and returns the received packet as it is to the sender. (ECHO)

This command is used for checking the connection and the restart of the network described later. (ICMP may be used separately.)

Network restart command:

This command restarts the network stack in the recorder/logger unit. All connections are forced to be disconnected.

If DHCP is used for the network settings, the settings will be reset.

All server functions will also be restarted.

When the network settings such as IP address and subnet mask etc. are modified by setting commands without using DHCP, then the network stack needs to be restarted.

Due to the restart of the network stack, a response to this command will not be transmitted. It only receives queries.

Search (INQUIRY) command:

The information about the recorder/logger unit and IP address etc. is returned.

If this command is issued by using broadcast, the presence of recorder/logger and its IP address can be identified even if the IP address set to the recorder/logger unit is unknown.

Parameter area:

NOP (ECHO) command:

Network restart command:

These two commands do not have a parameter.

Search (INQUIRY) command:

Address	+0	+1	+2	+3
+0	Model name String "<Model name>"			
+4				
+8				
+12				
+16	Firmware version number String "X.XX" X represents a numeral.			
+20				
+24				
+28				
+32	Suffix characters String "Axx" xx represents a two-digit numeral. Where "A00" is regarded as a standard item and is set as "" (null string).			
+36				
+40				
+44				
+48	Host name String "<Host name>"			
+52				
+56				
+60				
+64	IP address			
+68	Number of times that the network has been restarted			
+72	Not used			
:				
+227				

The parameters of the search (INQUIRY) command are described as above. The parameter area is not used when a query is issued (not defined). The above parameters are set in the response to the query and are returned.

Those double quotations (" ") shown in the strings are not included. The null string of "0x00" is stored at the end of the strings as a termination code. The reserved area that has not been filled will be unused and will not be defined.

Model name:

This stores the model name string.

Firmware version number:

This stores the firmware version string of the recorder/logger unit.

Suffix characters:

This stores the suffix string of the recorder/logger unit. Only when it is "A00", which means a standard item, the null string of "" is stored.

Host name:

This stores the host name string set in the recorder/logger unit.

If an IP address is unknown, it can be searched based on the host name.

IP address:

This stores the IP address of the recorder/logger unit. The IP address is in the 32-Bit binary notation.

Example: 192.168.5.11 is denoted as 0xC0A8050B.

Number of times that the network has been restarted:

This increases by one, when the network restart command is received and the network restart process is completed. By checking this number before and after an issuance of the network restart command, you can check whether or not a restart was carried out.