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DigiFact®

AUDIO STREAMING AND ANALYTIC SYSTEM

SOFTWARE USER GUIDE

DESCRIPTION

The DigiFact are a family of networked all-in-one audio communication and analysis devices. The DigiFact devices are PoE powered and ONVIF profile T compliant and can easily be integrated into a variety of video management systems (VMS) without the need for additional audio equipment. The device family consists of several configurations and speaker sizes that allow audio monitoring as well as talk back functionality for a variety of applications and can be installed and operated from any location with network connectivity. Some of the available configurations are:

- Microphone Only (Digifact A and E)
- Wall mounted speaker and microphone (DigiFact 880/890/885/895)
- Ceiling Mounted speaker and microphone (DigiFact 855/851/830/825)

For detailed specifications and performance features of each individual device configuration, please visit www.louroe.com/digifact/

DigiFact products include:

DigiFact A

DigiFact E

DigiFact 880

DigiFact 830

DigiFact 885

DigiFact 851

MANUFACTURED IN THE USA

WARRANTY

LOUROE ELECTRONICS® warrants that at the time of shipment products manufactured by LOUROE ELECTRONICS® to be free of defects in material and workmanship. Should a defect appear within one year (12 months) from date of shipment, LOUROE ELECTRONICS will, at its sole discretion, repair or replace the defective equipment. This equipment shall not be accepted for repair or return without prior notification by LOUROE ELECTRONICS®.

This warranty does not extend to any Louroe product that has been subjected to improper or incorrect installation, misuse, accident, or in violation of installation instructions provided by LOUROE ELECTRONICS®

Returned shipments to LOUROE ELECTRONICS® shall be at customer's expense. LOUROE ELECTRONICS® will return the equipment prepaid via best way.

TECHNICAL SPECIFICATIONS

AUDIO

Audio Streaming:	One-way or Bi-Directictional (depending on configuration) Half/Full Duplex
Audio Compression:	PCM,16 bits linear G.711 a-Law G.711 mu-Law G.726-40 AAC
Sensitivity:	-45 dBV/Pa, 1 Pa = 94 dB SPL
Frequency Response:	50 Hz to 15 kHz
Speaker Output:	Depending on configuration

NETWORK

Security:	HTTPS,Password protection, user level access (superadmi,admin and user)
Supported protocols:	ONVIF profile T, IPv4, HTTPS, RTSP, RTP, TCP, SSH, UDP Multicast

SYSTEM INTEGRATION

Application programming interface:	Open API for software integration, specifications at www.louroe.com
Analytics:	Louroe audio analytics, audio level (dB) alarm
Event triggers:	Audio Analytics, audio level
Event actions:	HTTP POST notification, external output activation, pre and post-alarm audio recording

GENERAL

Power:	Power over Ethernet IEEE802.3af optional external 5V DC 2A (2-pin header)
Memory:	512 MB RAM
Event triggers:	Audio analytics, decibel threshold
Event actions:	HTTP POST notification, external output activation, pre and post-alarm audio recording
Connectors:	Female RJ45 for 10BASE-T/100BASE-TX PoE; 10 Position header for Input/Output and external power supply (see pg 8), USB, Wireless

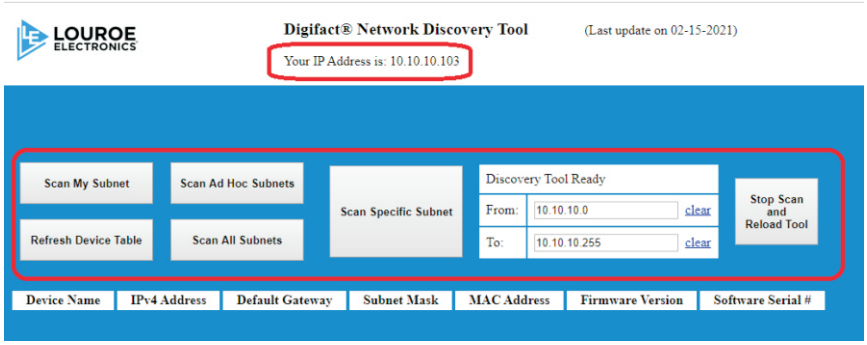
IMPORTANT NOTICE

When this equipment is used as part of an audio monitoring system, the law requires that the public be given notice of AUDIO MONITORING ON THE PREMISES. A decal notice is included with each microphone shipped.

Federal Law References:
Federal Regulations, US Code, Title 18. Crime and Criminal Procedure, Sec 2510.

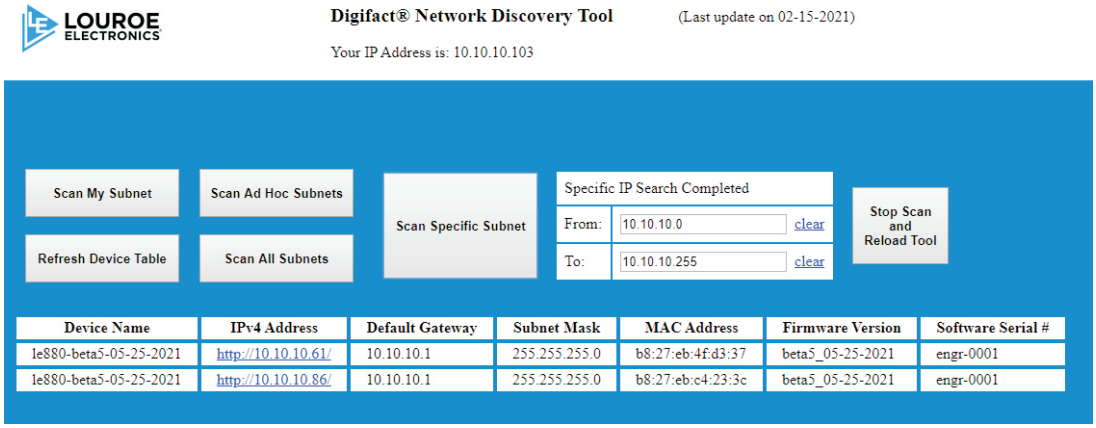
DEVICE DISCOVERY

Louroe DIGIFACT devices can be discovered using the provided browser based device discovery tool, the tool can be downloaded from www.louroe.com. Once downloaded double left click on the discovery tool to open, the discovery tool is best opened using browsers such as Chrome, Chromium or Firefox



When the tool opens, the IP address of the local subnet of the PC should be displayed, The following functions are available:

- **Scan My Subnet**: Scans the subnet to which the PC is connected viz. x.x.x.0 – x.x.x.255
- **Scan Ad Hoc Subnets**: In the event that the device or PC is not connected to a valid DHCP server and does not receive a valid subnet IP address and defults to an Ad Hoc IP address viz. 169.x.x.x.
- **Scan Specific Subnet**: In the event that the tool is unable to identify the subnet IP address (due to browser security settings) the subnet IP address range needs to be manually entered.
- **Scan All Subnets:** This function will scan all subnets that it discovers (including the one to which the PC is connected to, NOTE: this scan will take a significant amount of time and is recommended only in certain conditions.
- **Refresh Device table**: Will refresh the search conditions to check for any changes.



Louroe DigiFact Devices discovered per the search criteria will be listed on the table along with information on the devices such as:

- Ipv4 address
- Default Gateway and Subnet mask
- MAC address
- Firmware Version
- Software Serial

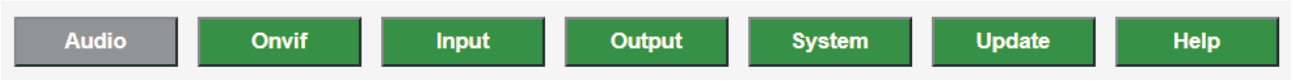
The device user interface can be accessed using the IP address hyperlink or by manually entering the IP address in a browser such as Chrome or Firefox, NOTE, the IP address has to have a HTTPS:// suffix, in some conditions, the PC browser may not recognize the SSL certificate and may give a unsecured warning, in these cases select **Advanced – proceed to site** option (depending on browser being used)

First Login to the Device

Louroe DigiFact Devices has 3 levels of user access, superadmin, admin and user, the default user name and passwords are:
Username: **superadmin** password: **aaaaBBBB3333$$$$**
Username: **admin** password: **aaaBBB333$$$**
Username: **user** password: **aaBB33$$**
On first login the device will force the user to change the default password/s, the new password MUST contain at least:
2 lower case alphanumeric characters
2 upper case alphanumeric characters
2 numeric characters
2 special character

Once the new password has been configured, use the new credentials to login to the device.

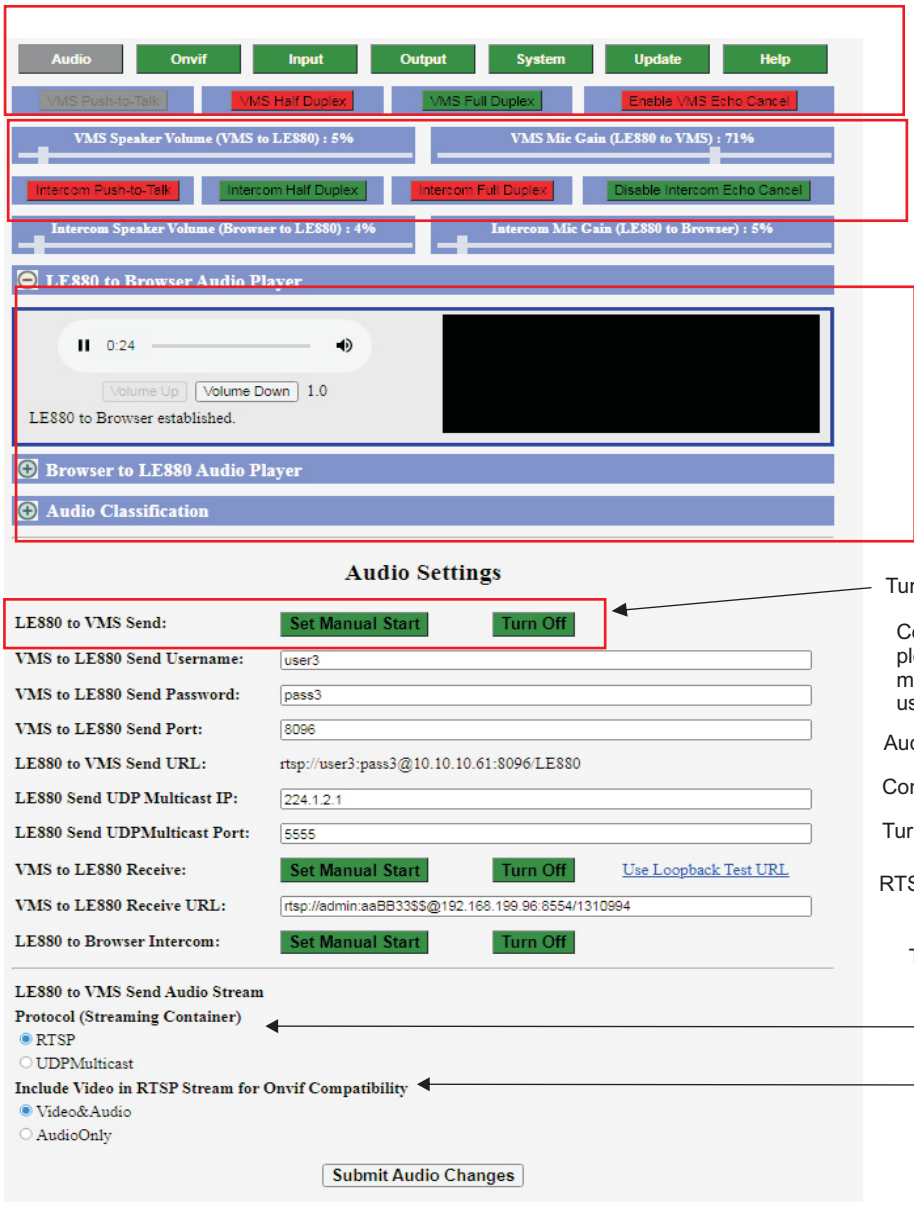
MAIN MENU ITEMS



The Main menu options can be selected from the option bar on the top of the page which include:
Audio: Speaker and Microphone Gain control, turn on/off streaming, selecting streaming options and URL settings.

Audio:	Configures audio stream settings to/from external entities, sets protocols, audio gain etc.
Onvif:	Configures ONVIF setting for the device
INPUT:	Configures Input port/s settings
Output:	Configure Output port/s settings
System:	Password and user access, Device network settings, reboot and reset controls
Update:	Device firmware update
Help:	Device control help

AUDIO CONTROL OPTIONS



These controls configure the parameters for the Audio streams to/from receiving entities viz. Video Management systems or other, the parameters that can be controlled are;
- Half/Full duplex communication
- Echo cancellation
- Speaker and Microphone Gain

These controls configure the parameters for the Audio streams to/from the device webpage , the parameters that can be controlled are;
- Half/Full duplex communication
- Echo cancellation
- Speaker and Microphone Gain

This section of controls displays the audio activity stream in a spectrogram chart and the audio analysis and trigger event configuration, these functions will be available in a future firmware revision and will be described in detail.

Turn on/off function to send audio stream to receiving entity

Configure user name and password for Audio stream, please note when adding a digifact device to a video management system this configured password needs to be used.And configure the port number

Audio Stream (microphone) URL (static not configurable)

Configure UDP Multicast settings

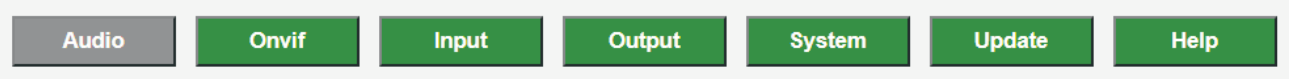
Turn on/off receiving audio from external entity (for talk down)

RTSP URL address to be configured on VMS to enable talk back

Turn on/off Audio Communication to device user interface

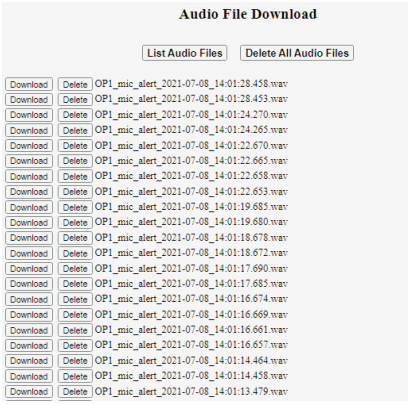
Select RTSP or UDP Multicast

Send Video and audio stream (for ONVIF compliance or send Audio only stream to compatible entities (lowers overhead and packet size)



AUDIO FILE DOWNLOADS

Audio files that have been downloaded to the device SD card in response to an event trigger will be available to view and download from the audio tab, for setting up of event triggers please refer to page 8 of this document.

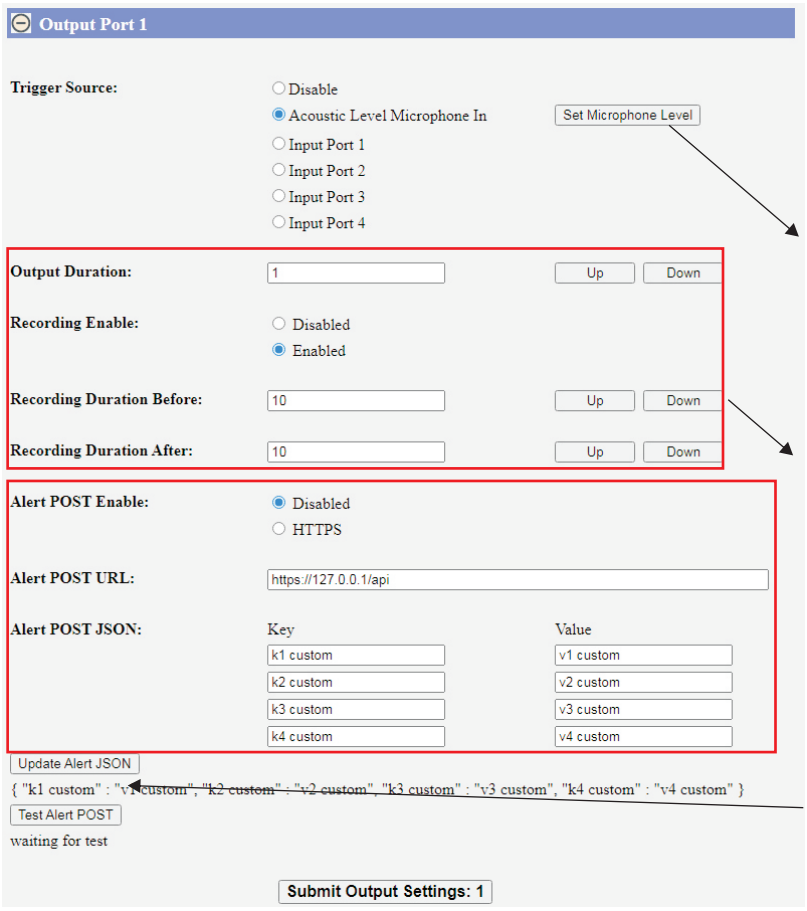


Digifact Device ONVIF settings

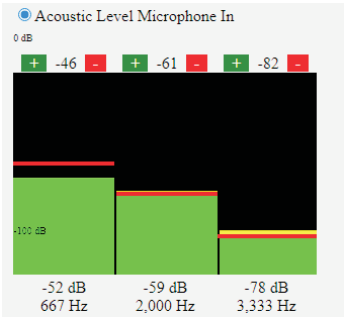
DigiFact Devices are ONVIF profile T compliant, audio integrations with ONVIF profile T compliant clients are inherently in place, Louroe Electronics continues to work to integrate our devices with other non conformant client packages, a full list of verified partner integrations are available by contacting Louroe Electronics.

OUTPUT PORT CONFIGURATION

- DigiFact devices have 4 available OUTPUT ports that can be configured to perform a variety of software and hardware tasks in response to an “event”, the event can include: audio threshold event, audio analytic trigger event, hardware input event, or heartbeat event. Each output port can be programmed independent of the other port/s.
- For Hardware pin-out and connections to the Input and Output ports on the device terminal block please refer to Page 8 of this guide.



Choosing the Trigger Source for the Output port, selecting “set microphone level” opens the dialog to configure the audio level threshold



The DigiFact Audio Threshold alarming function can be set for the desired decibel level in the desired frequency band.

Function to enable device to enable audio recording in response to events such as: Input port 1-4, audio threshold alarm and audio analytic event.

DigFact Devices can send a HTTP POST alert in reponse to a trigger event:
The receiving URL must be specified.
The POST alert can be customized using 4 configurable fields, the POST message critical data such as time and date will be automatically appended to the message structure.

Clicking on the “TEST ALERT POST” will list the message structure format that can be used to parse the POST message on the receiving URL’s interface.

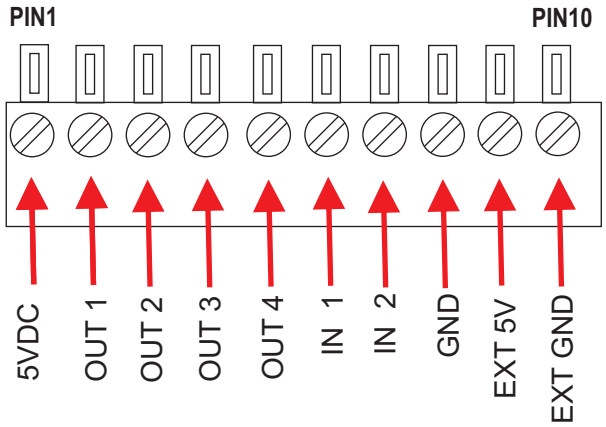
INPUT PORT CONFIGURATION

- DigiFact devices have 2 available INPUT ports that can be configured to send a trigger event to the device that can be then sent as an output signal to perform a variety of automated functions.
- For Hardware pin-out and connections to the Input and Output ports on the device terminal block please refer to the figure below.
- For maximize noise immunity, all GPIO inputs are active low and have a debounce time of 100 mSec. Therefore logic 1 or TRUE is 0 VDC.
- Input 1, Input 2, Input 3, and Input 4 respond only to the electrical falling edge (i.e. +3.3 VDC to 0 VDC).
- The Reboot SW1 responds to both the electrical falling edge and rising edge in order to determine a short press (Reboot) from a long press (Reset to Factory Defaults and Reboot).
- The minimum low (i.e. 0 VDC or logical 1 or TRUE) time is 500 mSec, which provides significant margin for the debounce time of 100 mSec.

DEVICE PORT CONNECTION PIN OUT

- Four digital alarm output ports are available for connection to external devices, the alarm outputs can be set to trigger from analytic and volume threshold events. If used with an inductive load, e.g. a relay, a diode must be connected in parallel with the load, for protection against voltage transients.

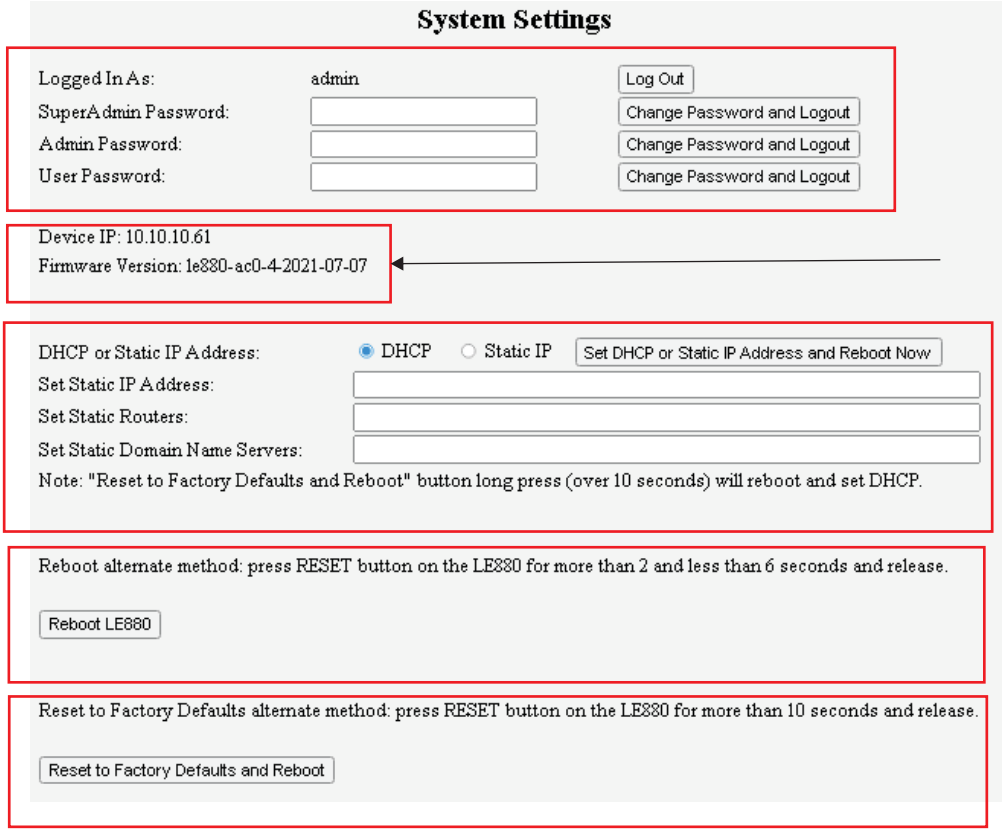
FUNCTION	PIN	NOTES
5V DC	1	
Output 1	2	
Output 2	3	
Output 3	4	
Output 4	5	
Input 1	6	
Input 2	7	
Ground	8	
EXTERNAL 5VDC	9	**FOR NON POE APPLICATIONS ONLY**
EXTERNAL GND	10	**FOR NON POE APPLICATIONS ONLY**



SYSTEM SETTINGS

The System settings functions on the DigiFact device allow for the following:

- User access levels and passwords.
- Setup device on the Network
- Reset the device to factory default settings
- Reboot the Device



Digif~Fact Devices have THREE different levels of user access viz. User, Admin and SuperAdmin, with varying levels of acess to device functions, each levels password can be modified in this control group.

*NOTE: Passwords must containt at a minimum
2 lower case alphanumeric characters
2 upper case alphanumeric characters
2 numeric characters
2 special characters

Device IP address and Firmware version

Setting Device Network Parameters:
- DHCP
- Static IP address
- Static routers
- Domain Name Servers

Rebooting the Device
The device can be rebooted by clicking this control button or using the push button on the device (see pg 9)

Factory resetting the Device
The device can be factory reset by clicking this control button or using the push button on the device (see pg 9)

DEVICE UPDATE

- The Device can be updated from the “Update” tab. The firmware update file can be downloaded from: https://www.louroe.com/
- The Update file is of a “.deb” format, once the file has been downloaded, click on the “Choose File” control button to navigate to the location where the .deb file has been downloaded, once selected click on “Upload Software Update File” to install the latest firmware update.

DEVICE HELP

- Device help contains PDF copies of this user manual as well as other relevant documentation.