PF4 Wolfprot documentation

Firmware version v1.60a

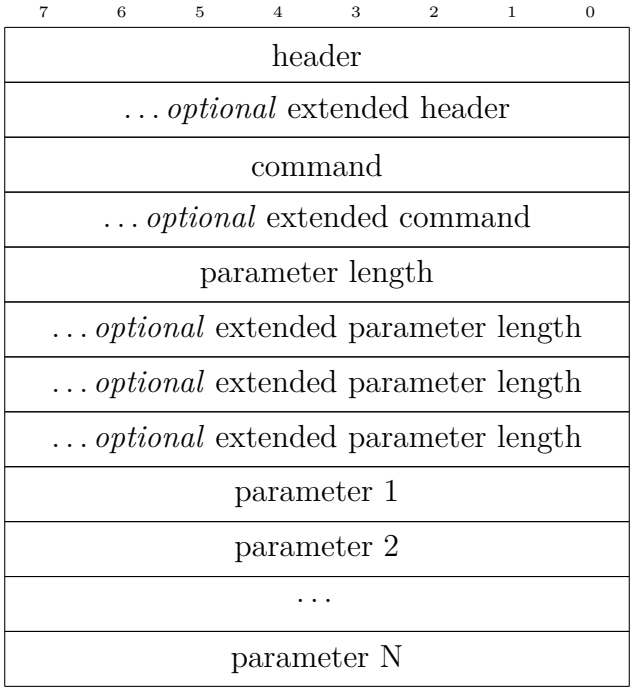
Klaus, October 10, 2022

Contents

1 Packet structure

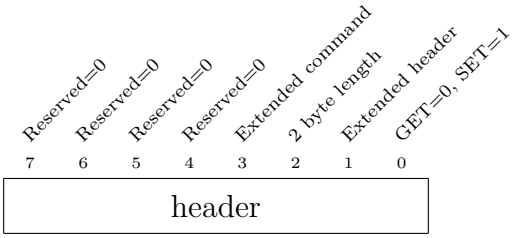
1.1 Command packet structure

A command packet basically consists of a header, a command, the parameter length and the parameters. Optionally, the header, the command and the parameter length can be extended to two bytes. Additionally, the parameter length can be extended to four bytes.

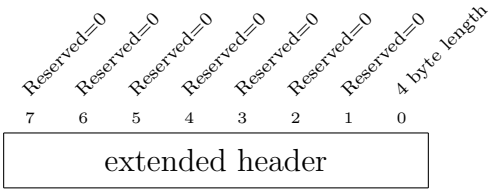


1.1.1 Header

The header consists of flags defining the structure of the packet.



The extended header contains the flag for a four byte parameter length.



Header flag	Description
GET / SET	Defines if the sender wants to set or get a value
Extended header	Set to 1 if the additional byte for the header is used
2 byte length	Set to 1 if the parameter length exceeds 255
Extended command	Set to 1 if a 2 byte command is used
4 byte length	Set to 1 if the parameter length exceeds 65535

1.1.2 Command

Wolfprot commands consist of one or two bytes. In case of a two byte command the corresponding bit (extended command) in the header needs to be set.

1.1.3 Parameter length

Parameter length defines the number of parameter bytes. It consists of one byte i.e. the packet can contain 0 (0x00) to 255 (0xFF) parameter bytes.
If the parameter length exceeds 255 bytes, two bytes can be used for parameter length by setting the corresponding bit in header, leading to an available range of 0 to 65535 (0x0000 - 0xFFFF).
In case 65535 parameter bytes are not enough, the extended header has to be enabled and the 4 byte length bit needs to be set for the maximum range of parameter bytes - from 0 (0x00000000) to 2147483647 (0x07FFFFFF) - wolfprot supports.

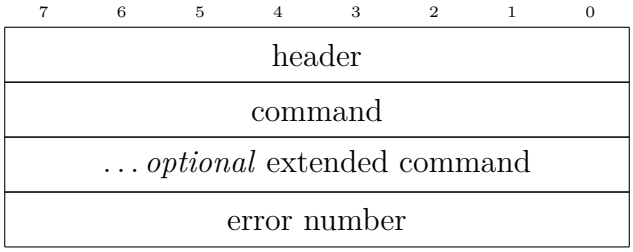
1.1.4 Parameters

Parameters contain the request or reply the host sets or gets. For most commands these parameters are standardized (refer to command types). However, some commands (type SPECIAL) can not be standardized and differ in their implementation.

1.2 Reply packet structure

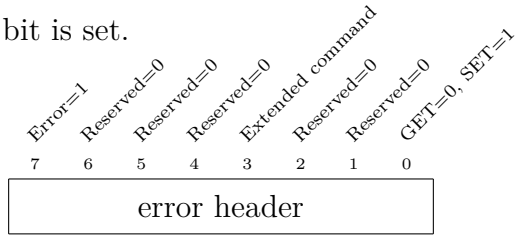
In principle, the structure of reply packets is identical to the command packet structure. If no error occurs, the header (including extended header), and the command (including extended command) is the same as of the received command packet. However, the

number of parameters in the reply packet can require a 2 or 4 byte parameter length and therefore the corresponding header bits can differ to ones of the command packet. In case of an error the reply consists of a header with an error flag, the command and an error number.



1.2.1 Error header

If an error occurs the error bit is set.



1.2.2 Error numbers

TIMEOUT	0x01
INVALID COMMAND	0x02
INVALID PARAMETER	0x03
INVALID LENGTH	0x04
FIFO FULL	0x05
FIRMWARE UPDATE ERROR	0x06
ACCESS DENIED	0x07
AUTHENTICATION REQUIRED	0x08
BUSY	0x09

2 Command types

2.1 STRING

Request or reply consists of ASCII encoded byte array without NULL termination. The length of the string is read from the parameter length. As an example, consider a

fictitious GET command 0x1234:
Request:

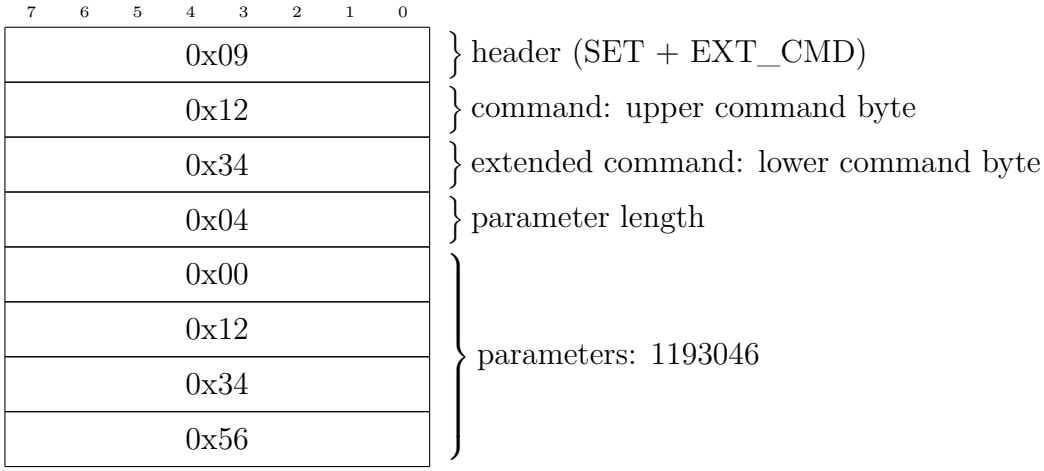
7	6	5	4	3	2	1	0	
0x08								header: (GET + EXT_CMD)
0x12								command: upper command byte
0x34								extended command: lower command byte
0x00								parameter length

Reply:

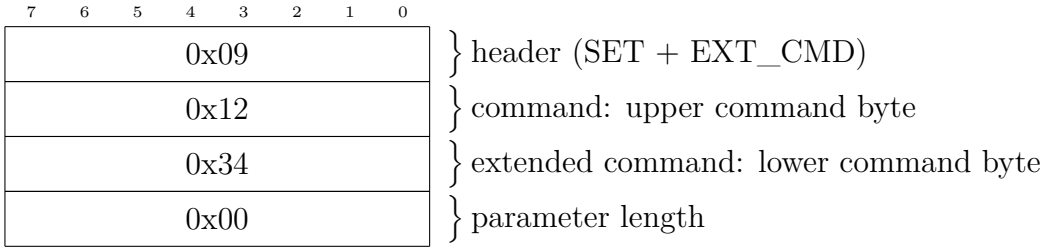
7	6	5	4	3	2	1	0	
0x08								header: (GET + EXT_CMD)
0x12								command: upper command byte
0x34								extended command: lower command byte
0x04								parameter length
0x41								parameter 1: 'A'
0x42								parameter 2: 'B'
0x43								parameter 3: 'C'
0x44								parameter 4: 'D'

2.2 INT

Request or reply consists of 4 bytes **signed** integer (MSB first). Therefore the parameter length of the packet, which contains the parameter is always 4. As an example, consider a fictitious SET command 0x1234, used to set the number 1193046:
Request:

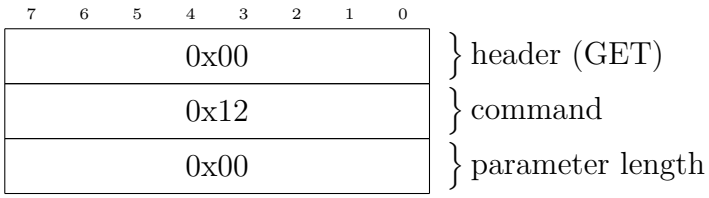


Reply:



2.3 IP

Request or reply consists of 4 bytes (MSB first). Therefore the parameter length of the packet, which contains the parameter is always 4. As an example, consider a fictitious GET command 0x12, used to get the IP address 192.168.0.1:
Request:



Reply:

7	6	5	4	3	2	1	0	
0x00								header (GET)
0x12								command
0x04								parameter length
0xC0								parameter 1: 192
0xA8								parameter 2: 168
0x00								parameter 3: 0
0x01								parameter 4: 1

2.4 LIST

Request or reply consists of a 1 byte parameter. The meaning of the parameters are defined in the documentation of each command. As an example, consider a fictitious GET command 0x12:
Request:

7	6	5	4	3	2	1	0	
0x00								header (GET)
0x12								command
0x00								parameter length

Reply:

7	6	5	4	3	2	1	0	
0x00								header (GET)
0x12								command
0x01								parameter length
0x05								

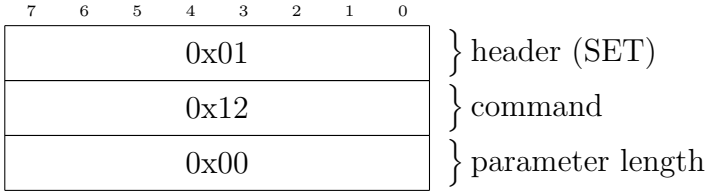
2.5 BOOL

Request or reply consists of a 1 byte parameter. The following parameters are used:

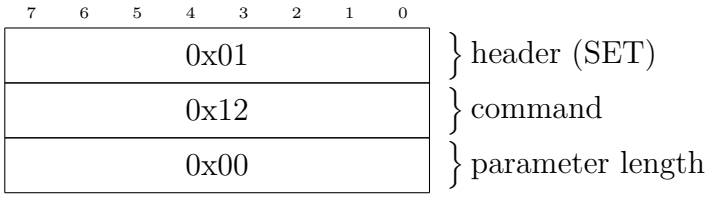
FALSE	0x00
TRUE	0x01
TOGGLE	0x02

2.6 TRIGGER

Commands of type TRIGGER are intended to trigger actions. Therefore the access is always *write only* (WO) i.e. these commands are always SET commands. As an example, consider a fictitious command 0x12:
Request:

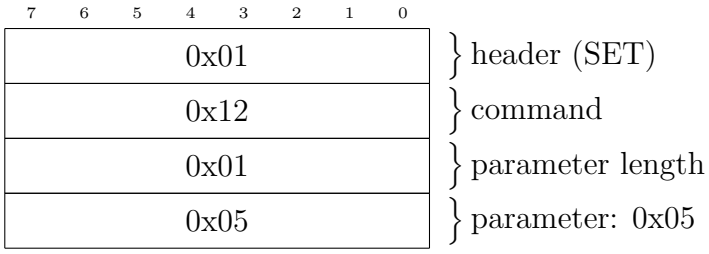


Reply:

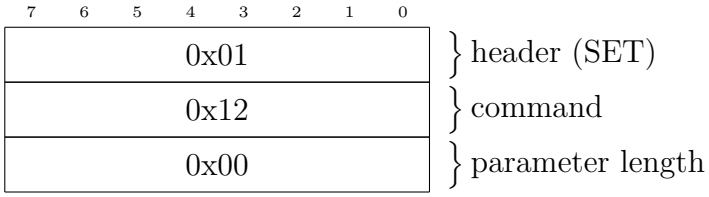


2.7 TRIGGER_INDEXED

Commands of type TRIGGER_INDEXED are intended to trigger actions, which require an argument. For example, triggering the one-push autofocus on one area of the the video window requires the area number the focus shall be adjusted to.
Access is always *write only* (WO) i.e. these commands are always SET commands. Request contains 1 byte used as an index.
The definition for the index can be found in the documentation of each command. As an example, consider a fictitious command 0x12, triggering action with index 5:
Request:



Reply:



2.8 SPECIAL

Request or reply differ in implementation and are described in the documentation of each command.

2.9 LEGACY

Legacy commands are intended to accomplish backward compatibility. Note that only a basic subset of PF1 commands is supported.
The supported commands are listed in section 'LEGACY COMMANDS'.
Refer to documentation of PF1 wolfprot commands [1] for further information.

[1] Serial (RS232), LAN and USB Wolfprot Protocol API of PF1 devices:
https://www.wolfvision.com/wolf/protocol_command_wolfvision.zip

3 Commands

3.1 DEVICE INFO & DESCRIPTION

3.1.1 MODELNAME

Value	0x4000	
Description	Modelname of the device (e.g. "VZ8-UHD")	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.2 DISPLAYNAME

Value	0x4001	
Description	Displayname of the device (e.g. "VZ-8.UHD")	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.3 ADJ SERIALNUMBER

Value	0x4002	
Description	Serial number of the device.	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	INT	

3.1.4 VERSION

Value	0x4003	
Description	Firmware version (e.g. "V1.00a")	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.5 BUILDNUMBER

Value	0x4004	
Description	Buildnumber of firmware (e.g. "20200101120000")	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.6 HOSTNAME

Value	0x4005	
Description	Hostname of the device	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.7 DEVICE DESCRIPTION

Value	0x4006	
Description	Description of the device	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.8 UPDATE START

Value	0x4008	
Description	Initiate a system update.	
	Request	File size as 4 byte integer value
	Reply	-
Access	Admin	WO
	User	WO
	None	WO
	Standby access	yes
Type	SPECIAL	

3.1.9 UPDATE DATA

Value	0x4009	
Description	Upload update file data.	
	Request	Data chunks of update file with chunk size < 1MiB
	Reply	-
Access	Admin	WO
	User	WO
	None	WO
	Standby access	yes
Type	SPECIAL	

3.1.10 UPDATE END

Value	0x400A	
Description	Finalize system update.	
	Request	-
	Reply	-
Access	Admin	WO
	User	WO
	None	WO
	Standby access	yes
Type	SPECIAL	

3.1.11 LOGIN LEVEL

Value	0x400B		
Description	Set or get login level. **Set** Request: 1 byte for login level, followed by password if login level is set to ADMIN Reply: - **Get** Request: - Reply: 1 byte login level		
Access	Admin		RW
	User		RW
	None		RW
	Standby access		yes
Type	SPECIAL		
Parameters	NONE	0x00	None
	USER	0x01	User
	ADMIN	0x02	Admin

3.1.12 USB UPDATE AVAILABLE

Value	0x400D	
Description	Check if an update is available on connected USB memory device	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	BOOL	

3.1.13 USB UPDATE START

Value	0x400E	
Description	Start system update from USB memory device	
Access	Admin	WO
	User	-
	None	-
	Standby access	yes
Type	TRIGGER	

3.1.14 HTTP UPDATE STATE

Value	0x400F		
Description	State of internet system update		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	yes	
Type	LIST		
Parameters	IDLE	0x00	Idle
	FAILED	0x01	Failed
	NOCONNECT	0x02	Not connected to server
	CHECKING	0x03	Checking if a system update is available
	UPTODATE	0x04	Installed version is up to date
	OUTOFDATE	0x05	Installed version is out of date
	DOWNLOADING	0x06	Downloading system update from server
	UPDATING	0x07	Updating

3.1.15 HTTP UPDATE VERSION

Value	0x4010	
Description	Version of update file on server	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.1.16 HTTP UPDATE PROGRESS

Value	0x4011	
Description	Internet system update progress in percent	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	INT	

3.1.17 HTTP UPDATE CHECK

Value	0x4012		
Description	Check if a system update is available on server		
Access	Admin	WO	
	User	-	
	None	-	
	Standby access	yes	
Type	TRIGGER		

3.1.18 HTTP UPDATE START

Value	0x4013		
Description	Start internet system update		
Access	Admin	WO	
	User	-	
	None	-	
	Standby access	yes	
Type	TRIGGER		

3.1.19 HTTP UPDATE CANCEL

Value	0x4014		
Description	Cancel internet system update		
Access	Admin	WO	
	User	-	
	None	-	
	Standby access	yes	
Type	TRIGGER		

3.1.20 ADJ MODEL

Value	0x4016		
Description	Model code of device		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	VZ8_UHD	0x00	VZ-8.UHD
	VZ3NEO_UHD	0x01	VZ-3neo.UHD
	VZ8NEO_UHD	0x02	VZ-8neo.UHD

3.1.21 FACTORY RESET

Value	0x4018	
Description	Reset device to factory settings	
Access	Admin	WO
	User	-
	None	-
	Standby access	yes
Type	TRIGGER	

3.1.22 SYSTEM UPDATE STAGE

Value	0x401D		
Description	Stage of system update		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	yes	
Type	LIST		
Parameters	IDLE	0x00	Idle
	UPLOAD	0x01	Uploading
	PROGRAMMING	0x02	Programming
	FINISHED	0x03	Finished
	FAILED	0x04	Failed

3.1.23 SYSTEM UPDATE PROGRESS

Value	0x401E	
Description	System update progress in percent	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	INT	

3.1.24 FEATURES

<table>
<tr><td>Value</td><td colspan="2">0x4021</td></tr>
<tr><td>Description</td><td colspan="2">Get supported features.

<table><tr><td>Request</td><td>-</td></tr><tr><td>Reply</td><td>8 bytes containing supported features</td></tr></table></td></tr>
<tr><td>Access</td><td colspan="2"><table><tr><td>Admin</td><td>RO</td></tr><tr><td>User</td><td>RO</td></tr><tr><td>None</td><td>RO</td></tr><tr><td>Standby access</td><td>yes</td></tr></table></td></tr>
<tr><td>Type</td><td colspan="2">SPECIAL</td></tr>
</table>

3.2 BASIC STATUS & CONTROL

3.2.1 POWER

Value	0x4100	
Description	Power status	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	yes
Type	BOOL	

3.2.2 USB MOUNT

Value	0x4103		
Description	Status of USB memory device		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	yes	
Type	LIST		
Parameters	UNMOUNTED	0x00	USB memory device not mounted
	MOUNTED	0x01	USB memory device mounted

3.2.3 LIGHT

Value	0x4104	
Description	Status of light (On/Off)	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	BOOL	

3.2.4 FREEZE

Value	0x4105	
Description	Status of image freeze	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	BOOL	

3.2.5 SOURCE

Value	0x4106		
Description	Select(ed) source		
Access	Admin		RW
	User		RW
	None		RO
	Standby access		no
Type	LIST		
Parameters	VZ	0x00	Live view
	MEM	0x01	Internal memory
	USB	0x02	USB memory device
	EXT1	0x03	HDMI input 1
	EXT2	0x04	HDMI input 2

3.2.6 HDMI IN 1 5V STATUS

Value	0x4107	
Description	5V present at HDMI input 1	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.2.7 HDMI IN 2 5V STATUS

Value	0x4108	
Description	5V present at HDMI input 2	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.2.8 RECORDING START

Value	0x4109	
Description	Start recording	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.9 RECORDING PAUSE

Value	0x410A	
Description	Pause recording	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.10 RECORDING STOP

Value	0x410B	
Description	Stop recording	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.11 RECALL PRESET A3

Value	0x410C	
Description	Recall preset for A3 paper size on working surface	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.12 RECALL PRESET A4

Value	0x410D	
Description	Recall preset for A4 paper size on working surface	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.13 RECALL PRESET A5

Value	0x410E	
Description	Recall preset for A5 paper size on working surface	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.14 SIDEBYSIDE

Value	0x410F	
Description	Start side by side view on HDMI output In live view a snapshot and live view is shown. Otherwise the current source and live view is shown.*/	
Access	Admin	RW
	User	RW
	None	-
	Standby access	no
Type	BOOL	

3.2.15 RECALL PRESET

Value	0x4111	
Description	Recall preset - index starts with zero	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER_INDEXED	

3.2.16 STORE PRESET

Value	0x4112	
Description	Store the current status in a preset. 3 presets are supported, therefore the index has to be 0x00, 0x01 or 0x02	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER_INDEXED	

3.2.17 STREAM STATUS ACTIVE

Value	0x4113	
Description	Device is streaming	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.2.18 STREAM STATUS CLIENTS

Value	0x4114	
Description	Number of clients receiving the stream	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	INT	

3.2.19 RECORD STATUS STATE

Value	0x4115		
Description	Recording status		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	IDLE	0x00	Idle
	RECORDING	0x01	Recording
	PAUSED	0x02	Recording paused
	SYNCING	0x03	Syncing

3.2.20 RECORD STATUS DURATION

Value	0x4116	
Description	Duration of recording in ms	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	INT	

3.2.21 GET PICTURE

Value	0x4117	
Description	Get live picture.	
	Command packet	1 byte for picture format
	Reply	1 byte for picture format followed by start indicator 0x00 and the picture data. Therefore the size of the picture data is the command length from header subtracted by 2.
Access	Admin	RO
	User	RO
	None	-
	Standby access	no
Type	SPECIAL	
Parameters	JPEG_FHD	0x01	JPEG encoded 1080p

3.2.22 RECALL PRESET POWER ON

Value	0x4118	
Description	Recall power-on preset	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.23 RECALL PRESET DEFAULT

Value	0x4119	
Description	Recall default preset	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.24 SNAPSHOT

Value	0x4120	
Description	Take a snapshot	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.25 STORE PRESET POWER ON

Value	0x4121	
Description	Store current settings in power-on preset	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.26 IMAGE VIEWER PREV

Value	0x4123	
Description	Select previous image	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.27 IMAGE VIEWER NEXT

Value	0x4124	
Description	Select next image	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.28 IMAGE VIEWER FIRST

Value	0x4125	
Description	Select first image	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.29 IMAGE VIEWER LAST

Value	0x4126	
Description	Select last image	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.2.30 IMAGE VIEWER SELECT

Value	0x4127	
Description	Show selected image	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	TRIGGER	

3.3 IMAGE RELATED

3.3.1 BRIGHTNESS

Value	0x4200	
Description	Brightness from -10 to +10	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	INT	

3.3.2 SHUTTER MODE

Value	0x4201		
Description	Mode for shutter		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	AUTO	0x00	Automatic
	MANUAL	0x01	Manual

3.3.3 SHUTTER STEP

Value	0x4202		
Description	Shutter step		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	1_60	0x00	$\frac{1}{60}s$
	1_100	0x01	$\frac{1}{100}s$
	1_120	0x02	$\frac{1}{120}s$
	1_250	0x03	$\frac{1}{250}s$
	1_500	0x04	$\frac{1}{500}s$
	1_1000	0x05	$\frac{1}{1000}s$
	1_2000	0x06	$\frac{1}{2000}s$
	1_3000	0x07	$\frac{1}{3000}s$

3.3.4 WHITEBALANCE MODE

Value	0x4203		
Description	White balance mode		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	AUTO	0x00	Automatic
	MANUAL	0x01	Manual

3.3.5 WHITEBALANCE RED

Value	0x4204	
Description	Whitebalance value for red from -100 to +100	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	INT	

3.3.6 WHITEBALANCE BLUE

Value	0x4205	
Description	Whitebalance value for blue from -100 to +100	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	INT	

3.3.7 COLOR MODE

Value	0x4206		
Description	Color mode		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	SRGB	0x00	sRGB
	PRESENTATION	0x01	Presentation
	DLP	0x02	DLP
	WEBCONF	0x03	Webconference
	BLACKWHITE	0x04	Black & White
	MANUAL	0x05	Manual

3.3.8 GAMMA MODE

Value	0x4207		
Description	Gamma mode		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	1_55	0x00	WPP description
	1_80	0x01	WPP description
	2_05	0x02	WPP description
	2_20	0x03	WPP description

3.3.9 SATURATION

Value	0x4208	
Description	Saturation value from 0 to 150	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	INT	

3.3.10 DETAIL MODE

Value	0x4209		
Description	Detail mode		
Access	Admin		RW
	User		RW
	None		RO
	Standby access		no
Type	LIST		
Parameters	HIGH	0x00	High
	MED	0x01	Medium
	LOW	0x02	Low
	OFF	0x03	Off

3.3.11 DIGITAL ZOOM

Value	0x420A	
Description	Digital zoom (On/Off)	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.3.12 NOISE REDUCTION

Value	0x420B		
Description	Noise reduction		
Access	Admin		RW
	User		RW
	None		RO
	Standby access		no
Type	LIST		
Parameters	OFF	0x00	Off
	LOW	0x01	Low
	MED	0x02	Medium
	HIGH	0x03	High

3.3.13 AUTOFOCUS

Value	0x420C	
Description	Permanent autofocus	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	BOOL	

3.3.14 ONEPUSH AUTOFOCUS

Value	0x420D	
Description	Trigger the One-Push-Autofocus The live image is divided into 9 focus fields: 1 2 3 4 5 6 7 8 9 The index can either be 0 (to focus on the whole image) or 1 - 9 to focus on one of the fields. When One-Push-Autofocus is triggered permanent AF is turned off.	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	TRIGGER_INDEXED	

3.3.15 ONEPUSH WHITEBALANCE

Value	0x420E	
Description	Trigger the One-Push-Whitebalance Select the optimal whitebalance based on the current image.	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	TRIGGER	

3.3.16 ZOOM

Value	0x420F		
Description	Zoom control Depending on the length of the command a set command is divided into three types.		
	Set 1	Start zoom	
	Request	1 byte for direction (START_WIDE / START_TELE)	
	Reply	-	
	Set 2	Set zoom position with maximum speed	
	Request	2 bytes for position in range 0x0000 to 0x0FFF	
	Reply	-	
	Set 3	Start zoom with given speed	
	Request	1 byte for direction (WIDE / TELE) followed by 2 bytes for speed in range 0x0000 to 0x000F	
	Reply	-	
	Get		
	Request	-	
	Reply	2 bytes for position in range 0x0000 to 0x0FFF	
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	SPECIAL		
Parameters	WIDE	0x01	Wide
	TELE	0x02	Tele
	START_WIDE	0x11	Start wide
	START_TELE	0x12	Start tele

3.3.17 FOCUS

Value	0x4210		
Description	Focus control Depending on the length of the command a set command is divided into three types.		
	Set 1	Start focus	
	Request	1 byte for direction (START_FAR / START_NEAR)	
	Reply	-	
	Set 2	Set focus position with maximum speed	
	Request	2 bytes for position in range 0x0000 to 0x0FFF	
	Reply	-	
	Set 3	Start focus with given speed	
	Request	1 byte for direction (FAR / NEAR) followed by 2 bytes for speed in range 0x0000 to 0x000F	
	Reply	-	
	Get		
	Request	-	
	Reply	2 bytes for position in range 0x0000 to 0x0FFF	
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	SPECIAL		
Parameters	FAR	0x01	Far
	NEAR	0x02	Near
	START_FAR	0x11	Start far
	START_NEAR	0x12	Start near

3.4 NETWORK RELATED

3.4.1 LAN0 DHCP

Value	0x4300	
Description	Configured DHCP client on network interface 0 (On/Off)	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	BOOL	

3.4.2 LAN0 IP

Value	0x4301	
Description	Configured IP address of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.3 LAN0 NETMASK

Value	0x4302	
Description	Configured subnet mask of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.4 LAN0 GATEWAY

Value	0x4303	
Description	Configured gateway of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.5 LAN0 NAMESERVER1

Value	0x4304	
Description	Configured first DNS server of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.6 LAN0 NAMESERVER2

Value	0x4305	
Description	Configured second DNS server of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.7 LAN0 STATUS DHCP

Value	0x4306	
Description	Actual DHCP client status on network interface 0 (On/Off)	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	BOOL	

3.4.8 LAN0 STATUS IP

Value	0x4307	
Description	Actual IP address of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.9 LAN0 STATUS NETMASK

Value	0x4308	
Description	Actual subnet mask of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.10 LAN0 STATUS GATEWAY

Value	0x4309	
Description	Actual gateway of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.11 LAN0 STATUS NAMESERVER1

Value	0x430A	
Description	Actual first DNS server of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.12 LAN0 STATUS NAMESERVER2

Value	0x430B	
Description	Actual first DNS server of network interface 0	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	IP	

3.4.13 LAN0 STATUS MAC

Value	0x430C	
Description	MAC address of network interface 0 (ASCII encoded: "00:00:00:00:00:00")	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	STRING	

3.4.14 LAN0 APPLY SET

Value	0x430D	
Description	Immediately apply settings to network interface 0	
Access	Admin	WO
	User	-
	None	-
	Standby access	yes
Type	TRIGGER_INDEXED	

3.5 MISC SYSTEM SETTING

3.5.1 RESOLUTION

Value	0x4400		
Description	Configured resolution of HDMI output		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	AUTO	0x00	Automatically select resolution
	4K60_444	0x01	4k@60Hz (4:4:4)
	4K60_420	0x02	4k@60Hz (4:2:0)
	4K30_444	0x03	4k@30Hz (4:4:4)
	1080P60_444	0x04	1080p@60Hz (4:4:4)
	720P60_444	0x05	720p@60Hz (4:4:4)

3.5.2 CURRENT RESOLUTION

Value	0x4401		
Description	Actual resolution of HDMI output		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	AUTO	0x00	Automatically select resolution
	4K60_444	0x01	4k@60Hz (4:4:4)
	4K60_420	0x02	4k@60Hz (4:2:0)
	4K30_444	0x03	4k@30Hz (4:4:4)
	1080P60_444	0x04	1080p@60Hz (4:4:4)
	720P60_444	0x05	720p@60Hz (4:4:4)

3.5.3 HDCP

Value	0x4402	
Description	HDCP protection of HDMI in- and output	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.4 ADMIN PASSWORD

Value	0x4406	
Description	Password for login level admin	
Access	Admin	RW
	User	-
	None	-
	Standby access	no
Type	STRING	

3.5.5 AUTOERASE MEM

Value	0x4407	
Description	Automatically clear all images at power down and up	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.6 STREAM SERVICE

Value	0x4408	
Description	Network stream (On/Off)	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.7 STREAM FORMAT

Value	0x4409		
Description	Network stream format		
Access	Admin		RW
	User		RO
	None		RO
	Standby access		no
Type	LIST		
Parameters	JPEG	0x00	JPEG
	H264	0x01	H.264

3.5.8 STREAM RESOLUTION

Value	0x440A		
Description	Resolution of network stream		
Access	Admin		RW
	User		RO
	None		RO
	Standby access		no
Type	LIST		
Parameters	FHD	0x00	1080p
	UHD	0x01	4k

3.5.9 RECORD SERVICE

Value	0x440B	
Description	Recording feature (On/Off)	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.10 POWER ON PRESET

Value	0x440C		
Description	Preset loaded at power on		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	BOOL		
Parameters	DEFAULT	0x00	Default
	CUSTOM	0x01	Custom

3.5.11 MAINS ON ACTION

Value	0x440D		
Description	Action after device is connected to mains supply		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	POWER_ON	0x00	Switch power on
	STANDBY	0x01	Standby mode

3.5.12 AUTO POWER OFF

Value	0x440E		
Description	Power down after inactivity		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	OFF	0x00	Off
	30MIN	0x01	Power off after 30min inactivity
	60MIN	0x02	Power off after 60min inactivity
	120MIN	0x03	Power off after 120min inactivity
	180MIN	0x04	Power off after 180min inactivity
	240MIN	0x05	Power off after 240min inactivity

3.5.13 ARM STANDBY CONTROL

Value	0x440F		
Description	Power up/down controlled by arm		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	BOOL		
Parameters	OFF	0x00	Off
	ON	0x01	On

3.5.14 STANDBY MODE

Value	0x4410		
Description	Standby mode		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	yes	
Type	LIST		
Parameters	STANDBY	0x00	Standby
	DEEP_WOL	0x01	Deep standby but Wake-On-LAN is enabled
	DEEP	0x02	Deep standby
	HDMI_PASS_THRU	0x03	Standby but HDMI inputs are passed to output

3.5.15 NTP ENABLE

Value	0x4411	
Description	Sync time via Network Time Protocol	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.16 NTP URL

Value	0x4412	
Description	URL of NTP server	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	STRING	

3.5.17 IR CODE

Value	0x4413		
Description	IR code of remote		
Access	Admin		RW
	User		RO
	None		RO
	Standby access		no
Type	LIST		
Parameters	1	0x00	IR code 1
	2	0x01	IR code 2
	3	0x02	IR code 3
	4	0x03	IR code 4
	5	0x04	IR code 5
	6	0x05	IR code 6
	7	0x06	IR code 7
	8	0x07	IR code 8
	9	0x08	IR code 9

3.5.18 TIME

Value	0x4414	
Description	Set or get current time.	
	Set	
	Request	ASCII encoded byte array: "HH:MM:SS"
	Reply	-
	Get	
	Request	-
	Reply	ASCII encoded byte array: "HH:MM:SS"
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	SPECIAL	

3.5.19 DATE

Value	0x4415	
Description	Set or get current date.	
	Set	
	Request	ASCII encoded byte array: "YYYY-MM-DD"
	Reply	-
	Get	
	Request	-
	Reply	ASCII encoded byte array: "YYYY-MM-DD"
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	SPECIAL	

3.5.20 STREAM TRANSPORT

Value	0x4416		
Description	Network stream transport mode		
Access	Admin	RW	
	User	RO	
	None	RO	
	Standby access	no	
Type	LIST		
Parameters	UNICAST	0x00	Unicast*/
	MULTICAST	0x01	Multicast

3.5.21 STREAM MULTICAST IP

Value	0x4417	
Description	Destination IP of multicast stream	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	IP	

3.5.22 STREAM MULTICAST PORT

Value	0x4418	
Description	Base port number for transport of multicast stream	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	INT	

3.5.23 STREAM MULTICAST TTL

Value	0x4419	
Description	TTL of multicast stream	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	INT	

3.5.24 SECURITY MODE STATUS

Value	0x441A	
Description	Actual security mode status	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.25 PRIVACY MODE

Value	0x4433	
Description	Privacy mode	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.26 SECURITY MODE APPLY

Value	0x4434	
Description	Apply configured security mode (triggers reboot)	
Access	Admin	WO
	User	-
	None	-
	Standby access	no
Type	TRIGGER	

3.5.27 SECURITY MODE

Value	0x4435	
Description	Set security mode	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	BOOL	

3.5.28 MGMT SUBSCRIBE MODE

Value	0x4437		
Description	Management subscribe mode		
Access	Admin		RW
	User		RO
	None		RO
	Standby access		no
Type	LIST		
Parameters	OFF	0x00	Off
	DHCP	0x01	DHCP
	STATIC	0x02	Static

3.5.29 MGMT SUBSCRIBE ADDRESS

Value	0x4438	
Description	Server address for static management subscribe mode	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	no
Type	STRING	

3.5.30 MGMT SUBSCRIBE STATUS

Value	0x4439		
Description	Management subscribe status		
Access	Admin		RO
	User		RO
	None		RO
	Standby access		no
Type	LIST		
Parameters	INIT	0x00	Init
	ONLINE	0x01	OK
	NO_ADDRESS	0x02	No or invalid server address
	ERROR	0x03	Generic error

3.5.31 MGMT SUBSCRIBE ACT ADDR

Value	0x443A	
Description	Management subscribe actual server address	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	STRING	

3.5.32 MIC MUTE

Value	0x443D	
Description	Status of microphone mute	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	BOOL	

3.5.33 USBMIC ENABLE

Value	0x443E	
Description	Enable support for USB microphone	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	BOOL	

3.5.34 USBMIC VOLUME

Value	0x443F	
Description	Volume of USB microphone	
Access	Admin	RW
	User	RO
	None	RO
	Standby access	yes
Type	INT	

3.6 LEGACY COMMANDS

3.6.1 LEGACY BLOCK

Value	0x10		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	RO	
	User	RO	
	None	RO	
	Standby access	no	
Type	LEGACY		
Parameters	FLAGS_AND_UNIT2	0x0B	-
	POSITIONS2	0x0D	-

3.6.2 LEGACY MODELNAME

Value	0x11	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	LEGACY	

3.6.3 LEGACY VERSION

Value	0x13	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	yes
Type	LEGACY	

3.6.4 LEGACY ZOOM

Value	0x20	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	LEGACY	

3.6.5 LEGACY FOCUS

Value	0x21	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	LEGACY	

3.6.6 LEGACY STOP ALL

Value	0x2F	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	LEGACY	

3.6.7 LEGACY POWER

Value	0x30	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	yes
Type	LEGACY	

3.6.8 LEGACY AUTOFOCUS

Value	0x31		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LEGACY		
Parameters	ONEPUSH	0x10	-

3.6.9 LEGACY RECALL PRESET

Value	0x40		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	WO	
	User	WO	
	None	-	
	Standby access	no	
Type	LEGACY		
Parameters	0	0x00	-
	1	0x01	-
	2	0x02	-
	3	0x03	-
	DEFAULT	0x04	-

3.6.10 LEGACY STORE PRESET

Value	0x41		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	WO	
	User	WO	
	None	-	
	Standby access	no	
Type	LEGACY		
Parameters	0	0x00	-
	1	0x01	-
	2	0x02	-
	3	0x03	-

3.6.11 LEGACY FREEZE

Value	0x56	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RW
	User	RW
	None	RO
	Standby access	no
Type	LEGACY	

3.6.12 LEGACY PIP

Value	0x5D		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	RW	
	User	RW	
	None	-	
	Standby access	no	
Type	LEGACY		
Parameters	OFF	0x00	-
	ON	0x01	-
	TOGGLE	0x02	-

3.6.13 LEGACY EXT INT

Value	0x57		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LEGACY		
Parameters	OFF	0x00	-
	ON	0x01	-
	TOGGLE	0x02	-
	2_ON	0x03	-

3.6.14 LEGACY COLOR MODE

Value	0x6D		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin	RW	
	User	RW	
	None	RO	
	Standby access	no	
Type	LEGACY		
Parameters	BW	0x00	-
	PRESENTATION	0x01	-
	NATURAL	0x02	-
	VIDEOCONF	0x03	-
	MAN	0x04	-
	BW_TOGGLE	0x05	-
	DLP	0x06	-

3.6.15 LEGACY ETHERNET MODE

Value	0x74	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	RO
	User	RO
	None	RO
	Standby access	no
Type	LEGACY	

3.6.16 LEGACY SNAPSHOT

Value	0x95	
Description	Legacy command - refer to Wolfprot documentation of PF1	
Access	Admin	WO
	User	WO
	None	-
	Standby access	no
Type	LEGACY	

3.6.17 LEGACY MENUCTRL

Value	0x99		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin		WO
	User		WO
	None		-
	Standby access		no
Type	LEGACY		
Parameters	LEFT	0x04	-
	ENTER	0x05	-
	RIGHT	0x06	-

3.6.18 LEGACY SOURCE

Value	0x9E		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin		RW
	User		RW
	None		RO
	Standby access		no
Type	LEGACY		
Parameters	VZ	0x00	-
	MEM	0x01	-
	USB	0x02	-
	EXT	0x03	-
	EXT2	0x04	-

3.6.19 LEGACY LIGHT

Value	0xA0		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin		RW
	User		RW
	None		RO
	Standby access		no
Type	LEGACY		
Parameters	LB_ON_L_OFF	0x02	-
	SB_ON	0x03	-
	SEQ_TOGGLE	0x10	-
	OFF_LB_TOGGLE	0x11	-
	TOGGLE	0x12	-

3.6.20 LEGACY RECORDING

Value	0x0301		
Description	Legacy command - refer to Wolfprot documentation of PF1		
Access	Admin		RW
	User		RW
	None		-
	Standby access		no
Type	LEGACY		
Parameters	STOP	0x00	-
	START	0x01	-
	PAUSE	0x02	-