

escea. Fireplace LAN Communications Protocol Specification

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Brief

This document outlines how a remote controlling device (henceforth remote) can communicate with a network enabled Escea gas fireplace using a Local Area Network connection.

Fireplace LAN Communications

All communications with a fireplace use the UDP transfer protocol and UDP port 3300.

Remote to Fireplace Connection

A remote may determine if any fireplaces exist on a network by broadcasting a 'SEARCH_FOR_FIRES' command (see Table 1) on the local subnet (e.g. Destination IP: 192.168.0.255, Destination Port: 3300). Any fireplaces connected to the network will reply to a 'SEARCH_FOR_FIRES' command with an 'I_AM_A_FIRE' response (see Table 2) which includes in its Data field that fireplace's Serial Number and PIN. Fireplace response times can vary significantly for various network configurations but will in most cases be under 3 seconds.

Upon receiving an 'I_AM_A_FIRE' response a remote may wish to compare the Serial Number and PIN in the received Data field with a PIN provided by the user (after notifying the user of the fireplace's Serial Number) and deny further communications if the PINs do not match.

Command/Response Packet Structure

Each command and response is composed of 15 bytes:

1	2	3	4 to 13	14	15
StartByte (0x47 'G')	Command/Response ID	DataSize	Data	CRC	EndByte (0x46 'F')

Although there are always 10 bytes available for included data, the value in DataSize must be consistent with the Command/Response byte as shown in Tables 1 & 2. The CRC byte value is calculated by summing all bytes from 2 to 13 (inclusive, overflowing at 256) and can be used to ensure the integrity of received packets.

Remote Commands and Fireplace Responses

Once a remote has received an 'I_AM_A_FIRE' response from a fireplace, any further communications must be directed to that fireplace's IP address (using UDP port 3300). Table 1 outlines the commands a remote may send to a fireplace and Table 2 outlines the responses a fireplace should send in reply.

Command	ID (hex)	Data Size	Description
STATUS_PLEASE	0x31	0	Requests the fireplace's current status (see response in Table 2)
POWER_ON	0x39	0	Switches the fireplace on
POWER_OFF	0x3A	0	Switches the fireplace off
SEARCH_FOR FIRES	0x50	0	Requests any available fireplaces to respond with 'I_AM_A_FIRE'
FAN_BOOST_ON	0x37	0	Enables 'fan boost' mode
FAN_BOOST_OFF	0x38	0	Disables 'fan boost' mode
FLAME_EFFECT_ON	0x56	0	Enables 'flame effect only' mode
FLAME_EFFECT_OFF	0x55	0	Disables 'flame effect only' mode
NEW_SET_TEMP	0x57	1	Notifies the fireplace of the desired room temperature Data[0]: (Integer) Desired temperature (3 < °C < 31)

Table 1. Remote to Fireplace Commands

Response	ID (hex)	Data Size	Description
STATUS	0x80	6	Details the fireplace's current status Data[0]: (Boolean) Fireplace has new timers Data[1]: (Boolean) Fire is on Data[2]: (Boolean) Fan boost is on Data[3]: (Boolean) Flame effect is on Data[4]: (Integer) Desired temperature (°C) Data[5]: (Integer) Room temperature (°C)
POWER_ON_ACK	0x8D	0	Acknowledgement of 'POWER_ON' command
POWER_OFF_ACK	0x8F	0	Acknowledgement of 'POWER_OFF' command
FAN_BOOST_ON_ACK	0x89	0	Acknowledgement of 'FAN_BOOST_ON'
FAN_BOOST_OFF_ACK	0x8B	0	Acknowledgement of 'FAN_BOOST_OFF'
FLAME_EFFECT_ON_ACK	0x61	0	Acknowledgement of 'FLAME_EFFECT_ON' command
FLAME_EFFECT_OFF_ACK	0x60	0	Acknowledgement of 'FLAME_EFFECT_OFF' command
NEW_SET_TEMP_ACK	0x66	0	Acknowledgement of 'NEW_SET_TEMP' command
I_AM_A_FIRE	0x90	6	Reply to a broadcasted 'SEARCH_FOR FIRES' command Data[0..3]: (Unsigned Long) Serial Number Data[4..5]: (Unsigned Short) PIN (Serial and PIN are in big Endian format)

Table 2. Fireplace to Remote Responses

Example Command and Response

The following two tables show a remote requesting a fireplaces' status.

11:17:36.354: Sending data **0x473100000000000000000000003146**

Byte No.	Value	Description
1	0x47	Start byte 'G'
2	0x31	STATUS_PLEASE
3	0x00	No data bytes
4 to 13	0x00	Don't care bytes
14	0x31	CRC
15	0x46	End byte 'F'

11:17:36.384: Received response **0x478006000100001B1800000000BA46**

Byte No.	Value	Description
1	0x47	Start byte 'G'
2	0x80	STATUS
3	0x06	6 bytes of data
4	0x00	No new timers
5	0x01	Fire is on
6	0x00	Fan boost is off
7	0x00	Flame effect is off
8	0x1B	Desired temperature is 27°C
9	0x18	Room temperature is 24°C
10 to 13	0x00	Don't care bytes
14	0xBA	CRC
15	0x46	End byte 'F'