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UFG-E Users Manual
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GENERAL

About This Guide

This guide leads you thru the set-up steps of the UFG-E. It also provides you the general introduction for the functionality.

This Guide describes features in UFG-E firmware version 0.1.12

What is UFG-E

UFG-E is an embedded system for reading video signal information over IP lines. It consists of a low power PC with Linux operating system and an embedded high definition frame grabber. The frame grabber is able to capture video frames from analog RGB and digital DVI input signal. A remote client computer is able to read the captured images by using standard HTTP 1.1 instruction set. The user can configure the UFG-E and read captured images from a remote computer using the web browser.

The UFG-E provides a compact way of transferring video information from a remote location by using Ethernet communication instead of coaxial video cables. UFG-E makes the system independent of the distance between the video source and the system reading the images.

Block diagram
Data Interface

The data interface to UFG-E is auto sensing Ethernet 10/100 Base T. The UFG-E will be able to recognise only one simultaneous logical connection at one time. UFG-E is present at a fixed IP number. The default IP address is http://192.168.0.2/. Default subnet mask is 255.255.255.0.

Please refer to Appendix D for instructions how to change the IP address.

When used in public IP networks, it is recommended to restrict and encrypt the access to UFG-E by methods of Virtual Private Networking and IP-tunnelling.

Image Format

UFG-E provides the captured video images in JPEG, PPM and PNG bitmap file formats.

JPEG (for Joint Photographic Experts Group) is a very commonly used compressed image format. The bitmap images are compressed in UFG-E for faster transfer over IP lines. Please note that a certain amount of image detail is lost during the compression.

PPM Portable Pixel Map format (colour) is an unpacked RAW 24 bit RGB colour file format also called as "Portable Pixmaps". The PPM is one of the most efficient in file size and it is very straightforward to manipulate the images in this format. A wide variety of graphic libraries support the PPM format. The maximum number of colours used (Maxval) is 255.

PNG is a lossless compressed image file format. The accuracy of the images remains unchanged when using this format. Please note that due to the low power nature of the embedded PC, the compression time of large bitmap images will be long.

The user can select the used format on the Video Format page of the configuration tool.
USING UFG-E

IP Address

In order to access the UFG-E you have to access it at the IP address that is configured in the unit. The default IP address is http://192.168.0.2/. The subnet mask is 255.255.255.0 and your computer has to be in the same subnet as UFG-E.

Please refer to Appendix D for instructions how to change these settings.

Note: Please note that the UFG-E unit can be accessed only thru the IP address programmed in the unit. Please make sure to write down the IP address. You can alter the IP address by using a Telnet connection to the UFG-E unit. Please refer to Appendix D for details.

Configuration

The embedded frame grabber of the UFG-E has to be configured to match the video each time when the video input source is changed. There are two alternative built-in configuration tools: the Java™-based “Configuration Tool” or HTML-based “UFG-E Capture” Both tools can be accessed with a web browser on UFG-E “home page”.

You can access Configuration Tool by typing http://192.168.0.2/conftool.cgi in the address line of your web browser. You can alternatively access it directly from the System Status page of the UFG-E Capture tool by clicking the Launch configuration tool link.

Reading images

The client application can read captured images from the UFG-E by using HTTP – Hypertext Transfer Protocol, the same protocol that web browsers use to read web pages. The UFG-E supports a subset of the protocol. The client application will request an image file from the UFG-E, waits for the reply and processes it in the way as needed.

The simplest way of doing this is using your web browser. To request a new image type in the Address line of the browser

http://192.168.0.2/remote.cgi?cmd=new

In order to load the captured image to your computer type in the Address line

http://192.168.0.2/remote.cgi?cmd=last

If you have selected an image file format that your browser supports, the image will be shown in the browser window. If your browser does not recognize the format your browser will open an “Open File” dialog, where you can store the file into your computer. The name of the file will be “remote.CGI”. Please change the extension of the file to match the file type that you have configured e.g. “remote.ppm”.

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Java™ Configuration Tool

The Java™ based configuration tool can be accessed directly by launching script http://192.168.0.2/conftool.cgi. Alternatively you can launch the tool from the link Launch configuration tool on the System Status page of the UFG-E Capture tool link.

Note

You will need Java™ 2 Runtime Environment v. 1.4.2_10 or higher installed in your computer.


When you run the conftool.cgi script, the Configuration Tool will be loaded from the UFG-E unit to your computer. If the latest version of the tool is already in your computer no loading is needed. Otherwise you will see an indication of the loading and then an indication of the Java launch.
IP Address and Port

On the first page of the Configuration Tool you are able to define the IP address of the UFG-E unit. By default the address is 192.168.0.2 port 12000.

When the UFG-E unit is found the tool will automatically connect to it and start communication. To stop the communication click button *Disconnect* and restart it again by clicking the *Connect* button.

**Note**

Please refer to Appendix D for instructions how to change the IP address.

Please be careful when changing the IP address. The UFG-E will be able to communicate only with the defined IP address and the subnet mask. If the configured IP address is lost, please contact Unigraf for instructions.

Click *Next* when you are ready to proceed or *Cancel* to exit the tool.
Input Configuration

The **Configuration** page of the tool lets you choose the video input type, lets you initiate the UFG-E detect timing function or load a predefined XML configuration file.

**Configuration file**

If you already have a predefined configuration file, click the *Load local configuration file* and a dialog lets you define the file in your computer. When the configuration is loaded, the embedded frame grabber adjusts itself to match the previously defined settings. You can verify the capturing result in the following pages.

**Detect Timing**

If you do not have a configuration file first choose either the analog or digital input of by clicking on the corresponding radio button. After that, launch the **Detect Timing** procedure by clicking the *Detect* button. The embedded frame grabber analyses the incoming signal and tries to match it to one of the standard VESA CVT timings.

If a direct match to the standard timings is not found, the frame grabber selects a signal configuration that corresponds to the 4-by-3 aspect ratio video definition guidance. You will need to fine-tune it in the following pages.

**Message panel**

On the top of the page you will see information provided by the UFG-E embedded frame grabber. It will inform you the status of the sync signals. The page shows you only one status message at a time. Please click the *More* on the top right of the page for additional messages.
Image Preview

The image **Image Preview** page of the Configuration Tool shows you a preview of the captured video signal. You can use it as a means of evaluating the alignment and the quality of the capture. You can also use it as a final tool for visualising the captured image.

![Image Preview](image.png)

**Scaling**

You can either show the image scaled to the Configuration Tool window (default) or to show the image in its native resolution, aligned to the upper left hand corner of the window.

To show the image scaled to the window select the **Scale image to fit screen** checkbox (default). To show the original resolution, unselect the checkbox.

**Refreshing the image**

By default the image is read only once when the Image Preview page is opened. You can make the Configuration Tool to refresh the image, i.e. to re-read the image from the UFG-E by clicking the **Refresh Image** button.

For automatic refresh of the image select the **Autorefresh image** checkbox. The image will be re-read from the UFG-E approximately every 2 seconds.
Adjusting Image Size and Position

The Size and Position page of the Configuration Tool shows you the upper left and the lower right corners of the captured bitmap. It lets you to determine if the video image was captured with a proper resolution and if the alignment was right.

Adjusting the Image

In order to get a high quality capture from the UFG-E you have to adjust the capturing to the incoming signal. This is best done with an input image that has a non-black background or a border around the edges. Please follow the steps below:

- By adjusting the Width and Height fields in the Resolution box set the captured bitmap same as the resolution of the source video.
- By adjusting the star-shaped arrows in the Position box align the upper left hand corner of the active area of the source video to the left and top edges of the upper window.
- After that make sure that the lower right hand corner of the active area of the source video is aligned with the right and lower edges of the lower window.
- If there is a black stripe on the right edge of the window you have to decrease the Total field.
- If you cannot see the rightmost edge of the source video image you have to increase the Total field.
- Normally you will have to adjust also the position of the image at this stage and repeat both Total and Position adjustment a couple of times.
- When you are ready, click the Auto calibrate button to fine-tune the alignment.
Resolution

The first item to adjust is the size of the captured bitmap. It is very important for the quality of the capturing that the UFG-E assumes the right bitmap size. By using the Width and Height input fields to set the right size. The used video resolution can be checked from the Display Properties tool of the sourcing PC. If the device is not a PC, you can usually find this information in the technical documentation of the equipment.

Position

By using the four star aligned buttons of the Position box you can move the captured image. Align the image in the way that no pixels are missing. This is best done with an input image that has a non-black background or a border around the edges.

The values of fields Horizontal and Vertical indicate the position of the first active pixel and line from the start of the line or the frame respectively. If the details of the video signal are known, they can be calculated: Horizontal position = Vertical Sync Time + Vertical Back Porch (in pixels) and Vertical Position = Vertical Sync time + Vertical Back Porch (in lines).

Total and Phase calibration

Total and Phase calibration field adjusts the pixel sampling of UFG-E to the incoming video. Total sets the sampling frequency and Phase calibration fine-tunes the alignment. Both values can be found experimentally. The Total value can also be calculated if the details of the incoming video are known Horizontal Total = Pixel frequency / Horizontal frequency.

In order to let the UFG-E fine-tune the alignment please use an image with sharp vertical edges, e.g. a text image, and click the Auto calibrate button.

Update settings

By default the updated parameter values are sent back to the UFG-E each time when you push an arrow or change a field value. At the same time also the images on the two windows are updated with new captured partial bitmaps.

If you have to change a parameter value considerably you might want to key in numerical values in the parameter field instead of clicking the arrows many times. An alternative way is to unselect the Autoupdate settings to server check-box, do the changing and when you are ready click the Update Settings button. In this way you can avoid the Ethernet traffic to get congested with the multiple updates.

Refreshing the image

By default the image is read only once when the Image Preview page is opened. You can make the Configuration Tool to refresh the image, i.e. to re-read the image from the UFG-E by clicking the Refresh Image button.

For automatic refresh of the image select the Autorefresh image checkbox. The image will be re-read from the UFG-E approximately every 2 seconds.
Saving the Configuration

You can save the configuration that you have made in the non-volatile memory of the UFG-E and also as an XML file into your PC. The configuration that is saved in the UFG-E will be the default configuration when you next time power up the unit. The XML configuration file can be recalled on the Configuration page of the Configuration tool.

In order to save the current configuration to the UFG-E please click the save to UFG-E button. To save the XML configuration file to your PC click the Save Locally button.

To continue to the Brightness and Contrast page click the Next button, to return to the Image Preview page click Back button. To quit the Configuration Tool, please click the Finish button.

Brightness and Contrast

The final stage in adjusting the captured image is set its luminance and grey levels. With Digital DVI signal capture this will not normally be needed, but with analog RGB, the controls on the Brightness and Contrast page lets you compensate for the variations in the analog signal.

![Brightness and Contrast Page](image)

In order to set the brightness and contrast right, you will need a source video image that has both full white and full black areas. A full scale of greys will help the setting like in the SMPTE pattern in the illustration.
Brightness

The Brightness control adjusts the way in which the UFG-E sets the full brightness level of the incoming video signal. You should adjust the level in the way that e.g. only the areas in the image that are white in the original video image are translated as white.

Contrast

The Contrast control adjusts the way in which the UFG-E sets the black level of the incoming video signal. You should adjust the level in the way that e.g. only the areas in the image that are totally black in the original video image are translated as full black.

Update settings

By default the updated parameter values are sent back to the UFG-E each time when you push an arrow or change a field value. At the same time also the images on the two windows are updated with new captured partial bitmaps.

If you have to change a parameter value considerably you might want to key in numerical values in the parameter field instead of clicking the arrows many times. An alternative way is to unselect the Autoupdate settings to server check-box, do the changing and when you are ready click the Update Settings button. In this way you can avoid the Ethernet traffic to get congested with the multiple updates.

Refreshing the image

By default the image is read only once when the Image Preview page is opened. You can make the Configuration Tool to refresh the image, i.e. to re-read the image from the UFG-E by clicking the Refresh Image button.

For automatic refresh of the image select the Autorefresh image checkbox. The image will be re-read from the UFG-E approximately every 2 seconds.

Saving the Configuration

You can save the configuration that you have made in the non-volatile memory of the UFG-E and also as an XML file into your PC. The configuration that is saved in the UFG-E will be the default configuration when you next time power up the unit. The XML configuration file can be recalled on the Configuration page of the Configuration tool.

In order to save the current configuration to the UFG-E please click the save to UFG-E button. To save the XML configuration file to your PC click the Save locally button.

To continue to the Brightness and Contrast page click the Next button, to return to the Image Preview page click Back button. To quit the Configuration Tool click the Finish button.
HTML “UFG-E CAPTURE” TOOL

“UFG-E Capture” is a HTML language based tool that provides you the access to the video configuration functionality of the UFG-E. In order to use the tool, use a web browser and open page http://192.168.0.2/. The page will provide you links to the corresponding sub-pages for the configuration.

Once the configuration is done, you have the option of storing it as the default configuration of the UFG-E. This configuration will be loaded as the default configuration when UFG-E is powered up next time. If you do not store your configuration, it will be lost when the UFG-E will be powered down.

The Configuration Tool has four configuration pages: System Status, Analog Source, Digital Source, Image Format and Default Setup. Additionally the tool has a page for monitoring the captured image Live Capture. Links to each of the five pages are on top of the Configuration Tool page.

System Status page

The System Status page of the tool shows general information of the UFG-E unit hardware and software and the link to the Configuration Tool (please see the image on the previous page)
Analog Source page

The frame grabber is able to detect and automatically configure to the standard VESA CVT monitor timings. With any non-VESA input signal timing the capturing parameters have to be adjusted manually in order to get the highest quality capturing of the video frame.

In order to select the analog RGB video input source click the select button of the page. The text Analog Source (active) will indicate that this source is selected for input.

Measured timing

Horizontal 48.4 KHz/ sync 2083 ns, total 20.7 us
Vertical 60.0 Hz/ sync 6 lines, total 806 lines

Configure geometry

Resolution: 1024 x 768
Pixel clock: 64.996 MHz
Progressive: ○ Interlaced: ○

<table>
<thead>
<tr>
<th>sync</th>
<th>back porch</th>
<th>resolution</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>160</td>
<td>1024</td>
<td>1344</td>
</tr>
<tr>
<td>6</td>
<td>25</td>
<td>760</td>
<td>965</td>
</tr>
</tbody>
</table>

AD Calibrations

Phase adjustment (0–511): 412

<table>
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<tr>
<th>DC bias</th>
<th>offset</th>
<th>gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>R: 33</td>
<td>90</td>
<td>160</td>
</tr>
<tr>
<td>G: 38</td>
<td>90</td>
<td>157</td>
</tr>
<tr>
<td>B: 31</td>
<td>86</td>
<td>184</td>
</tr>
</tbody>
</table>

Measured Timing

The embedded frame grabber measures the horizontal and vertical timing of the video and list it here. With this information the user can determine e.g. if the frame grabber detected sync signals in the correct way. The listed parameters are:

- Horizontal and vertical frequency.
- Horizontal and vertical sync pulse width.
- Horizontal total line time and vertical total height in lines.
Configure Geometry

With these input fields the user can configure the embedded frame grabber to align the captured image with the active video portion of the signal. The parameters are normally found in the documentation of the video source, acquired from the vendor of the sourcing equipment or measured from the actual signal with the help of e.g. an oscilloscope. An experienced user will be able to find them experimentally.

The input fields are

- **Horizontal sync**: the length of the sync pulse in pixels.
- **Horizontal back porch**: the number of pixels between the sync and the start of the active image.
- **Horizontal resolution**: the number of active pixels in the image horizontally.
- **Horizontal total**: the number of pixels in the total video line, equals to the pixel frequency divided with the horizontal frequency.
- **Vertical sync**: the length of the sync pulse in lines.
- **Vertical back porch**: the number of lines between the sync and the start of the active image.
- **Vertical resolution**: the height of the active image in number of lines.
- **Vertical total**: detected figure, no not change.

The buttons are:

- **Apply**: send the changes to the embedded frame grabber.
- **Detect timing**: launch the automatic timing detection function of the embedded frame grabber. The incoming signal timing is compared with the standard VESA CVT timings. If a match is found, the corresponding parameters are loaded.
- **Align corner**: the embedded frame grabber fine-tunes the image position within an 8 pixel range by detecting the topmost non-blank line and the leftmost non-blank pixel column.

AD Calibrations

The embedded frame grabber fine-tunes the capturing electronics to match the incoming signal. The input fields should be left for experienced users. Please use the two buttons below:

- **Calibrate phase**: the exact to match with the centre of the pixel of the incoming video to the frame grabber’s sampling clock is fine-tuned. Please apply a video signal with sharp vertical edges e.g. white text on black background or inverse.
- **Calibrate AD (int)**: the dynamics of the capturing is adjusted to default values by using an internal reference.
- **Calibrate AD (ext)**: the dynamics of the capturing is adjusted with the amplitude of the incoming video. Please apply a video signal with both black levels and maximum intensity levels for all of the three R, G and B basic colours. E.g. a black and white checkerboard is ideal for this.
Digital Source page

In order to select the digital DVI video input source click the select button of the page. The text Digital Source (active) will indicate that this source is selected for input.

The frame grabber is able to detect and automatically configure to the standard VESA CVT monitor timings. With any non-VESA input signal timing the capturing parameters have to be adjusted manually in order to get the highest quality capturing of the video frame.

Measured Timing

The embedded frame grabber measures the horizontal and vertical timing of the video and list it here. With this information the user can determine e.g. if the frame grabber detected sync signals in the correct way. The listed parameters are:

- Horizontal and vertical frequency
- Horizontal and vertical sync pulse width
- Horizontal total line time and vertical total height in lines.
Configure Geometry

With these input fields the user can configure the embedded frame grabber to align the captured image with the active video portion of the signal. The parameters are normally found in the documentation of the video source, acquired from the vendor of the sourcing equipment or measured from the actual signal with the help of e.g. an oscilloscope. An experienced user will be able to find them experimentally.

The input fields are

- **Horizontal sync**: the length of the sync pulse in pixels
- **Horizontal back porch**: the number of pixels between the sync and the start of the active image
- **Horizontal resolution**: the number of active pixels in the image horizontally
- **Horizontal total**: the number of pixels in the total video line, equals to the pixel frequency divided with the horizontal frequency.
- **Vertical sync**: the length of the sync pulse in lines
- **Vertical back porch**: the number of lines between the sync and the start of the active image
- **Vertical resolution**: the height of the active image in number of lines
- **Vertical total**: detected figure, no not change.

The buttons are:

- **Apply**: send the changes to the embedded frame grabber
- **Detect timing**: launch the automatic timing detection function of the embedded frame grabber. The incoming signal timing is compared with the standard VESA CVT timings. If a match is found, the corresponding parameters are loaded.
- **Align corner**: the embedded frame grabber fine-tunes the image position within an 8 pixel range by detecting the topmost non-blank line and the leftmost non-blank pixel column.
Video Format page

This page defines in which video format and resolution the image is read from the UFG-E.

- **Resolution**: select from the standard VESA resolutions
- **Scaling**: Select between Disabled, Max Fill, and MaxAspect.
  - When you select Disabled, the image sent is cropped from the centre of the captured bitmap. When the input and output are the same, there will be no effect.
  - The Max Fill option scales the captured bitmap exactly to the format resolution.
  - The Max Aspect option keeps the aspect ratio of the captured bitmap when scaling.
- **File format**: select from JPG, PPM and PNG.
  - PPM option creates an uncompressed image with the largest size.
  - JPG option creates the smallest image size but smoothens some image detail.
  - PNG creates a compressed image without any loss of image details but the compression will take most time.

After selection, press the **Apply** button.
Capture Live page

From this page the user can monitor the effect of the configuration. Please note that most web browsers are not able to show the PPM bitmap image format by default.
Default Setup page

Each time when the UFG-E unit is powered up the default configuration is loaded from a Flash memory in the unit. The loaded default information includes the configuration of both the input video and the format of output image.

When pressing the **save** button the current configuration is saved into the Flash memory inside the UFG-E unit as the default configuration. This configuration will be automatically loaded when the UFG-E unit is powered up next time.

When pressing the **load** button the default configuration is re-read from the Flash memory. All configuration changes in the UFG-E unit after the start-up, configuration load or configuration save will be lost.
Video configuration procedure

The configuration is best done by incrementally configuring the parameters step by step and checking the changes from this page. It is advisable to at first select as small output image resolution as possible to speed up the update and to see the whole image without scrolling.

Usually Detect Timing function is all you have to do for setting the parameters for a video that can be automatically detected. You can further fine-tune the parameters manually according to the steps below. Please remember to press the Apply button between each step.

- Make sure that horizontal and vertical resolutions are correct.
- Adjust the vertical position of the image to the top of the screen by using the **Vertical back porch** input box.
- Adjust the left edge of the image by using the **Horizontal back porch** input box.
- Adjust the right edge of the image by using the **Horizontal total** input box. By single stepping the **Total** input, make sure that the intensity of the image is horizontally uniform.

Since the **Horizontal Start** and **Total** settings affect to each other, you normally have to repeat the adjustments of the two a couple of times.

- Push the **Calibrate phase** button.
- You can alternatively adjust noise in the image to minimum by fine-tuning the **Phase adjustment** input box.

Voltage levels of the video sources differ. If you want to adjust the dynamic range of the embedded frame grabber to optimum you can calibrate it to a certain image source. Select an input image that includes a wide spectrum of intensity values including low intensity values value (black) and high intensity values (white) for the automatic calibration of the luminance.

- Push the Calibrate AD (ext) button.
ACQUIRING IMAGES

The client application can read video images from the UFG-E by using HTTP – Hypertext Transfer Protocol, the same protocol that web browsers use to read web pages. The UFG-E supports a subset of the protocol. The client application will request an image file from the UFG-E, waits for the reply and processes it in the way as needed.

W3C, the World Wide Web Consortium provides an extensive source code library of routines for using the HTTP protocol. Please refer to the link below.

http://www.w3.org/Library/Examples/

Data Transfer Protocol

UFG-E uses a subset of HTTP version 1.1.

UFG-E processes the following methods to control the capture process and transfer image data: POST, HEAD, GET.

Image Capture Procedure

One configured, the UFG-E is constantly synchronic to the input video signal. The image acquire procedure will always be initiated by the Client.

The simplest way of doing this is using your web browser. To request a new image type in the Address line of the browser

http:// 192.168.0.2/remote.cgi?cmd=new

In order to load the captured image to your computer type in the Address line

http:// 192.168.0.2/remote.cgi?cmd=last

The duration of the image transfer depends on image resolution and network throughput. An example estimate of the duration of the data transfer is below.

Image size 1024 x 768 24 bits/pixel:

1024*768*3 bytes = 2,359,296 bytes = 2.25 Mbytes

Sustained transfer rate is 8 Mbytes/s

Transfer time ~ 0.3 seconds
Troubleshooting

First start up

Because UFG-E does not include any memory protection battery, there is possibility that device does not start up on first try. This is normal operation. First time power is connected, memory backup capacitor is loaded. Second time unit should be powered up normally.

If device does not start on first time just un-plug it from mains and start again.

UFG-E is designed to be plug and forget device. There are no moving parts inside. Mainly UFG-E is done to very rough conditions.
APPENDIX A: UFG-E
specifications

Input connections

**Video Inputs:**

- Analog RGB on VGA connector
- Digital DVI (TMDS) on DVI-I connector
- Input resolution 640 x 350 to 1600 x 1200 pixels
- Input frame rate 60 to 85 Hz
- Maximum pixel clock 165 MHz
- Colour depth 24 bits per pixel

**Power Input:**

- Input voltage +24 VDC nominal (12 to 36 VDC)
- Power consumption 11 Watts typical
- Power on LED indicator
- Power input connector D9 format 3-pin
- Mating connector (supplied), metal housing, screw terminals

Supplied with AC/DC adapter
- Input 100 to 240 VAC, 0.8 A max
- Output 12 V DC, 36 W max

**Network:**

- Auto sensing Ethernet 10/100 Base T
- Sustained image data transfer rate 8 Mbytes/s
- LED indicators for link and traffic.

**Other**

- Internal service connectors for USB 1.1, serial port and VGA output
- Internal compact flash connector

**Protocols**

- HTTP 1.1
- Retrieved image formats JPG (compression quality 65%), PPM (non compressed bitmap), and PNG (lossless compressed bitmap)
Appendix A: UFG-E specifications

Mechanical

Outline dimensions: 215 x 142 x 91 mm
Aluminium housing
Weight 1.4 Kg
Includes brackets for wall mounting
No moving parts, convection cooled.

Environmental

Temperature range 0 to +55°C, 95 % Rh
MTBF 50 000 h (target)

EN55022 A (CE-mark)
IEC 60945 (Pending)
APPENDIX B: Mechanical Outline
APPENDIX C: Inputs

Indicator LEDs
- PWR: DC input
- LNK: network link
- TXRX: network traffic

Network (Ethernet) connector

Power input
- left: –
- right: +
- center: ground

24 V DC Power

DVI video input

RGB video input

Grounding lug
APPENDIX D: Changing the IP Address

The UFG-E unit can be accessed only thru the IP address programmed in a system file in the non-volatile memory of the UFG-E. You can alter the IP address either by using a Telnet connection to the UFG-E or directly editing a configuration file in the embedded Linux PC of the UFG-E. A description of how to change the address with a Telnet connection is described here.

Note
Please note that the default Network Mask is 255.255.255.0. You need to configure your computer accordingly.

Login to UFG-E using Telnet:

- In Windows use Start > Run > cmd
- Type in
telnet 192.168.0.2     (current address of UFG-E)
- Give the user name and password (defaults).
  ufge login: root
  password: 3rdparty
- Open text editor
  root@ufge:/> vi /syscfg/ufge.conf
  If ufge.conf file is missing (entire file is filled with “~”), you have to copy it from /etc directory to /sysconfig directory. Configuration file can be copied with cp-command.
  root@ufge:/> cp /etc/ufge.conf /syscfg/ufge.conf
- Enter the new IP address. Find field IPADDR="192.168.0.2" and edit the new IP address to it
- Go to line IPADDR
- Set Insert mode on by pressing “i”
- Type in the new IP address
- Press <Esc>
- Enter “:wq” and press <Enter> to Write and Quit.
- Power Off and On again e.g. removing the power cord.

Now new IP address is now read from the configuration file and stored as the new default address. Using your browser open the Startup page in the new address.
## Version History

<table>
<thead>
<tr>
<th>Rev</th>
<th>Date</th>
<th>Description</th>
<th>By</th>
</tr>
</thead>
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| 06  | 27.11.06 | New images
Java configuration tool added                                          | JSa |
| 07  | 1.12.06  | Browser images cropped not to show the browser
Appendix D: IP address change note added                                        | JSa |
| 08  | 5.12.06  | Text added to the former part
Specs completed                                                               | JSa |
| 09  | 13.12.06 | Corrections                                                                 | JSa |
| 1.0 | 3.1.07   | UFG-E Config tool now the first tool
“Image Capture Procedure” truncated                                            | JSa |