WORKSWELL
WIRIS & GIS ETHERNET STREAM SDK

USER MANUAL

FW Version: 2.10.60 and higher

Release date: 6th November, 2024

Revision 241106EN

WORKSWELL

Contents

1 User Information

1.1 Typographic Conventions

Following typographic conventions are used in this User Manual:

- UPPER CASE is used for the names of keys, buttons and menu items
- COURIER is used for file names and paths
- Italic is used for important information and document names
- underline is used for the links to other sections, for function names or Internet sites

1.2 Help and Support

For technical questions that were not answered in this User Manual feel free to contact your dealer or visit the product website at workswell-thermal-camera.com, or contact our support team via support.workswell.eu.

1.3 Updates

The primary aim of Workswell s.r.o. company is to supply their products in a way that meets the current needs of its users and at the same time to remove all the weaknesses that were found in their use as quickly as possible. For this reason, Workswell s.r.o. regularly releases updates for all their products.

Visit my.workswell.eu to download the latest firmware release. The update process itself is described in a later section.

1.4 Firmware

Firmware is the „internal“ control program of the device. From the user's point of view, only the official firmware released by Workswell s.r.o. company can be used for update of the device.

2 Revision history

Note: The most current version is available at my.workswell.eu

1.0

- Initial release

1.1

- Added shutter settings
- Added alarm color settings
- Added Hot and Cold Rejection for WWS
- New chapter for GUI Application

1.2

- Changed palettes commads
- Changed zoom commad to return index
- Added thermal transparency command
- Added copy data from SSD command

1.3

- Added commands for setting screenshot image.
- Added commands for setting video memory location.
- Added commands for setting thermal encoded video.

210412

- Added commands for GIS, fixed some command description.

210426

- Changed supported FW version, added commands about temperature unit change and added description to commands containing temperature as a result.

210518

- Reviewed and added all supported commands, added cooldown check command for GIS 320 camera, clarified thermal camera zoom commands.

210521

- Spellcheck and correction to some commands description, revision of the SDK app section.

210521

- Spellcheck and correction to some commands description, revision of the SDK app section.

220521

- added CWSI commands
- updated FTP

220525

- added link to latest version

220815

- Fix errors in WIRIS AGRO commands

220818

- Add WWE commands

220819

- Add update commands

220824

- Make some command descriptions clearer

220825

- Add command to change HR camera resolution

221021

- Add stream parameters
- Renamed sections to represent cameras

230606

- Reworked document format
- Added new memory handling messages
- Added IP settings

230720

- Added stream port settings

240220

- Added SDK port settings
- Added gateway settings

3 Overview

This chapter includes basic information about the WIRIS & GIS Ethernet SDK.

3.1 Basic Information

Ethernet SDK is intended to stream video from WIRIS and GIS Camera Series and to control it over Ethernet connection. It replaces the HDMI output and RC transceiver input.

> Note: While the ethernet SDK is intended to be used with RTSP streams instead of HDMI output, it is possible to use the HDMI output and control the camera via the control interface described in this document. Please note that when the RTSP server is running on the camera the camera can not be controled via keyboard or S-BUS signals and the HDMI output is not active.

The SDK is currently compatible with these models of Workswell cameras:

- WIRIS PRO (WWP)
- WIRIS ENTERPRISE (WWE)
- WIRIS SECURITY (WWS)
- GIS 320 (GIS)
- WIRIS AGRO (CWI)

Not all of the commands described in this document work for every camera. This fact is noted at this document, please refer to your user manual for more information about your devices capabilities.

The SDK opens following capabilites of the Workswell devices:

1. TCP/IP server for control of the device. The protocol is a text-based telnet-like protocol and the camera can be controlled with telnet terminal software.
2. RTSP server for streaming visible and thermal video. The output stream can be viewed with GStreamer, FFmpeg, VLC or other software capable of opening RTSP streams.
3. FTP server for data managment

3.2 Activating the SDK

The SDK in the WIRIS and GIS 320 devices needs to be activated. The license key can be purchased from our distributors or Workswell directly. Please contact our sales at sales@workswell.eu.

It can be activated with license code using TCP/IP server command or directly through the firmware by navigating to MENU -> ADVANCED -> SYSTEM -> EHTERNET STREAM SDK: ENTER LICENSE

3.3 Example Library

We have prepared simple open-source example library for the TCP/IP communication.

It is cross-platform (Linux, Windows or Mac) and uses the Boost ASIO library.

You can ask for the package with the tutorial application by contacting us at support.workswell.eu.

3.4 WIRIS IP Address

The default WIRIS IP Address is 10.0.0.230 and the default mask is 255.255.255.0.

These values can be changed in Advanced System Menu.

3.5 Getting Help and Suggestions

The WIRIS & GIS Ethernet SDK was created as stable and robust as possible. Still, if you find any bugs, inconveniences or if you have any suggestions for improvement, please contact us at support.workswell.eu.

4 Communication protocol description

This chapter contains information about the TCP/IP communication protocol and commands.

The server description:

- Port 2240
- Text-based communication protocol
- Can be connected to with telnet software
- Each command received by the camera device is responded
- The commands are case insensitive, the server responses are always in upper case
- All temperatures in the examples are in degrees Celsius. The result of the command is returned in set temperature unit of the camera. Please see 5.5

Parameter	Value
Protocol	TCP
Default port number	2240

Table 4.1: Protocol parameters

5 Commands description

This section describes the actual commands used to control the camera via the text-based interface.

The most common responses are `OK` in case of success and `ERR` in case of error. When parameters are given or returned, they are separated by one space.

> Note: Some commands work only for specific camera type. If so it is specified in the command description or in the header of the section describing certain command group. If unspecified the command is valid for all devices mentioned in 3.1

The parameters and return values can be either integers (denoted by [int] tag), floats (denoted by [float] tag) or strings defined as a list of discreet possibilities. The return values can also be strings (e.g. serial number, denoted by [string] tag) or lists (usually set of possible settings which can be dependent on camera calibration or current state). Lists can be consisted of strings, floats or integers (or their combination) and each entry is separated by a newline. Lists are indicated by { } around the type tags.

5.1 Commands - Activation

Only basic commands like get serial number are available unless the Ethernet SDK is activated for the given WIRIS camera. To activate the device, send the license number with ACTV command. The activation is persistent across reboot and can be checked using IACT command.

5.1.1 Activate / get activation status

command	1st parameter	answer
ACTV	LICENCE NUMBER	▪ OK ▪ ERR
IACT		▪ TRUE ▪ FALSE

5.1.2 Set / get Ethernet Mode

The unit can be either in normal mode having the HDMI output active, or in ethernet mode running the RTSP streams from the thermal sensor and optical camera. This command will start or stop the Ethernet Mode. In Ethernet Mode mode, WIRIS/GIS 320 will stop streaming cameras to HDMI and the RTSP server is started.

You can still use the HDMI for thermal and visible streams and use the ethernet commands from this document with the Ethernet Mode turned off.

command	1st parameter	answer
SETH	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GETH		▪ TRUE ▪ FALSE

5.1.3 Protocol port

The port for the protocol can be changed, either via graphical interface or by command. The new port is opened immediately, the user is responsible for correctly terminating the previous connection.

Warning: The user is responsible for terminating any connection to the original port. Any attempt to operate with the original port before the camera is rebooted lead to undefined behaviour.

command	1st parameter	answer
SSDK	[int] port number	▪ OK ▪ ERR

5.2 Basic commands

5.2.1 Commands delimiter

The delimiter for command messages can be either `LINE` ('\n' character) or `NULL` ('\0' character). This delimiter is used for detecting the end of a command. The `LINE` is mainly useful for manual input via some basic TELNET client, the `NULL` is better for software development. Default value is `LINE`.

command	1st parameter	answer
SDLM	▪ NULL ▪ LINE	▪ OK ▪ ERR
GDLM		▪ NULL ▪ LINE

Example:

```
SDLM  NULL
OK
GDLM
NULL
```

5.2.2 Check connection

Command used for checking the connection (”ping command”)

command	answer
HIWS	OK

5.2.3 Basic camera information

Returns string with camera information. These commands work without the SDK licence set.

command	answer
GSRN	[string]serial number
GATN	[string]article number
GFWV	[string]firmware version

Example:

```
GSRN
20062-046-2305
```

5.2.4 Camera temperature and fan power

The device internally measures temperature on several components. Each temperature value is in set temperature units see 5.5.

command	answer
GTCU	[float]CPU temperature
GTIC	[float]thermal core temperature
GTIN	[float]Internal electronic temperature
GFPW	[float]Fan power (0-1)

Example:

```
GTCU
32.2
```

5.3 Menu navigation

For using the commands in normal mode (with HDMI output active) it is possible to emulate the keyboard control using the `MOVE` commands.

command	1st parameter	answer
MOVE	▪ UP ▪ DOWN ▪ CANCEL ▪ OK	OK

Example:

```
MOVE OK
OK
```

5.4 GPS

5.4.1 Get GPS coordinates

Get the current GPS coordinates as long as it is provided to the camera; it relies on external source. Returns either `N/A` when GPS is not connected, `INVALID` when GPS data is not valid or the coordinates in following format:
`LATITUDE 14.4444 S`
`LONGITUDE 57.5555 W`

```
ALTITUDE 156.156
```

command	answer
GGPS	▪ N/A ▪ INVALID ▪ LATITUDE 14.4444 S LONGITUDE 57.5555 W ALTITUDE 156.156

Example:

```
GGPS
LATITUDE 14.4444 S
LONGITUDE 57.5555 W
ALTITUDE 156.156
```

5.5 Units

The camera can operate in Kelvins (K), degrees Celsius ($^{\circ}C$) or degrees Fahrenheit ($^{\circ}F$). All temperatures used in this protocol are in the set scale without the unit specifier unless explicitly stated otherwise.

command	1st parameter	answer
STUT	▪ K ▪ C ▪ F	▪ OK ▪ ERR
GTUT		▪ K ▪ C ▪ F

Example:

```
STUT K
OK
GTUT
K
```

5.6 Wiris Pro, Wiris Enterprise and GIS thermal parameters

Please refer to the camera User Manual for more in-depth explanation of these parameters. All parameters in this section are valid only for Wiris Pro, Wiris Enterprise and GIS 320 cameras.

5.6.1 Range mode settings

Get/set the range mode

command	1st parameter	answer
SRMD	▪ AUTOMATIC ▪ MANUAL ▪ SPAN	▪ OK ▪ ERR
GRMD		▪ AUTOMATIC ▪ MANUAL ▪ SPAN

Example:

```
SRMD SPAN
OK
GRMD
SPAN
```

5.6.2 Manual range settings

Returns the currently set manual thermal range minimum and maximum (values for Manual Range).

command	1st parameter	2nd parameter	answer
SRMM	[float]min	[float]max	▪ OK ▪ ERR
GRMM			[float]min [float]max

Example:

```
SRMM 20.0 30.0
OK
GRMM
20.0 30.0
```

5.6.3 Span range settings

command	1st parameter	2nd parameter	answer
SRWC	[float]center	[float]window	▪ OK ▪ ERR
GRWC			[float]center [float]window

Example:

```
SRWC 20.0 30.0
OK
GRWC
20.0 30.0
```

5.6.4 Environment settings

Note: The possible settings depends on the unit lenses and calibration. Only values returned by 5.6.4.1 command are possible

command	1st parameter	2nd parameter	answer
SREN	[float]min	[float]max	▪ OK ▪ ERR
GREN			[float]min [float]max

Example:

```
SREN -25.0 150.0
OK
GREN
-25.0 150.0
```

5.6.4.1 Get possible environment settings

command	answer
GREL	{[float]min [float]max}

Example:

```
GREL
-25.0  150.0
-40.0  550.0
100.0  1000.0
400.0  1500.0
```

5.7 WIRIS Security thermal parameters

Specific parameters for WWS thermal camera. All parameters in this section are valid only for Wiris Security devices.

5.7.1 Time stabilization settings

command	1st parameter	answer
STST	[float]<0s-5s>stabilization time	▪ OK ▪ ERR
GTST		[float]stabilization time

Example:

```
STST   2.4
OK
GTST
2.4
```

5.7.2 Hot/cold rejection settings

command	1st parameter	answer
SHRJ	[float]<0%-30%>Hot rejection	▪ OK ▪ ERR
GHRJ		[float]Hot rejection
SCRJ	[float]<0%-30%>Cold rejection	▪ OK ▪ ERR
GCRJ		[float]Cold rejection

Example:

```
SHRJ   25
OK
SCRJ  30
OK
GHRJ
25.0
GCRJ
30.0
```

5.8 WIRIS AGRO thermal parameters

Specific parameters for WIRIS AGRO thermal camera. All parameters in this section are valid only for Wiris Agro.

5.8.1 CWSI mode settings

command	1st parameter	answer
SCWM	▪ THEORETIC ▪ EMPIRICAL ▪ DIFFERENTIAL	▪ OK ▪ ERR
GCWM		▪ THEORETIC ▪ EMPIRICAL ▪ DIFFERENTIAL

Example:

```
SCWM   EMPIRICAL
OK
GCWM
EMPIRICAL
```

5.8.2 Air temperature

Note: Works only for `THEORETIC` and `DIFFERENTIAL` mode

command	1st parameter	answer
SCAT	[float]air temperature	▪ OK ▪ ERR
GCAT		[float]air temperature

Example:

```
SCAT 20.0
OK
GCAT
20.0
```

5.8.3 Stress level settings

Note: Stress level settings works only in `EMPIRICAL` mode

Note: When setting the stress level no argument is accepted. The currently measured temperature at CENTER CROSS is taken as the new stress level

Note: There is minimal difference of $5^{\circ}C$ between 100% and 0% stress level

5.8.3.1 100 % stress level

command	answer
SUSL	▪ OK ▪ ERR
GUSL	[float]stress level temperature

Example:

```
SUSL
OK
GUSL
20.0
```

5.8.3.2 0 % stress level

command	answer
SLSL	▪ OK ▪ ERR
GLSL	[float]stress level temperature

Example:

```
SLSL
OK
GLSL
25.0
```

5.8.4 Crop settings

Note: Crop settings works only in `THEORETIC` mode

command	1st parameter	answer
SCRP	[int]<1-3>crop index	▪ OK ▪ ERR
GRCP		[int]<1-3>crop index

Example:

```
SCRP 2
OK
GCRP
2
```

5.8.5 Relative humidity settings

Note: Relative humidity settings works only in `THEORETIC` mode

command	1st parameter	answer
SCHY	[float] % relative humidity	▪ OK ▪ ERR
GCHY		[float] % relative humidity

Example:

```
SCHY 50.0
OK
GCHY
50.0
```

5.8.6 Intercept baseline settings

> Note: Intercept baseline settings works only in `THEORETIC` mode

command	1st parameter	answer
SINB	[float] <0-10> intercept baseline	▪ OK ▪ ERR
GINB		[float] intercept baseline

Example:

```
SINB 2.0
OK
GINB
2.0
```

5.8.7 Slope baseline settings

> Note: Slope baseline settings works only in `THEORETIC` mode

command	1st parameter	answer
SSLB	[float] <-5-0> Slope baseline	▪ OK ▪ ERR
GSLB		[float] Slope baseline

Example:

```
SSLB -2.0
OK
GINB
-2.0
```

5.8.8 CWSI getters

5.8.8.1 d1 and d2 calculation parameters

> Note: The parameters are valid only in `THEORETIC` mode

command	answer
GEDF	[float] d1
GEDS	[float] d2

Example:

```
GEDF
1.40
GEDS
-0.40
```

5.8.8.2 CWSI extremes value

Returns the percents of CWSI for each extreme, similarly to GTEX command. The extreme consists out of value designation (MIN/MAX/CENTER) and the CWSI value (can be `OUT_OF_RANGE` or `OFF` in case values are not displayed, see 5.8.9). Each extreme takes one line.

command	answer
GCWP	[string]image values

Example:

```
GCWP
MAXIMUM  30.1
MINIMUM  OUT\_OF\_RANGE
CENTER  OUT\_OF\_RANGE
```

5.8.8.3 CWSI graph ratios

Returns the percents for each part of the CWSI graph or `NOT_ENOUGH_DATA`.

command	answer
GCGR	▪ [float]low [float]low medium [float]medium high [float]high [float]extremely high ▪ NOT_ENOUGH_DATA

Example:

```
GCGR
10.0  20.0  30.0  40.0  0.0
```

Following commands refer to UI settings available only for WIRIS AGRO.

5.8.9 Display CWSI Value

This sets whether the CWSI value is being calculated and shown in the HDMI at the extreme cross position.

command	1st parameter	answer
SCWV	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GCWV		▪ TRUE ▪ FALSE

Example:

```
SCWV TRUE
OK
GCWV
TRUE
```

5.9 Appearance

These commands sets the HDMI output features.

5.9.1 Set layout

Set layout for the HDMI output.

command	1st parameter	answer
SLAY	▪ INSPECTION [1] ▪ SECURITY ▪ FULLSCREEN ▪ PIP	▪ OK ▪ ERR

[1] not available for WIRIS Security

Example:

```
SLAY SECURITY
OK
```

5.9.1.1 Picture in picture transparency

The PiP layout has optional opacity for the thermo camera overlay in range from 10 to 100 in percent.

command	1st parameter	answer
STTY	[int]<10;100>opacity	▪ OK ▪ ERR

Example:

```
STTY 50
OK
```

5.9.2 Main camera settings

command	1st parameter	answer
SMCA	▪ THERMO ▪ VISIBLE	▪ OK ▪ ERR
GMCA		▪ THERMO ▪ VISIBLE

Example:

```
SMCA THERMO
OK
GMCA
THERMO
```

5.9.3 GPS info settings

command	1st parameter	answer
SGPI	▪ POSITION ▪ ALTITUDE_SPEED	▪ OK ▪ ERR
GGPI		▪ POSITION ▪ ALTITUDE_SPEED

Example:

```
SGPI POSITION
OK
GGPI
POSITION
```

5.10 Zoom

Note: While optical zoom (used on the visible spectrum camera) affects both the displayed video and encoded streams, the digital zoom used on the thermal camera only affect the HDMI output, the encoded RTSP stream and recorded video are NOT zoomed in.

5.10.1 Zoom in/zoom out

Zooms current main camera in (or both if the ”zoom simultaneously” is chosen) one step.

command	answer
SZIN	▪ OK ▪ ERR
SZOT	▪ OK ▪ ERR

Example:

```
SZIN
OK
```

5.10.2 Zoom simultaneously

command	1st parameter	answer
SZSM	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GZSM		▪ TRUE ▪ FALSE

Example:

```
SZSM TRUE
OK
GZSM
TRUE
```

5.10.3 Thermal camera zoom

The discrete zoom steps can be defined either by zoom ration or by index of the zoom step. Only certain ratios are possible (see 5.10.3.1).

command	1st parameter	answer
SZTN	[int]index	▪ OK ▪ ERR
GZTV		[int]index [float]ratio

Example:

```
SZTN  4
OK
GZTV
5  4.000000
```

5.10.3.1 Get list of possible thermal camera zooms

command	answer
GZTL	{[int]index [float]ratio}

Example:

```
GZTL
0  1.000000
1  1.200000
2  1.600000
3  2.000000
4  3.000000
5  4.000000
6  5.000000
7  6.000000
8  8.000000
9  10.000000
10  12.000000
```

5.10.4 Visible camera zoom

The discrete zoom steps can be defined either by zoom ration or by index of the zoom step. Only certain ratios are possible (see 5.10.4.1).

command	1st parameter	answer
SZVN	[int]index	▪ OK ▪ ERR
GZVV		[int]index [float]ratio

Example:

```
SZVN 4
OK
GZVV
4 3.000000
```

5.10.4.1 Get list of possible visible camera zooms

command	answer
GZVL	{[int]index [float]ratio}

Example:

```
GZVL
0 1.000000
1 1.200000
2 1.500000
3 2.000000
4 3.000000
5 4.000000
6 5.000000
7 6.000000
8 8.000000
9 10.000000
10 12.000000
11 16.000000
12 20.000000
13 25.000000
14 30.000000
```

5.11 GIS 320 specefic settings

5.11.1 Autofocus

command	answer
SGFA	▪ OK ▪ ERR

Example:

```
SGFA
OK
```

5.11.2 Focus to infinity

command	answer
SGFI	▪ OK ▪ ERR

Example:

```
SGFI
OK
```

5.11.3 Get remaining cooling time

command	answer
GCDT	[int]estimate of remaining time to cool down (in seconds)

Example:

```
GCDT
60
```

5.11.4 Gis filter mode

Note: Differential gas mode and High sensitivity mode can not be combined

command	1st parameter	answer
SGFM	▪ NORMAL ▪ HSM ▪ DGM	▪ OK ▪ ERR
GGFM		▪ NORMAL ▪ HSM ▪ DGM

Example:

```
SGFM  DGM
OK
GGFM
DGM
```

5.11.5 High sensitivity mode

> Note: Differential gas mode and High sensitivity mode can not be combined

command	1st parameter	answer
SHSM	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GHSM		▪ TRUE ▪ FALSE

Example:

```
SHSM  TRUE
OK
GHSM
TRUE
```

5.12 Palettes of thermal video stream

> Note: These in this section are not valid for WIRIS AGRO

> Note: Only palettes returned by get palette list command (5.12.1) can be set

command	1st parameter	answer
GPTE		[int] current palette index [string]current palette name
SPTE	[string] palette name	▪ OK ▪ ERR
SPTI	[int]palette index	▪ OK ▪ ERR

Example:

```
SPTE  GRAY
OK
GPTE
9  GRAY
```

5.12.1 Get camera palettes

command	answer
GPTL	{ [int]palette index [string]palette name }

Example:

```
GPTL
0  BLACKRED
1  BLUERED
2  BWIRON
3  BWIRONI
4  BWRAINBOW
```

5.12.2 Get pallete Look-up table

Color pallete is a look-up table of 8-bit RGB values for 8-bit normalized one channel image (temperature intensity). it is possible to download the currently used look-up table from the camera using following command. The first line is the representing the color for the hottest pixels, the last the coldest ones. There are 256 lines of the answer.

command	answer
GPLV	{ [int]R [int]G [int]B}

Example:

```
GPLV
0  0  0
2  0  2
4  0  4
 . . .
```

5.13 Colourmap

Note: These commands work only for WIRIS AGRO

Note: Only palettes returned by get colourmap list command (5.13.1) can be set

command	1st parameter	answer
GCMP		[int] current palette index [string]current palette name
SCMP	[int]colourmap index	▪ OK ▪ ERR

Example:

```
SCMP  1
OK
GCMP
CROPSTEP_MAP
```

5.13.1 Get colourmap list

Get all available colourmap in list.

command	answer
GCML	{ [int]colourmap index [string]colourmap index }

Example:

```
GCML
1  CROPSTEP_MAP
2  WATER_MAP
3  WATERSTEP_MAP
```

5.14 Capture and record

5.14.1 Capture

The commands returns an acknowledgement right away, but the capture itself can take up to several seconds depending on the settings. Returns `NOT_READY` in the case the capture cannot be initiated due to the last one not being finished yet.

command	answer
CPTR	▪ OK ▪ NOT_READY

Example:

```
CPTR
OK
```

5.14.2 Is capturing

command	answer
ICPT	▪ TRUE ▪ FALSE

Example:

```
ICPT
FALSE
```

5.14.3 Recording start

Start recording thermal and visible video according to settings. The acknowledgement is returned right away, however the recording takes place until RCRF (5.14.4) is recieved or the memory is full. If recording is already taking place, ”NOT_READY” answer is returned.

command	answer
RCRS	▪ OK ▪ NOT_READY

Example:

```
RCRS
OK
```

5.14.4 Recording finish

Stops recording of thermal and visible video. If no recording is currently running the ”NOT_READY” answer is returned.

command	answer
RCRF	▪ OK ▪ NOT_READY

Example:

```
RCRS
OK
```

5.14.5 Is recording

Returns whether any video is being recorded.

command	answer
IRCR	▪ TRUE ▪ FALSE

Example:

```
IRCR
FALSE
```

5.14.6 Periodic image capture settings

command	1st parameter	answer
SPIC	[int]<0s-60s>period[1]	▪ OK ▪ ERR
GPIC		▪ OFF ▪ [int]<1s-60s>period

[1] 0 denotes periodic capturing OFF

Example:

```
SPIC 0
OK
GPIC
OFF
```

5.14.7 Geofencing trigger settings

command	1st parameter	answer
GGFT		▪ ON ▪ OFF
SGFT	▪ ON ▪ OFF	▪ OK ▪ ERR
SBFL[1]	[float]<40m-400m>[2]maximum altitude	▪ OK ▪ ERR
GBFL[1]		[float]maximum altitude in meters
SEFL[1]	[float]<0m-400m>[2]minimum altitude	▪ OK ▪ ERR
GEFL[1]		[float]minimum altitude in meters
SCSB[1]	[float]<0,1m/s-10m/s>maximum capture speed	▪ OK ▪ ERR
GCSB[1]		[float]maximum capture speed

[1]Works only if geofencing trigger is `ON`
[2] minimum can not be set above maximum

Example:

```
SGFT ON
OK
SBFL 50
OK
SEFL 100
OK
SCSB 5
OK
```

5.15 Temperature values

5.15.1 Alarm mode settings

command	1st parameter	answer
SALM	▪ ABOVE ▪ BELOW ▪ BETWEEN ▪ OUTSIDE ▪ OFF	▪ OK ▪ ERR
GALM		▪ ABOVE ▪ BELOW ▪ BETWEEN ▪ OUTSIDE ▪ OFF

Example:

```
SALM  OFF
OK
GALM
OFF
```

5.15.2 Alarm values settings

command	1st parameter	2nd parameter	answer
SALV	[float]Above value	[float]below value	▪ OK ▪ ERR
GALV			[float]Above value [float]below value

Example:

```
SALV  40.0  50.0
OK
GALV
40.0  50.0
```

5.15.3 Alarm color settings

The colors are set and returned in order ”COLOR BELOW COLOR BETWEEN COLOR ABOVE”

command	1st parameter	2nd parameter	3rd parameter	answer
SALC	▪ RED ▪ GREEN ▪ BLUE	▪ RED ▪ GREEN ▪ BLUE	▪ RED ▪ GREEN ▪ BLUE	▪ OK ▪ ERR
GALC				▪ RED [three times] ▪ GREEN ▪ BLUE

Example:

```
SALC GREEN RED GREEN
OK
GALC
GREEN RED GREEN
```

5.15.4 Get extremes

Return the current thermal camera extremes. The extreme consists out of value designation (MIN/MAX/CENTER), coordinates X and Y and the extreme value in set units ($^{\circ}C, K, ^{\circ} F$). Each extreme takes one line like:

```
MAXIMUM X Y VALUE
MINIMUM 300 100 10.000
CENTER 320 256 25.555
```

command	answer
GTEX	[string]image values

> Note: This commands works for all cameras, on Wiris Security the temperature value is not present in the answer

Example:

```
GTEX
MAXIMUM 572 90 49.575001
MINIMUM 384 193 23.650000
CENTER 320 256 25.850000
```

5.15.5 Get ROI temperature

Gets statistical values from rectangular region of interest (ROI) defined by its coordinates ($x_{start}, y_{start}, x_{end}, y_{end}$; coordinate (0,0) is upper left corner). The result consists out of value designation (MIN/MAX/AREA AVG), coordinates X and Y for min and max, and the temperature value.

Note: This message can be queried with maximal frequency of 3Hz

Note: Wiris Security does not support this message.

command	1st parameter	2nd parameter	3rd parameter	4th parameter	answer
GROT	[int]column[1] start	[int]line start	[int]column end	[int]line end	[string]ROI statistic

Coordinates starts from upper left corner ([0, 0]) and ends in left down corner ([width-1, height-1]) of the image.

Example:

```
GROT 0 0 200 200
AREA AVG 30.573807
MAXIMUM 0 0 31.750000
MINIMUM 10 12 29.500000
```

5.15.6 Get one pixel temperature

Return the measured value of a pixel on given coordinates (coordinate (0,0) is upper left corner) in set temperature units. This message can be queried with maximal frequency of 3Hz.

Note: Wiris Security does not support this message.

command	1st parameter	2nd parameter	answer
GOPT	[int]column[1]	[int]line	[float]temperature

Coordinates starts from upper left corner ([0, 0]) and ends in left down corner ([width-1, height-1]) of the image.

Example:

```
GOPT 120 200
38.1
```

5.16 Update

The update file needs to be uploaded to the camera by physically connecting memory with it (SD card), or using the FTP acces to the camera (see chapter 7).

command	answer
CUPD[1]	▪ OK ▪ ERR
IUPD[2]	▪ OK ▪ ERR

[1]Searches for the update file, might take several minutes to answer
[2] only accessible if CUPD was send and returned OK on given telnet instance. Reboots the camera and install the update

Example:

```
CUPD
OK
IUPD
OK
```

5.17 Thermal camera parameters

Note: Commands in this section are not valid for Wiris Security devices. Any other device-specific changes to the commands

5.17.1 Environment variables

command	1st parameter	answer
STEM[1]	[float]<0.5-1> emissivity	▪ OK ▪ ERR
GTEM[1]		[float]emissivity
STRT[1]	[float][2]reflected temperature	▪ OK ▪ ERR
GTRT[1]		[float][2]reflected temperature
STAT[1]	[float][2]atmospheric temperature	▪ OK ▪ ERR
GTAT[1]		[float][2]atmospheric temperature

Note:
[1] not valid for Wiris Agro
[2] settings is passed in set units (see 5.5), valid range is from $-40^{\circ}C$ to $100^{\circ}C$

Example:

```
STEM  0.6
OK
GTEM
0.600000
```

5.17.2 Image interpolation

command	1st parameter	answer
STII	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GTII		▪ TRUE ▪ FALSE

Example:

```
STII  TRUE
OK
GTII
```

```
TRUE
```

5.17.3 Shutter

5.17.4 Synchronous shutter settings

command	1st parameter	answer
STSC[1] [2]	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GTSC[1] [2]		▪ TRUE ▪ FALSE
STCP[1]	[int]<120s-1800s>shutter period (synchronous shutter)	▪ OK ▪ ERR
GTCP[1]		[int]camera shutter period
GTSL		[int]seconds elapsed from last shutter
GTSN [1]		▪ [int]seconds to next shutter (synchronous shutter) ▪ N/A (asynchronous shutter)

Note: [1] not valid for GIS 320
[2] TRUE denotes the synchronous shutter settings, FALSE asynchronous

Example:

```
STSC FALSE
OK
GTSC
FALSE
```

5.17.5 Perform thermal camera shutter

Performs the thermal camera shutter immediately. On GIS 320 shutter must be placed in front of the lens when sending this command for the GIS 320 camera (cap of the lens). GIS 320 does not have integrated shutter.

command	answer
IMCR	▪ OK ▪ ERR

Example:

```
IMCR
OK
```

5.17.6 Current lens

Note: Camera can be calibrated for more than one thermal lens. If so, following parameters are valid

command	1st parameter	answer
SLEN	[int]Lens index	▪ OK ▪ ERR
GLEN		[int]Lens index
GLEL		{[string] lens}

Example:

```
GLEL
640P-45D-13MM
640P-32D-19MM
OK
SLEN 0
GLEN
0
```

5.18 Image and video settings

Note: Each WIRIS and GIS device only support a subset of the mentioned image formats. Please refer to your device user manual.

5.18.1 Images

Whether to save given image type

5.18.1.1 Radiometric JPEG

command	1st parameter	answer
SIRJ	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GIRJ		▪ TRUE ▪ FALSE

Example:

```
SIRJ FALSE
OK
GIRJ
FALSE
```

5.18.1.2 Radiometric TIFF

command	1st parameter	answer
SIRT	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GIRT		▪ TRUE ▪ FALSE

Example:

```
GIRT FALSE
OK
SIRT
FALSE
```

5.18.1.3 CWSI TIFF

command	1st parameter	answer
SICT	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GICT		▪ TRUE ▪ FALSE

Example:

```
SICT FALSE
OK
GICT
FALSE
```

5.18.1.4 Super-resolution

command	1st parameter	answer
SISR	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GISR		▪ TRUE ▪ FALSE

Example:

```
SISR FALSE
OK
GISR
FALSE
```

5.18.1.5 Screenshot

command	1st parameter	answer
SISS	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GISS		▪ TRUE ▪ FALSE

Example:

```
SISS FALSE
OK
GISS
FALSE
```

5.18.1.6 Visible (OZ) image

Note: Resolution of image 1920 x 1080

command	1st parameter	answer
SIVI	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GIVI		▪ TRUE ▪ FALSE

Example:

```
SIVI FALSE
OK
GIVI
FALSE
```

5.18.1.7 Visble High Resolution image

Note: Resolution of image depends on Wiris Enterprise settings

command	1st parameter	answer
SIHR	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GIHR		▪ TRUE ▪ FALSE

Example:

```
SIHR FALSE
OK
GIHR
FALSE
```

5.18.2 Videos

5.18.2.1 Radiometric video

Also known as sequence.

Note: It is not possible to record Radiometric Video and Thermal encoded video at the same time

command	1st parameter	answer
SVTH	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GVTH		▪ TRUE ▪ FALSE

Example:

```
SVTH  FALSE
OK
GVTH
FALSE
```

5.18.2.2 Thermal encoded video

Note: It is not possible to record Radiometric Video and Thermal encoded video at the same time

command	1st parameter	answer
SVTE	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GVTE		▪ TRUE ▪ FALSE

Example:

```
SVTE  FALSE
OK
GVTE
FALSE
```

5.18.2.3 Visible (OZ) video

Note: Resolution of video 1280x720

command	1st parameter	answer
SVVI	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GVVI		▪ TRUE ▪ FALSE

Example:

```
SVVI FALSE
OK
GVVI
FALSE
```

5.18.3 Visble High Resolution video

> Note: Resolution of video depends on Wiris Enterprise settings. To settings above 4000x3000 only images are available

command	1st parameter	answer
SVHR	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GVHR		▪ TRUE ▪ FALSE

Example:

```
SVHR FALSE
OK
GVHR
FALSE
```

5.18.4 Image location

command	1st parameter	answer
SILC	▪ SSD ▪ SD_CARD ▪ FLASH_DRIVE	▪ OK ▪ ERR
GILC		▪ SSD ▪ SD_CARD ▪ FLASH_DRIVE

Example:

```
SILC SSD
OK
GILC
```

```
SSD
```

5.18.5 Wiris Enterprise HR camera resolution

5.18.6 Get HR camera resolution

Returns the current resolution setting of the HR camera. This command only works for WWE.

command	1st parameter	answer
SHRR[1]	▪ 4656x3496 ▪ 2320x1744 ▪ 1920x1080	▪ OK ▪ ERR
GHRR		▪ 4656x3496@10 ▪ 2320x1744@30 ▪ 1920x1080@30

[1] sets the resolution and reboots the device

Example:

```
SHRR 2320x1744
OK
GHRR
2320x1744@30
```

5.19 Laser rangefinder

Laser Range Finder is on demand option on Wiris Enterprise. These commands work only for certain models of WWE.

5.19.1 Show position on HDMI

command	1st parameter	answer
SLRF	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GLRF		▪ TRUE ▪ FALSE

Example:

```
SLRF TRUE
OK
GLRF
TRUE
```

5.19.2 Get laser distance

Returns distance in meters of the surface reflecting back the laser. If the camera is not equipped with laser rangefinder, returns ERR.

command	answer
GLRD	[float]distance

Example:

```
GLRD
20.4
```

5.20 Date and time

command	1st parameter	2nd parameter	answer
SDTI	[string]yyyy/MM/dd-hh:mm:ss		▪ OK ▪ ERR
GDTI			[string]yyyy/MM/dd-hh:mm:ss
STUS [1]	[int]seconds since epoch [2]	[int]microseconds 1st parameter	▪ OK ▪ ERR

[1] Not saved across reboots
[2] 1.1.1970 00:00

Example:

```
SDTI 2023/06/5-14:52:35
OK
GDTI
2023/06/5-14:52:38
```

5.21 Memory

Thera are three types of memory: `SSD`, `SD_CARD` or `FLASH_DRIVE`.

5.21.1 Memory status

The following commands returns the status of each memory on one line like:
`SSD SOME_STATUS`
`SD_CARD SOME_STATUS`
`FLASH_DRIVE SOME_STATUS`

command	answer
GMST	▪ READY ▪ CONNECTED ▪ N/A
GMSI	▪ [int]size in bytes ▪ N/A
GMFR	▪ [float] percent free ▪ N/A
GMCP	[int]captured images

Example:

```
GMSI
SSD 251599224832
FLASH_DRIVE N/A
SD_CARD 31784960000
GMCP
SSD 22
FLASH_DRIVE 0
SD_CARD 0
GMSI
```

5.21.1.1 Recorded video

Video can only be saved into the internal (SSD) memory. These commands returns only the integer.

command	answer
GTRC	[int]seconds of thermal video
GMCP	[int]seconds of visible video

Example:

```
GTRC
689
GVRC
38
```

5.21.2 Get saving time

Return the current estimated saving time in seconds.

> Note: Saving time is affected by chosen memory for images and chosen formats to be saved.

command	answer
GEST	[float]seconds of estimate saving duration

Example:

```
GEST
1.2
```

5.21.3 Data transfer

5.21.4 Copy data

Copy all data from SSD to other memory, either SD card, or USB flash disk. This operation can take a lot of time (up to hours in case of full SSD disk). Thus this commands has two parts. Firstly, start the copying. Then periodically check the status. Please check that the memory has enough space, otherwise the ERROR answer is returned.

command	1st parameter	answer
CPST	▪ SD_CARD ▪ FLASH_DRIVE	▪ OK ▪ ERR ▪ N/A
CPSS		▪ OK ▪ [int] progress percent ▪ ERR

Example:

```
CPST FLASH_DRIVE
OK
```

```
CPSS
40
CPSS  60
CPSS
OK
```

5.22 Stream

5.22.1 Get thermal camera resolution

command	answer
GTRE	[int]width [int]height

Example:

```
GTRE
640  512
```

5.22.2 Encoder parameters settings

Note: The encoder settings will affect both recorded encoded videos and the RTSP strems

Note: it is not possible to change the encoder settings when encoded video is being saved. RTSP stream will be paused in order to change the settings, if running.

command	1st parameter	2nd parameter	answer
SEBR	▪ THERMO ▪ VISIBLE	[int]<0-$2^{32}-1$>encoder bitrate[1]	▪ OK ▪ ERR
GEBR	▪ THERMO ▪ VISIBLE		[int]encoder bitrate[1]
SEGS	▪ THERMO ▪ VISIBLE	[int]<0-32767>GOP size	▪ OK ▪ ERR
GEGS	▪ THERMO ▪ VISIBLE		[int]GOP size
SEIR	▪ THERMO ▪ VISIBLE	[int]<0-$2^{32}-1$>IDR interval	▪ OK ▪ ERR
GEIR	▪ THERMO ▪ VISIBLE		[int]IDR interval
SEQZ	▪ THERMO ▪ VISIBLE	[int]<0-51> quantization quality parameter [2]	▪ OK ▪ ERR
GEQZ	▪ THERMO ▪ VISIBLE		[int] quantization quality parameter

Table 5.1: [1]0 = no bitrate control; constant quality mode is used
[2]ignored if bitrate set to non-zero value

Example:

```
SEBR VISIBLE 0
OK
GEBR VISIBLE
0
```

5.23 Trigger

command	1st parameter	answer
STRG	▪ CORRECTION ▪ CAPTURE ▪ RECORD ▪ NA	▪ OK ▪ ERR
GTRG		▪ CORRECTION ▪ CAPTURE ▪ RECORD ▪ NA

Example:

```
STRG  RECORD
OK
GTRG
RECORD
```

5.24 System

5.24.1 IP

Note: IP settings is changed and TELNET control disconnected as result

command	1st parameter	answer
STIP	[string]IPv4	▪ OK ▪ ERR
STMS	[string]IPv4 mask	▪ OK ▪ ERR
GTMS		[string]IPv4 mask
STGW	[string]IPv4 gateway	▪ OK ▪ ERR
GTGW		[string]IPv4 gateway
SMGW[1]	▪ TRUE ▪ FALSE	▪ OK ▪ ERR
GMGW		▪ TRUE ▪ FALSE

[1] Use manual gateway settings - if set to false (default) the set gateway has no effect

Example:

```
STIP  10.0.0.230
OK
```

5.24.2 Default settings

Set the default settings, can take up to 10 seconds. This command will exit the Ethernet Mode and changes the IP..

command	answer
SDST	▪ OK ▪ ERR

Example:

```
SDST
OK
```

5.24.3 Shut down

command	answer
SHDW	▪ OK ▪ ERR

Example:

```
SHDW
OK
```

5.24.4 Reboot

command	answer
REBT	▪ OK ▪ ERR

Example:

```
REBT
OK
```

6 RTSP Video Server

This chapter contains information about the RTSP server and video streams.

When the Ethernet Mode is activated, the RTSP server is opened on standard port. The address is:

- Thermal stream
  - rtsp://10.0.0.230:8554/thermal
- Visible stream
  - rtsp://10.0.0.230:8554/visible

The IP address may differ according to the settings.

6.1 Change stream port

It is possible (although not recommended) to change the stream port number. To do so you can use the `SSPN` command

Warning: Please note that changing the port number to port already used for a different means on the device can affect the camera function. Use this settings with extreme caution. Reach us on support.workswell.eu when in doubt.

command	1st parameter	answer
SSPN	[int] port number	▪ OK ▪ ERR
GSPN		[int] port number

The server uses RTP protocol for media stream delivery. Currently only the stream can be opened, no other commands are available.

The video streams are H264 encoded. The resolution of visible stream is always HD (1280x720) with 20Hz.

The resolution of thermal stream depends on the model:

- WWP
  - 640x512, 30Hz or 8.5Hz
- WWS
  - 800x600, 25Hz or 8.3Hz
- GIS
  - 320x240, 30Hz

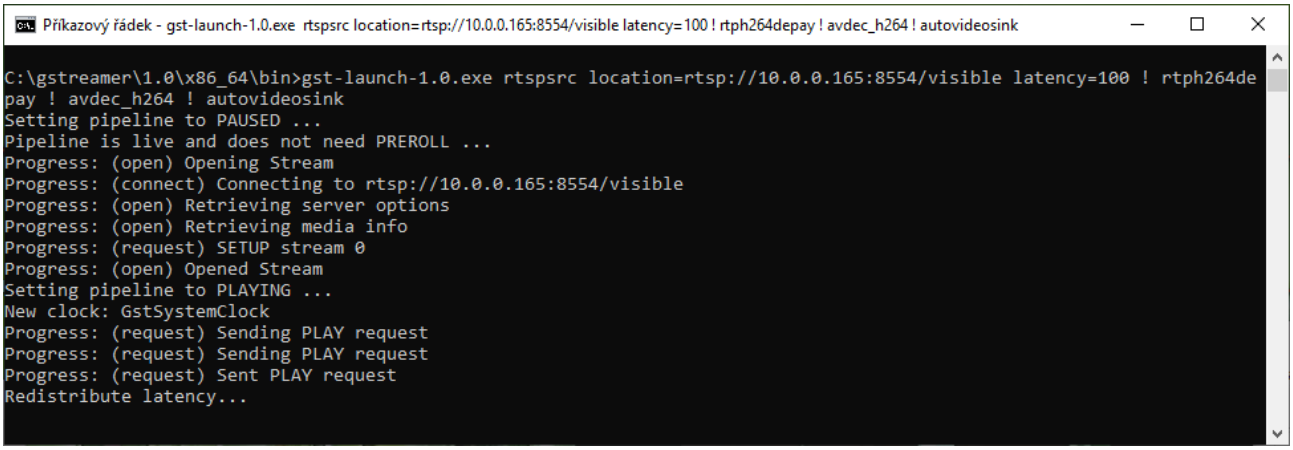


Figure 6.1: Windows console with the GStreamer command.

The settings of the zoom has no effect on the thermal stream (digitally zoomed for the HMDI output), however the optical zoom fot the visible camera can be set.

Following software was tested to be working with the RTSP streams. The software is free and cross-platform.

6.2 GStreamer

The best result with lowest delay can be achieved using GStreamer.

- https://gstreamer.freedesktop.org/

The command for launching the video stream is:

- `gst-launch-1.0 rtspsrc location=rtsp://10.0.0.230:8554/visible latency=100 ! rtph264depay ! avdec_h264 ! autovideosink`

6.3 VLC

The streams can be opened using VLC media player.

- https://www.videolan.org/vlc/index.cs.html

The command for launching the video stream is:

- `vlc --network-caching 250 --clock-jitter=0 rtsp://10.0.0.230:8554/visible`

The network caching parameter sets the video delay. Too low value may cause instability.

6.4 FFmpeg

The FFmpeg libraries can be also used for the video stream.

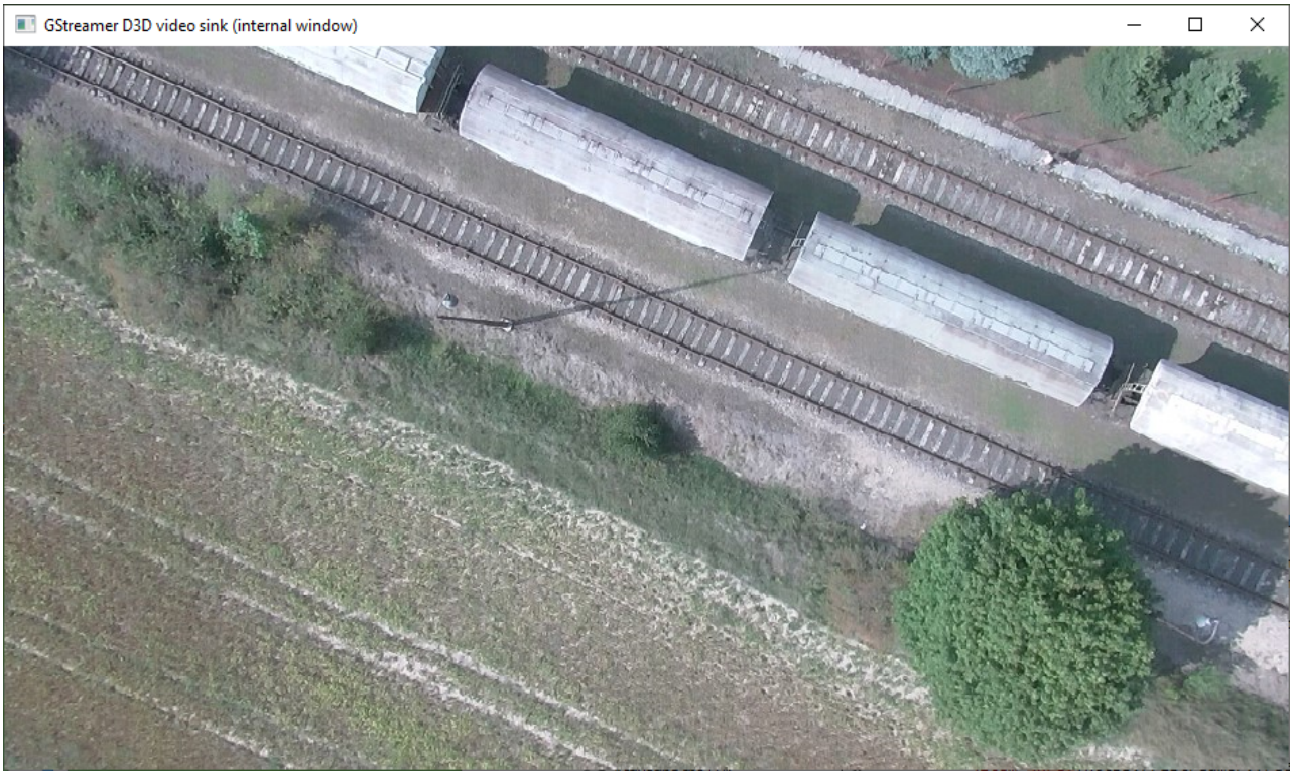


Figure 6.2: Windows GStreamer video stream.

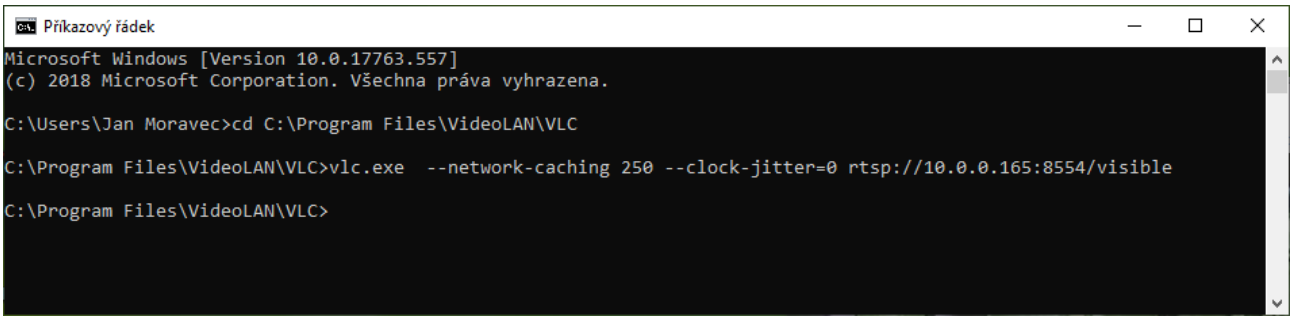


Figure 6.3: Windows console with the VLC command.

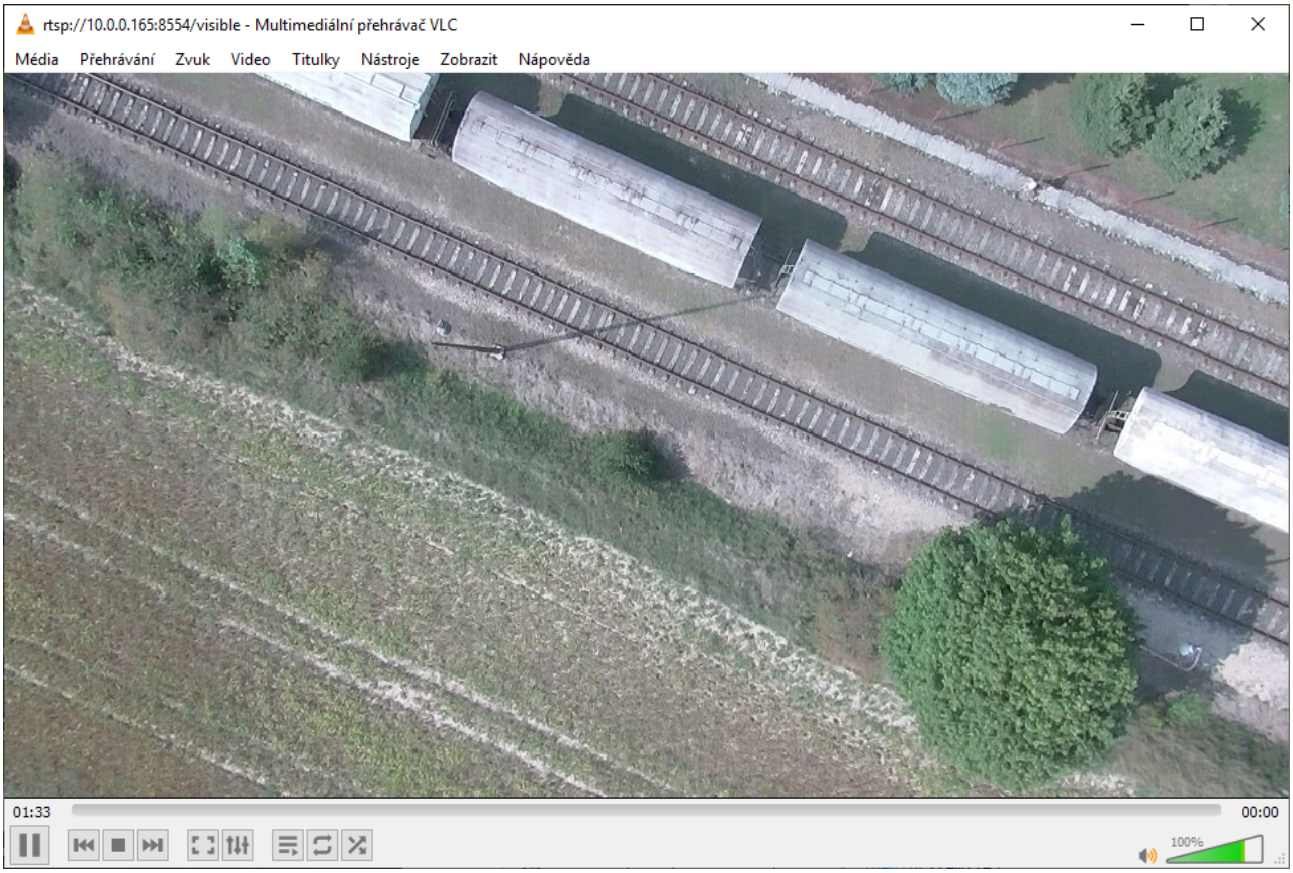


Figure 6.4: Windows VLC video stream.

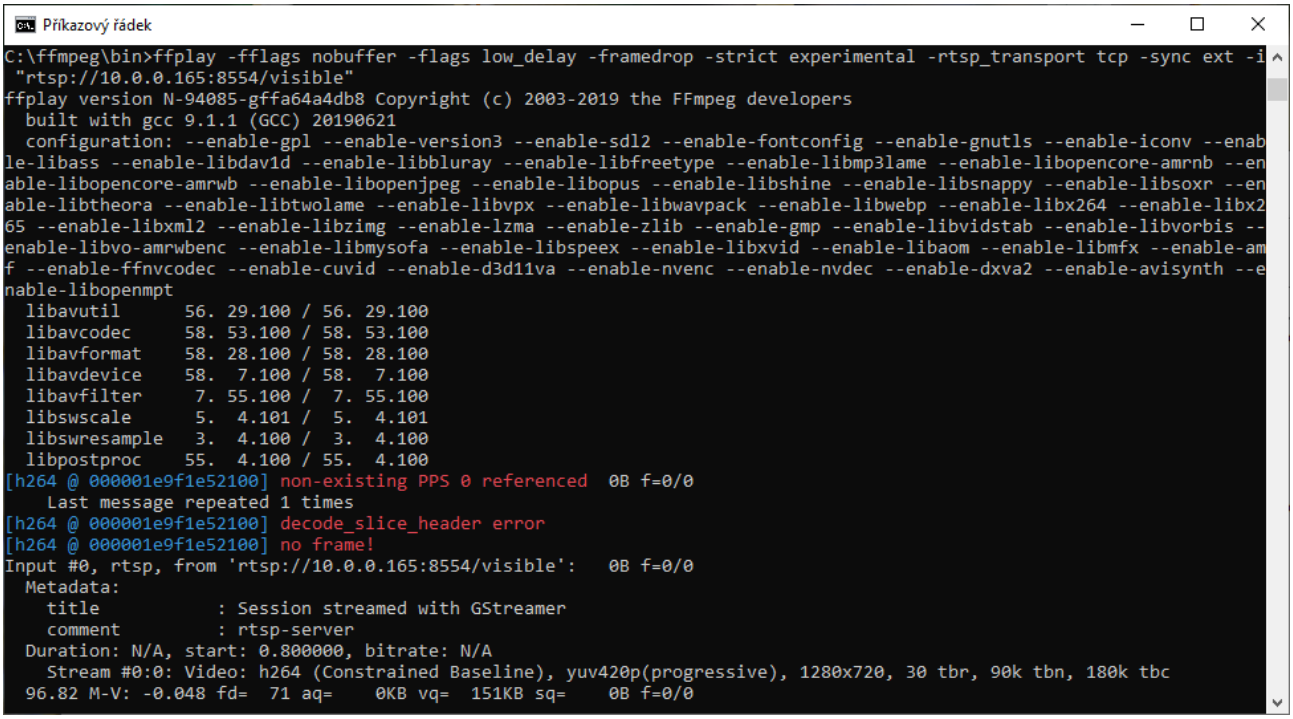


Figure 6.5: Windows console with the FFmpeg command.

- https://ffmpeg.org/

The command for launching the video stream is:

- `ffplay -fflags nobuffer -flags low_delay -framedrop -strict experimental -rtsp_transport tcp -sync ext -i "rtsp://10.0.0.230:8554/visible"`

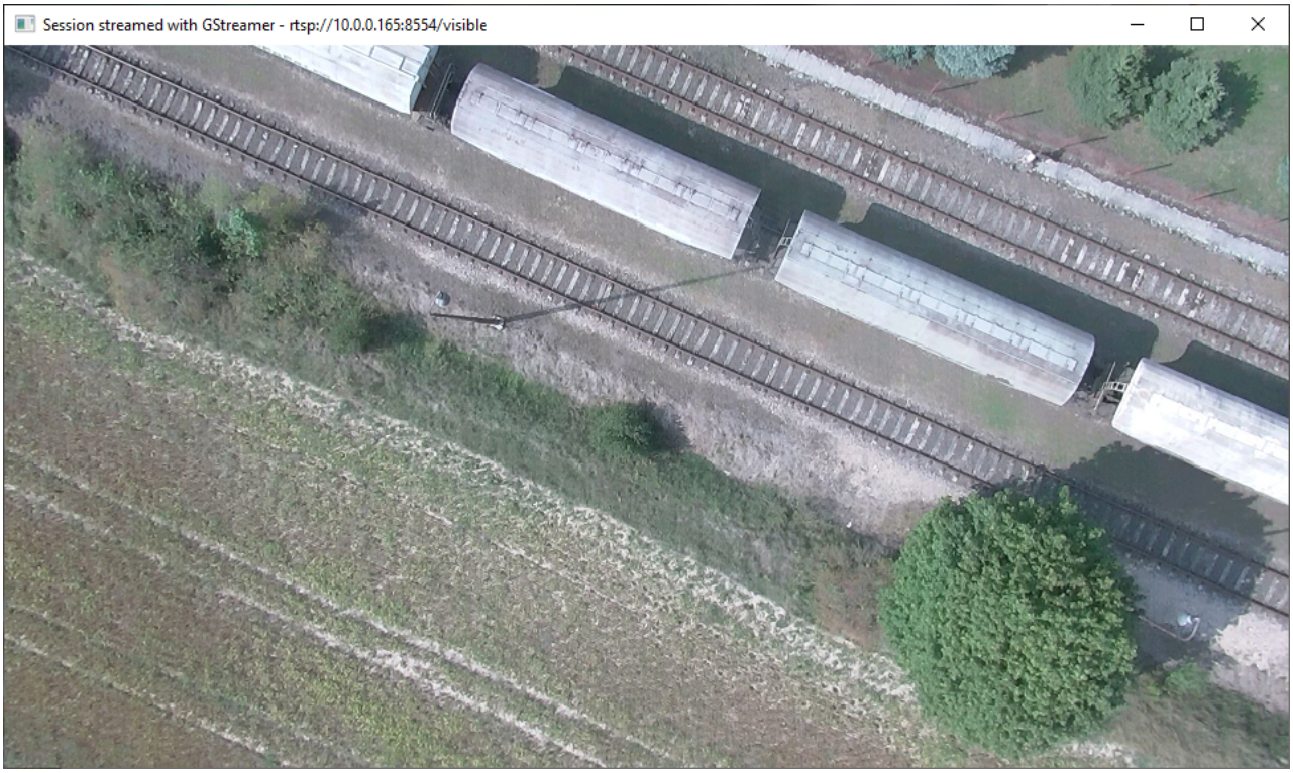


Figure 6.6: Windows FFmpeg video stream.

7 FTP data access

This chapter contains information about the FTP server and WIRIS & GIS data access.

7.1 FTP connection

There is a standard FTP server running on the WIRIS and GIS 320 device. You can access it with the device IP address and following login:

- User: `wiris-pro`, `wiris-pro`, `wiris-security`, `wiris-agro`, `gis` or `wiris-enterprise`
- Password: License number of the camera (lower-case) or user-set password (via GUI: Menu Advanced -> Ethernet SDK -> Set FTP password) (upper-case).

Both password and user name are case-sensitive. You have full access to the saved data. You can download, rename and delete the files.

7.2 Restrictions and warnings

Since the full access is given, it should be use with caution. These are the restrictions:

> Warning: Do not delete or alter the current folder in use!

If these restrictions are broken, it can cause the WIRIS and GIS 320 to crash and reboot.

7.3 Software

The server can be accessed with web browser (Firefox, Chrome, Opera, ...). For details please refer to the support of the browser.

We recommend using the Filezilla software.

- https://filezilla-project.org/.

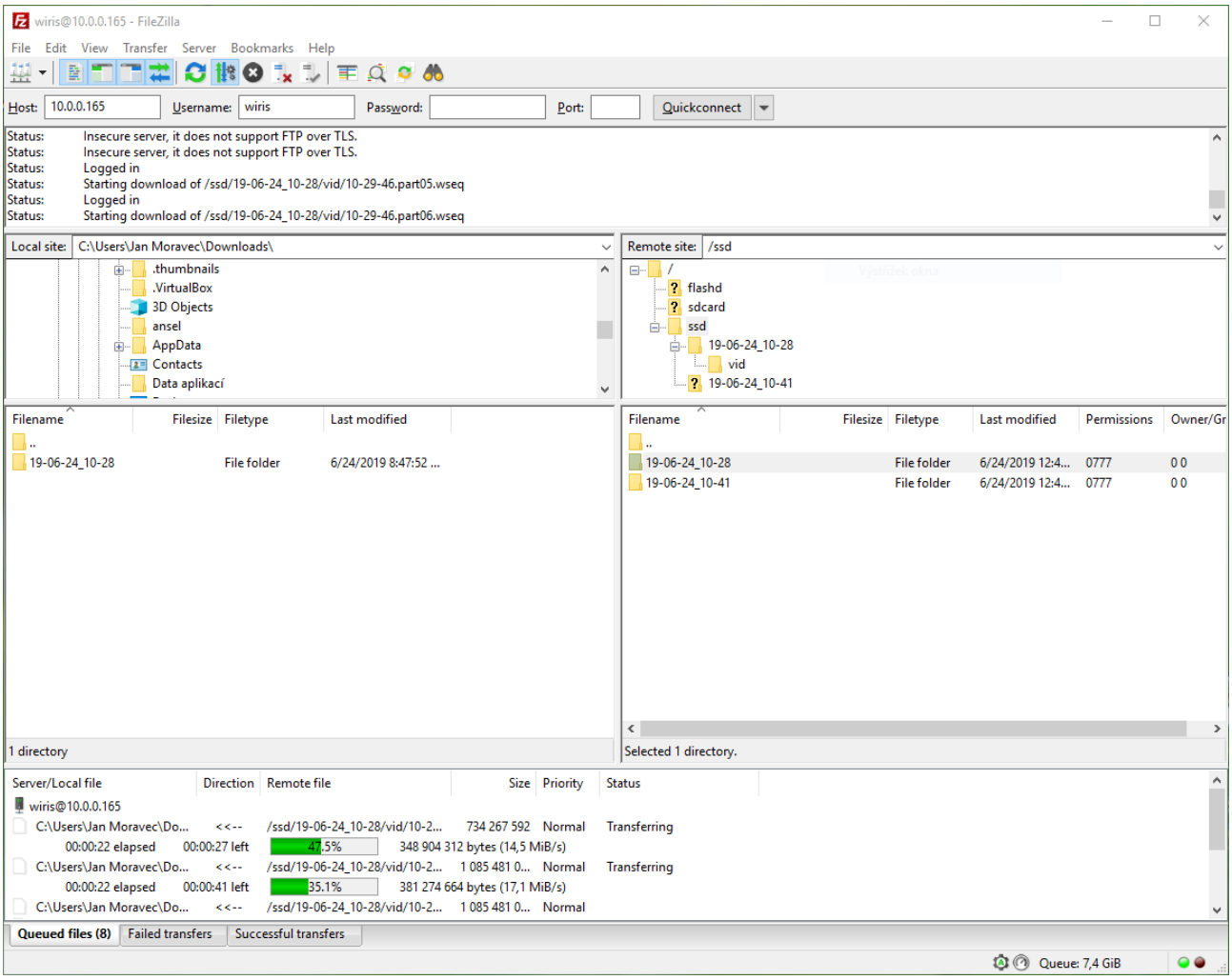


Figure 7.1: Connecting to FTP server with Filezilla.

8 WIRIS & GIS Ethernet Stream SDK GUI Application

This chapter contains information about WIRIS & GIS Ethernet Stream SDK GUI application, which was developed to demonstrate possible usage of this SDK.

8.1 Introduction

8.1.1 Installation

The app can be downloaded directly from https://my.workswell.eu/.

WIRIS Ethernet Stream SDK GUI is fully open source, therefore you can access all source files, which can serve as an example for developing your own application. You can find them on GitHub:

- https://github.com/SoftwareWorkswell/EthernetStreamSDKGUI

Note that the most important part of this project is ”ControllerCore” class (with its dependencies like Thread classes and NetworkClient class), which demonstrates basic usage of SDK, other files are platform dependent and may not be so interesting

8.1.2 First launch

On first startup application requires you to:

- Fill in your WIRIS or GIS 320 IP address
- Fill in your activation code

After filling IP adress and clicking OK, application will try to contact your WIRIS or GIS 320 device, this step can fail if your device is unreachable or your Wiris / GIS Firmware is too obsolete and is not supported by the application.(Application will always show you the cause) When connected to WIRIS or GIS via HDMI, IP address and mask can be changed in Advanced - System settings

When successfully connected, application may ask you to fill in your activation code (but only if it has never been activated in the past)

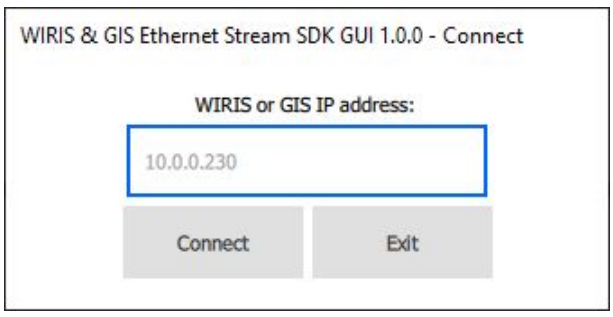


Figure 8.1: WIRIS & GIS Ethernet Stream SDK GUI - Connection Window

After completing these initial steps you should be able to see main application window.

8.1.3 Startup default settings

Most settings are read from WIRIS and GIS 320 during startup, except some of settings which application set to default values:

- Image storage is set to SSD
- Alarm mode is set to OFF
- Zooms are both set to 1
- All measure settings are set to OFF

8.2 Main Window

WIRIS & GIS Ethernet Stream SDK GUI visuals are strongly inspired by native look of WIRIS and GIS 320 HDMI output - user should be familiar with most of included features - reading the user manual for your camera before continuing is recommended:

- https://my.workswell.eu/homepage/documents

This brief manual includes mainly parts of the application, that differ from native WIRIS & GIS output.

The main window is divided into 4 main parts:

- Main stream window - in the center, displays thermal stream by default, you can also find currently selected palette on its right side together with current range mode indicator on its very top
- Secondary stream window - in the right upper corner, displays visible stream by default
- Main menu - left side of the main window, keeps all items that are included in native WIRIS
- Quick menu - at the very bottom(replaces original Status bar), is used for some of frequently accessed features
- Inspection panel - on the right, below secondary stream window, includes status bar and some extra information

8.3 Main menu

Main menu appearance is identical with native WIRIS Main menu but each item contents can slightly differ.

8.3.1 Range

Range contents are identical, however they are slightly differently styled, you can now use radio button at the top to toggle between AUTOMATIC, MANUAL and SPAN ranges and there is also new radio button for changing eviroments.

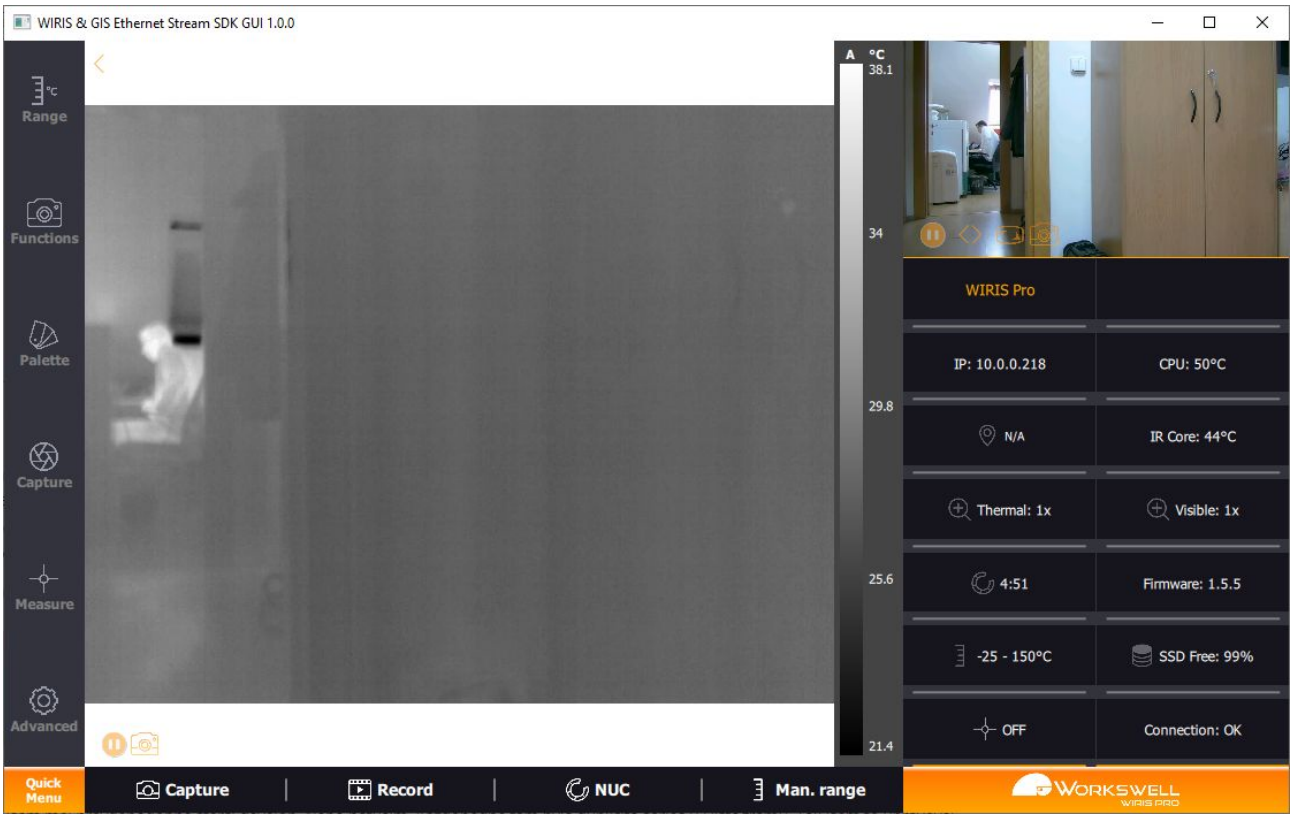


Figure 8.2: WIRIS & GIS Ethernet Stream SDK GUI - Main Window

8.3.2 Functions

This section now includes both thermal and visible zoom and Main Camera toggle. However there are no settings for Image opacity, Layout and Lock Zoom.

8.3.3 Palettes

This section is identical to the Palettes from the firmware of the camera and allows the user to select apropriate palette for the thermal stream.

8.3.4 Capture

You can find both Capture and Record button here with ability to set periodic capture and check whether it has been started, Image Correction (Shutter) was moved to quick menu.

8.3.5 Measure

Extremes settings are identical. Alarms functionality stayed the same but is now interpreted graphically by a slider.

8.3.6 Advanced

A couple of submenus from this item has been removed. Only following submenus can be found here:

- Thermal Camera - Emissivity and shutter period can be found here
- Images and Video - This submenu is identical except Image Screenshot JPEG option
- Alarms - You can set alarm colors here
- Memory - You can find status of all storage devices here
- System - This submenu is identical, however Language and Units option cannot be changed
- Info - This submenu is identical

8.4 Quick Menu

Quick Menu consist of several actions that are likely to be used frequently:

- Capture - initiates capturing according to Image and Video settings (Advanced/Images and Video submenu), it can also initiate periodic capture(if set in Capture menu)
- Record - initiates recording according to Image and Vid settings (Advanced/Images and Video submenu)
- Shutter - performs the thermal camera shutter immediately
- Range - toggles range to manual mode and allows user to quickly adjust range

Figure 8.3: WIRIS & GIS Ethernet Stream SDK GUI - Secondary Stream Window

- Pause - pauses or continues the main camera stream - can be used to lower bandwidth requirements

8.5 Inspection Panel

Standard Status bar can be found, there are also some additional features:

- Camera Type - Wiris Pro/Wiris Security/GIS 320
- Camera IP Address
- CPU temperature
- IR Core temperature
- Camera Firmware version
- Camera Serial Number
- Latency
- Current alarm mode info
- Connection state

8.6 Secondary Stream window

This window is used to display either visible or thermal stream, you can find following buttons here:

- Switch stream windows - is used to switch stream windows quickly
- Pause stream - pauses or continues the secondary camera stream - can be used to lower bandwidth requirements
- Separate window - opens new resizable window with secondary stream

8.7 WIRIS Security

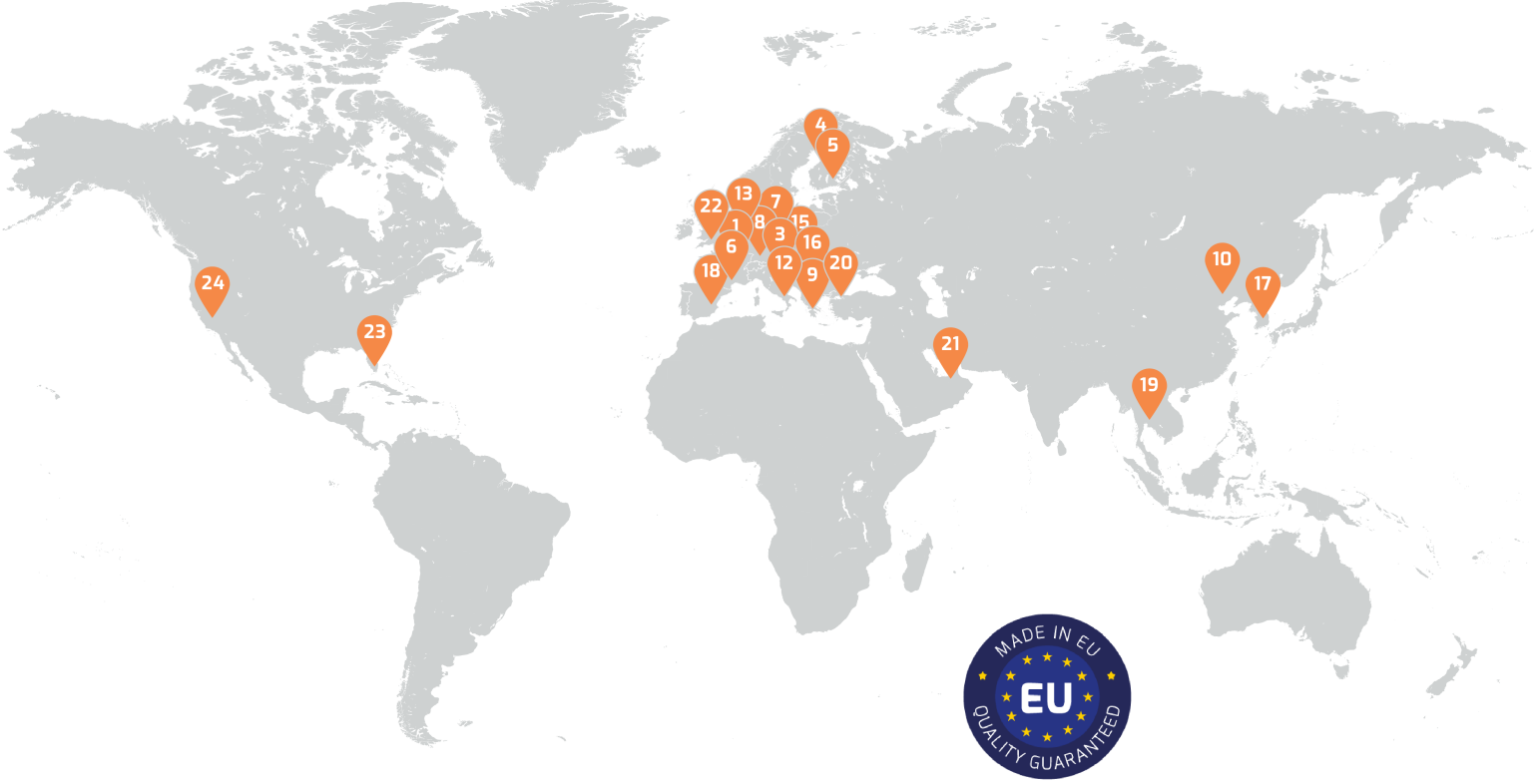
If you are using WIRIS Security device which doesn't provide the same SDK interface as WIRIS Pro, the application lacks of these following features:

- Range in Main menu cannot be accessed
- In Measure, Show temperatures option is disabled and alarms cannot be set
- In Advanced - Thermal Camera and Alarms submenus are hidden, in Memory - radiometric settings have been removed
- Inspection panel lacks of Alarm and Environment info
- Quick menu - NUC and Man. range have been removed
- Main stream window - palette values are hidden

8.8 WIRIS AGRO

If you are using WIRIS AGRO device which doesn't provide the same SDK interface as WIRIS Pro, the application lacks of these following features:

- There are no layouts.
- Colourmaps are instead of palettes.
- In Advanced there are no Network Interface, MAVLink Interface, S.Bus and Herelink Interface and Command Control Protocol settings



Contacts

Sales Department

Mobile: +420 725 955 464

E-mail: sales@workswell.eu

Headquarters

Workswell s.r.o.

Na Okraji 335/42

162 00, Praha 6

Czech Republic

Partners Worldwide

Visit our partner list online

Company contact details

Mobile: +420 725 877 063

E-mail: info@workswell.eu

Web: workswell.eu

WORKSWELL