INSTALLATION AND OPERATING MANUAL EN

DIRIS Digiware D-50 & D-70 v2

Display and power supply interface

socomec
Innovative Power Solutions

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1. DOCUMENTATION

All documentation on DIRIS Digiware D-50 and D-70 is available on the SOCOMEC website:
www.socomec.com/en/diris-d

2. HAZARDS AND WARNINGS

The term "device" used in this document covers both DIRIS Digiware D-50 and D-70.

The assembly, use, servicing and maintenance of this equipment must only be carried out by trained, qualified professionals.

SOCOMEC shall not be held responsible for failure to comply with the instructions in this manual.

2.1. Risk of electrocution, burns or explosion

- This device must only be installed and serviced by qualified personnel who have in-depth knowledge of installing, commissioning and operating the device and who have had appropriate training. He or she should have read and understood the various safety measures and warnings stated in the instructions.
- Before carrying out any work on the device, switch off the power supply to the device.
- Always use an appropriate voltage detection device to confirm the absence of voltage.
- Replace all devices, doors and covers before turning on power to this equipment.
- Always power the device with the correct rated voltage.
- Install the device following the recommended installation instructions and in a suitable electrical cabinet.

Failure to take these precautions could cause death or serious injuries.

2.2. Risk of damaging the device

To ensure that the device operates correctly, make sure that:

- The device is correctly installed.
- The auxiliary power supply voltage indicated on the product is observed: 24 VDC ± 15%.
- Use 230 VAC / 24 VDC SOCOMEC power supply (P15 15W 4829 0120) or use a 1 A 24 VDC safety fuse.

Failure to respect these precautions could cause damage to the device.

2.3. Liability

- Assembly, connection and use must be carried out in accordance with the installation standards currently in force.
- The device must be installed in accordance with the rules given in this manual.
- Failure to observe the rules for installing this device may compromise the device's intrinsic protection.
- The device must be positioned within an installation which complies with the standards currently in force.
- Any cable which needs to be replaced may only be replaced with a cable having the correct rating.

3. PRELIMINARY OPERATIONS

To ensure the safety of personnel and the product, please carefully read the contents of these instructions before installation.

Check the following points as soon as you receive the package containing the device:

- The packaging is in good condition
- The device has not been damaged during transportation
- The device reference number conforms to your order
- The packaging includes the device fitted with removable terminal blocks and a Quick start guide.

4. CYBER SECURITY RECOMMENDATIONS & BEST PRACTICES*

The DIRIS Digiware D-50/D-70, as any device connected to a user's Ethernet network, must be protected against any risk of cyber-attack or data loss/destruction.

(*) Our D-50/D-70 displays provide certain cyber security features to prevent these attacks and to help users in their responsibility to implement and guarantee adequate IT protection. Some recommendations are listed in the following paragraphs. Make sure they are in line with your IT security policy:

- **Awareness of the security policy:** Users and administrators of DIRIS Digiware D-50/D-70 displays and WEBVIEW-M must be aware of and trained in proper IT security practice (information and compliance with corporate security policy, authentication procedure management and password safety, online session management, risks of fishing…).
- **Network security:** The IT system architecture must be able to safeguard resources, by segmenting the network according to their degree of sensitivity and using a variety of protective devices (firewall, demilitarised zone, VLAN, network anti-virus etc.).

How DIRIS Digiware D-50/D-70 displays can help:

By forcing the user to use secure versions of standard communication protocols:

- FTPS: secure export of data
- SMTPS: secure email notification in case of alarms
- SNMPv3: secure version of the SNMP communication protocol
- HTTPS: secure webserver navigation (WEBVIEW-M) by uploading TLS/SSL certificates

> Refer to paragraph 10.3.2 & 10.3.3 for more information on how to upload digital certificates.

With their firewall, to monitor and control incoming/outgoing traffic: this protects the DIRIS Digiware D-50/D-70 displays in case of denial-of-service (flooding) attacks, in order to guarantee service continuity of the display.

> Refer to paragraph 10.3.4 for more information on how to configure the firewall protection.

- **Device security:** Device security depends on its network environment, but also user behaviour. In terms of the environment, elementary protective measures (filtering authorised stations by MAC address, opening service ports, selecting authorised applications etc.) are highly recommended. Greater precaution is required on managing removable media (external hard drive, USB flash drive, wireless communication provision etc.). Finally, in terms of a server like the DIRIS Digiware D-50/D-70, it should be protected by controlling and limiting physical access to the rooms and cabinets hosting the device.

How DIRIS Digiware D-50/D-70 displays can help:

DIRIS Digiware D-50/D-70 displays reduce the attack exposure by blocking or restraining the access to certain peripherals and services that are not essential to the customer use case.

> Refer to paragraph 10.3.1 for more information on how to configure your display's security policy.

Moreover, the firmware and webserver applications are signed with an asymmetrical key to make sure any firmware upgrade uses the correct matching signature to allow the device to be upgraded. This prevents the diversion of the device from its intended use by Socomec (by uploading a dummy firmware for instance) and guarantees that the firmware stays without virus over time.

- **Data security:** Data security covers several aspects, in particular the confidentiality, integrity, authenticity and availability of data. Special care is required with data security and archiving procedures on backup devices both inside and outside the company.

How DIRIS Digiware D-50/D-70 displays can help:

It is possible to export data such as energy indexes, load curves and historical measurement (Trends), both manually or automatically for back-up.

It is also possible to save the topology (mapping of slaves connected to the D-50/D-70 display) from the embedded webserver and configuration file from Easy Config software.

Confidentiality is addressed by providing 256-bit AES encryption (AES 256) for personal data such as passwords along with product. This means it would take 2256 combinations to break the encryption key.

- **Access and authentication management:** Managing access to resources and data is a crucial element of the IT system's security policy. Each user requires an account and access rights corresponding to their profile. Access to the IT system's resources is controlled by a user authentication process, based on a minimum of a high-security username and password. The password management procedure, specifying the systematic modification of default passwords and their validity period, is included in the IT security policy.

How DIRIS Digiware D-50/D-70 displays can help:

Multiple profiles are available to access the web application. The highest profile is "Cybersecurity", which allows you to manage users' access to the web application based on what is relevant for them.

Profiles are password protected. Certain measures are taken into account in Socomec D-50/D-70 displays to reduce the risk of password theft:

- Encryption of credentials
- Password must meet minimum security requirements (minimum 10 characters, including at least one upper case, one lower case, one number and a special character).
- Password must be changed at least once a year.
- After 3 failed log-in attempts, account is locked for 1 hour.
- Passphrase for password recovery in case password is lost.

> Refer to paragraph 10.1 for more information regarding the different profiles and their password protection.

5. INTRODUCTION

5.1. Range

DIRIS Digiware D-50 Multipoint display Ref. 4829 0204	**DIRIS Digiware D-50 BLE Multi-point display with Bluetooth Low Energy** Ref. 4829 0206	**DIRIS Digiware D-70 Multipoint display** Ref. 4829 0203	**DIRIS Digiware D-70 BLE Multi-point display with Bluetooth Low Energy** Ref. 4829 0207
Ethernet output Modbus TCP BACnet IP SNMP v1, v2 & v3	Ethernet output Modbus TCP BACnet IP SNMP v1, v2, v3 Bluetooth Low Energy	Ethernet output Modbus TCP BACnet IP SNMP v1, v2 & v3	Ethernet output Modbus TCP BACnet IP SNMP v1, v2, v3 Bluetooth Low Energy
-	-	WEBVIEW-M embedded web server Power & Energy Monitoring	WEBVIEW-M embedded web server Power & Energy Monitoring

5.2. Introduction to DIRIS Digiware D

DIRIS Digiware D-50 and D-70 are system displays and act as the unique point of access to measurements from DIRIS Digiware modules.

They can also display measurements from other SOCOMEC meters and measuring devices: COUNTIS, DIRIS A, DIRIS B.
They centralise data from up to 32 devices (a maximum of 192 circuits).
These products may be connected by a Digiware bus and/or an RS485 bus.

Centralised products can be shown as well as configured by DIRIS Digiware D displays.

5.2.1. Introduction to DIRIS Digiware D-50

The DIRIS Digiware D-50 display is a master on the Digiware bus and acts as a gateway interface to communicate measurements over RS485 and Ethernet.

The RS485 port can be configured as a Master or Slave.

The Ethernet port is used to:

- Communicate via Modbus TCP (max. 16 simultaneous connections), measurements from meters and measuring devices connected to the Digiware and RS485 buses.
- Communicate via BACnet IP and SNMP, measurements from meters and measuring devices connected to the Digiware and RS485 buses.
- Automatically send alarm notifications via emails (SMTPS).
- Synchronize the date/time to an SNTP server.
- Automatically and cyclically export historical measurements via FTPS.

5.2.2. Introduction to DIRIS Digiware D-70

The DIRIS Digiware D-70 display embeds a web-based software (WEBVIEW-M) which allows a remote visualisation of real-time and historical measurements.

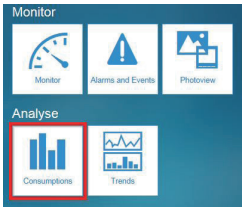
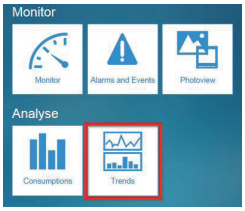
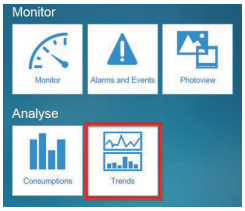
The DIRIS Digiware D-70 display is a master on the Digiware bus and acts as a gateway interface to communicate measurements over RS485 and Ethernet.

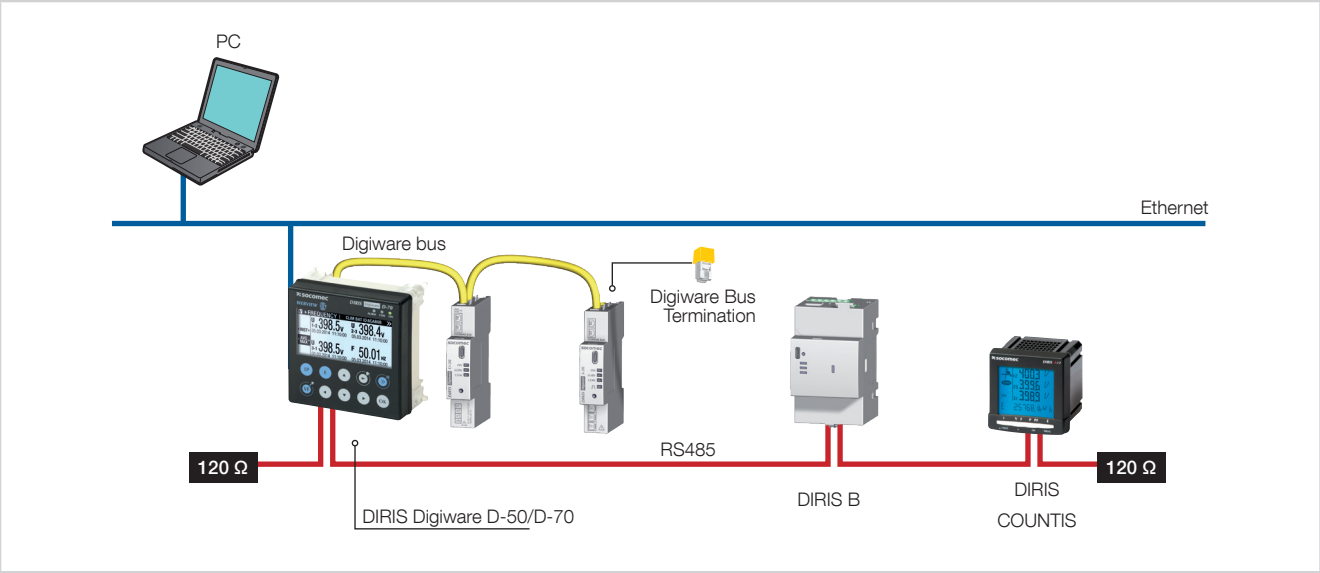
The RS485 port can be configured as a Master or Slave.

The Ethernet port is used to:

- Communicate via Modbus TCP (max. 16 simultaneous connections), measurements from meters and measuring devices connected to the Digiware and RS485 buses.
- Communicate via BACnet IP and SNMP, measurements from meters and measuring devices connected to the Digiware and RS485 buses.
- Automatically send alarm notifications via emails (SMTPS).
- Synchronize the date/time to an SNTP server.
- Automatically and cyclically export historical measurements via FTPS.

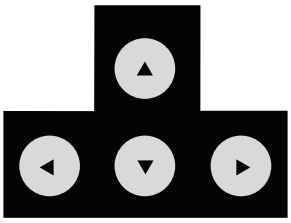
Data logging capabilities of the DIRIS Digiware D-70 are explained in the table below:

	CONSUMPTION CURVES	LOAD CURVES	TRENDS
Logged data	Energy: kWh, kvarh, kVAh	Power: kW, kvar, kVA	Average measurements: U, V, I, P, Q, S, PF, Temperature...
Compatible products	COUNTIS Exx (all) DIRIS Axx (all) DIRIS Bxx (all) DIRIS Digiware XXX (all)	Countis Eci, Countis E3x DIRIS A-30 + MEM / A60 DIRIS B-30 DIRIS Digiware I-31 / I-61 /I-35 / I-45 / I-35dc / S-135 / S-Datacenter DIRIS A-40	DIRIS B-30 DIRIS Digiware I-35 / I-45 / U-30 / U-31dc / U-32dc / S-135 / S-Datacenter DIRIS A-40
Integration period	configurable from Easy Config System, 10 min to 60 min	configurable from Easy Config System, 1 min to 60 min	
Data logging duration	1 year with a 60-min integration period. Proportional for different values: For example: 3 months with a 15-min integration period. This applies no matter how many devices (1 to 32) are connected to the D-70. The level of detail of the log is not linked to the number of devices connected:		
Operation	Readings taken every 10 min / 60 min in the meter/PMD.	The data is recorded in a cache memory on the meter and then downloaded by the D-70. If communication is interrupted, the missing data is recovered by the D-70 once the connection is restored so that recording continues.	
Data backup (in the event of a loss of communication between the D-70 and the meter)	NO	YES (in the meter's cache memory)	
Export to FTP server	YES	YES	YES
Webview link			
Specific configuration	Nothing to configure (data is recorded automatically).	Load curves must be activated on the meters (via Easy Config System). Load curves are then automatically downloaded from the meter's cache memory to the D-70.	Trends must be activated on the meters (via Easy Config System). The logs are then automatically downloaded from the meter's cache memory to the D-70.



5.3. Touchscreens

The display consists of a screen and 10 shortcut keys:

	Shortcut keys for load measurements: current, active power, reactive power, apparent power, power factor, cos phi
	Shortcut keys for electrical network measurements: line to neutral voltages, to line-line voltages, frequency
	Shortcut keys for active, reactive, apparent energy meters (total and partial readings)
	Arrow keys for navigation
	Use this to go back to a previous navigation menu
	Use this to go to the previous/next product (to scroll through all your meters and centralised measuring devices)
	Use this to confirm your navigation or entry selection

5.4. LED display

ALARM* (red)

- Off: no active alarm
- Stable: at least one alarm (measurement, logical, protection) is active on the display or a connected device
- Flashing: at least one system alarm is active on the display or a connected device

**Go to the EVENTS menu for details on active alarms*

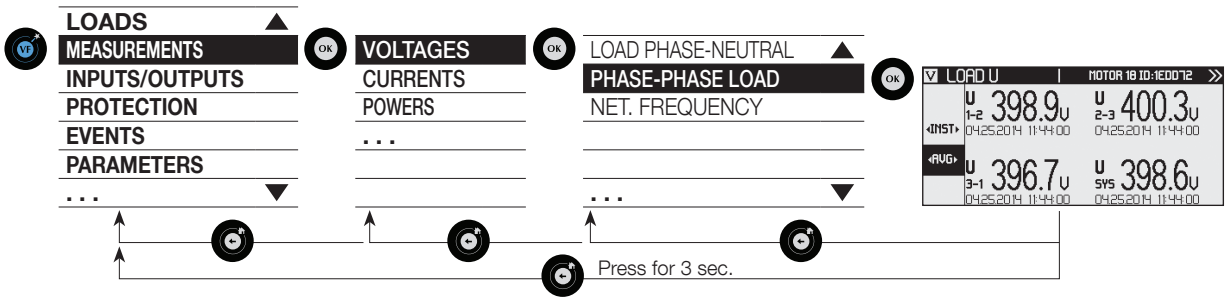
COM (orange)

- Off: display is not communicating with downstream devices
- Stable: address conflicts during auto-discovery process
- Flashing: communication in progress with a downstream device (RS485 or Digiware)

ON (green)

- Off: display is not powered
- Stable: device is powered

5.5. Navigation



5.6. Menu structure

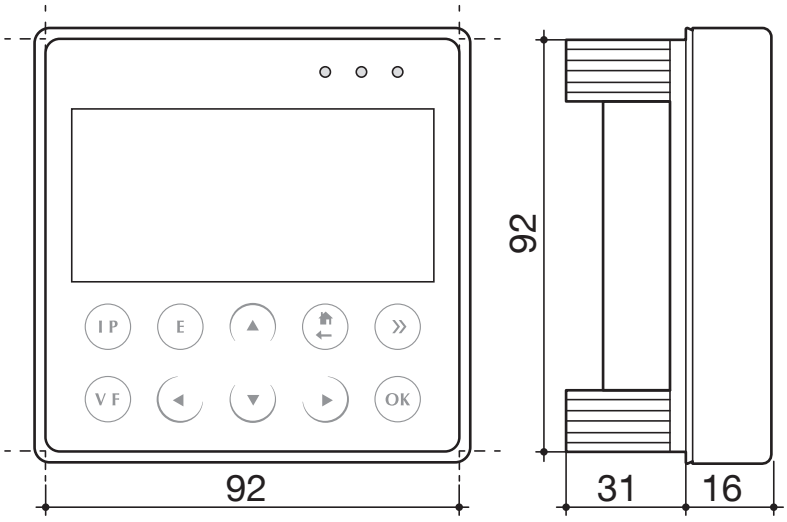
LOADS

MEASURES	VOLTAGES	Load Line-Neutral
		Load Line-Line
		Net. Frequency
		Net. Line-Neutral
		Net. Line-Neutral Unbalance
		Net. Line-Neutral Harmonics
		Net. Line-Neutral Crest Factor
		Net. Line-Line
		Net. Line-Line Unbalance
		Net. Line-Line Harmonics
		Net. Line-Line Crest Factor
	CURRENTS	Currents
		Current System
		Currents Unbalance
		Currents THD
		Currents K Factor
		Currents Harmonics
		Currents Crest Factor
	POWERS	Active Powers
		Reactive Powers
		Apparent Powers
		Predicitve Powers
		Power Factors
		Cos Phi
		Tan Phi
	ENERGIES	Positive Active Energies
		Negative Active Energies
		Positive Reactive Energies
		Negative Reactive Energies
		Positive/Negative Reactive Lead/Lag Energies
		Apparent Energies
	PULSE METERS	
	RESET ALL MIN/MAX VALUES	
INPUT/OUTPUT	DIGITAL INPUT	
	DIGITAL OUPUT	
	ANALOGUE INPUT	
PROTECTION		
EVENTS	IN PROGRESS	
	HISTORY	Alarms
		Quality
PARAMETERS	DISPLAY	Language
		Date format
		RS485 communication: Mode (master/slave), Baudrate, Stop, Parity, Address
		Ethernet communication: DHCP, IP Address, Mask, Gateway
		Set remote Device Date/Time: Date format, Date separator
		Change Password
	CONFIGURE A DEVICE	
	AUTODETECT SERIAL DEVICES	Status
		Found/Conflict
		Digiware addressing range: Start address, End address, Addr. Set Method (Autoset or Push button)
		Method: Fast or Full
	LIST PRODUCTS	
	ADD NEW DEVICE	Type: RS485 / Digiware, IP
		Address
	REMOVE DEVICE	
	RESTORE A PRODUCT FACTORY SETTINGS	
	PRODUCTS SOFT VERSION	
DIAGNOSIS	ETHERNET	IP address
		Host name
	SERIAL COM	RS485 comm status
		Digiware comm status
		Devics comm OK
		Devices comm NOK
		Restart serial comm analysis
	NETWORK TIME	SNTP
		Current Date/Time
		Last activity
	EMAIL	SMTP
		Last activity
	FTP CLIENT	FTP
		Last activity
	DATALOGGER	Consumptions
		Trends
		Alarms
ABOUT	IP ADDRESS	
	MAC ADDRESS	
	SERIAL NUMBER	
	SOFTWARE VERSION	
	REBOOT	

Note: the menus available depend on the slave device connected.

5.7. Dimensions

Dimensions *in*/mm



Door cut-out must be 92x92mm.

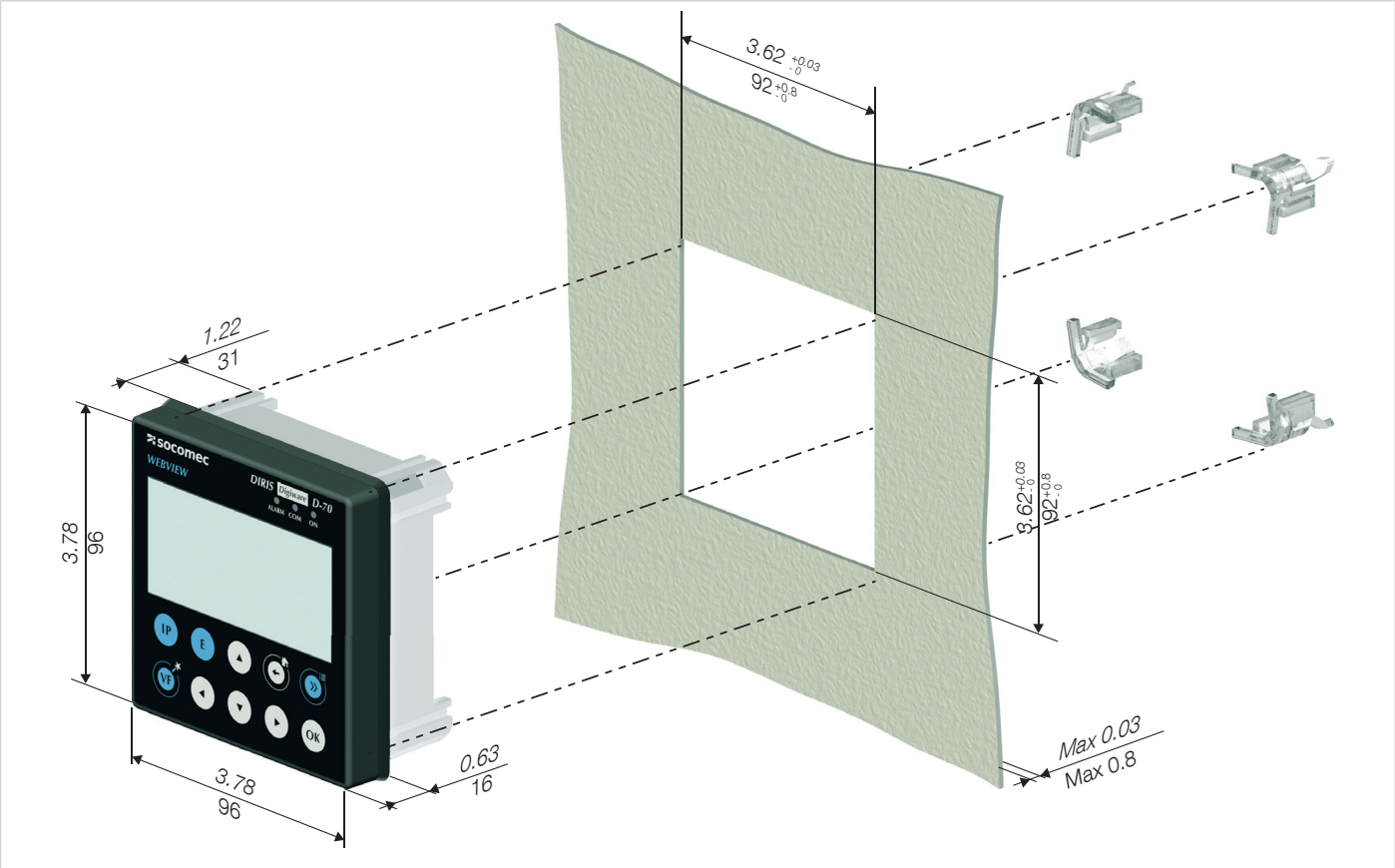
6. MOUNTING

6.1. Recommendations and safety

Refer to the safety instructions (section “2. Hazards and warnings”, page 5)

6.2. Door mounting

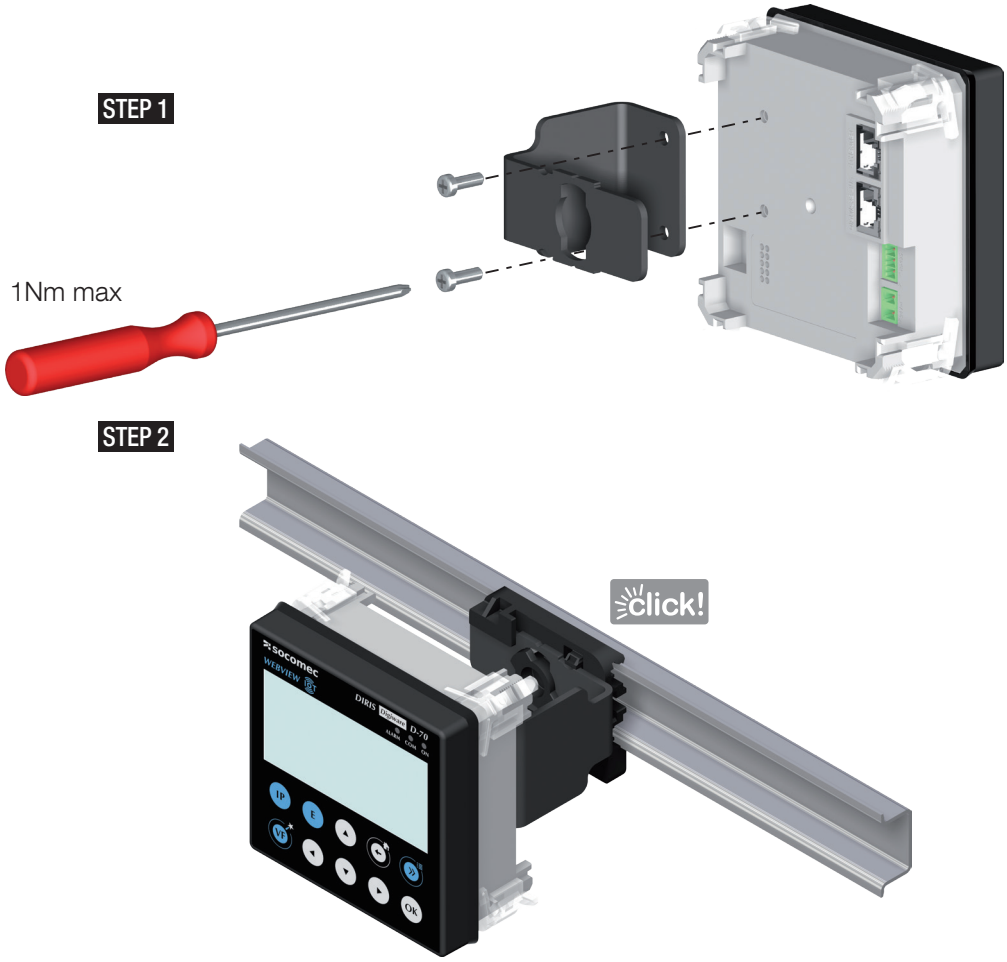
DIRIS Digiware D-50 and D-70 are panel-mounted (cut-out: 92x92mm). The display is secured with clips.



6.3. DIN rail mounting

DIRIS Digiware D-50 and D-70 can also be mounted on a DIN rail using a dedicated accessory (4829 0230) sold separately.

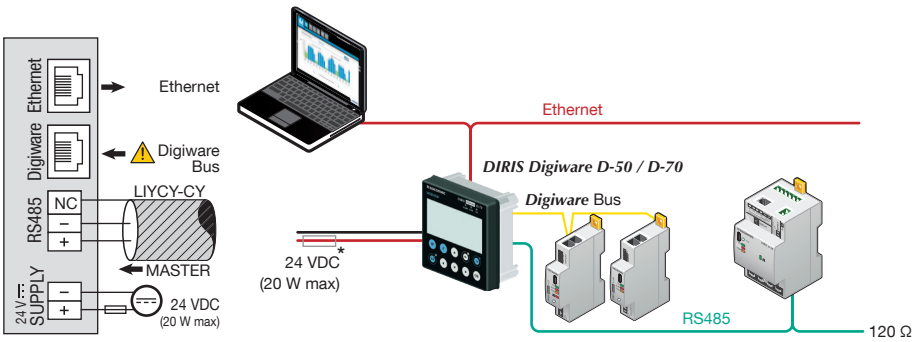
DIN rail mouting kit (separate part number: 4829 0230)



7. COMMUNICATION ARCHITECTURES

The DIRIS Digiware D-50 and D-70 display can be configured as a Slave or a Master for the RS485 bus.

7.1. RS485 Master

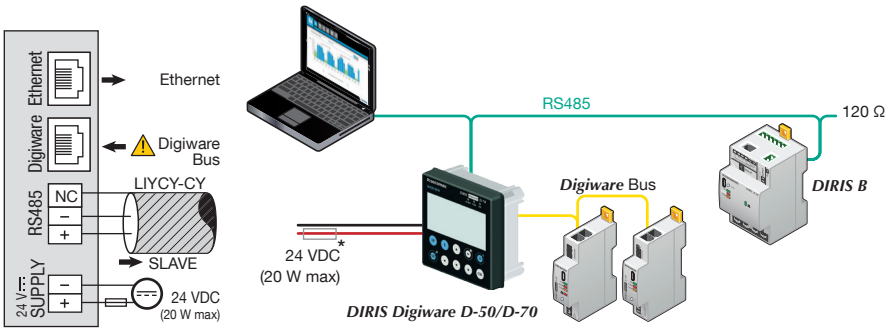


(*) The use of a 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec. For North America, the use of recognized fuses is mandatory.

All inputs/outputs are considered as SELV (Safety Extra-Low Voltage).

When configured as RS485 Master, the D-50/D-70 acts as a gateway (Digiware to Ethernet and RS485 to Ethernet).

7.2. RS485 Slave



(*) The use of a 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec. For North America, the use of recognized fuses is mandatory.

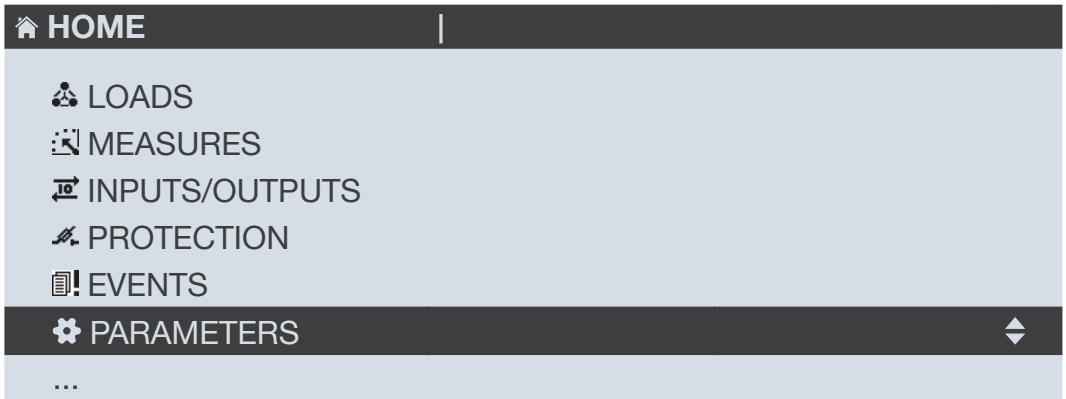
All inputs/outputs are considered as SELV (Safety Extra-Low Voltage).

When configured as RS485 Slave, the D-50/D-70 communicates measurements from DIRIS Digiware modules over RS485.

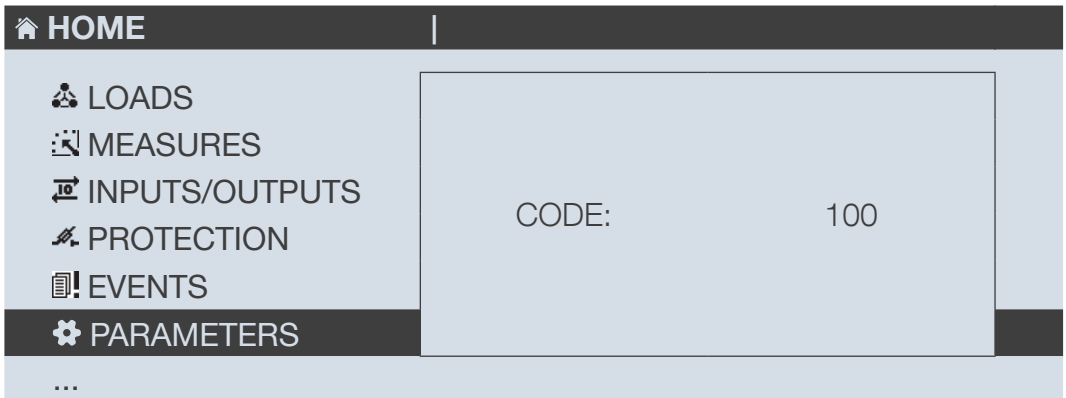
8. CONFIGURATION

From the Socomec start-up sreen, press “OK” to enter the navigation menu:

Select the "PARAMETERS" menu by using the navigation key "DOWN ARROW" 3x and confirm with "OK”:



Enter the password "100" using the arrow pad (4 arrow keys) and confirm with "OK":



Do not power off the display before saving the configuration or changes will be lost

The 3 following menus will be detailed in the paragraphs below:

PARAMETERS

DISPLAY
CONFIGURE A DEVICE
AUTODETECT SERIAL DEVICES
LIST PRODUCTS
ADD NEW DEVICE
…

- DISPLAY: to access settings that are specific to the display.
- AUTODETECT SERIAL DEVICES: to launch an automatic detection and addressing of meters and power monitoring devices connected to the D-50/D-70 display.
- CONFIGURE A DEVICE: to configure the meters and other power monitoring devices connected to the D-50/D-70 display.

8.1. Display-specific settings

PARAMETERS

DISPLAY
CONFIGURE A DEVICE
AUTODETECT SERIAL DEVICES
LIST PRODUCTS
ADD NEW DEVICE
…

DISP PARAMETERS

LANGUAGE
DATE FORMAT
RS485 COMMUNICATION
ETHERNET COMMUNICATION
SET REMOTE DEVICE DATE/TIME
…

- LANGUAGE: to set the display's navigation language (english by default)
- DATE FORMAT: to set the date/time format
- RS485 COMMUNICATION: to configure the RS485 communication settings
- ETHERNET COMMUNICATION: to set the display's IP address
- SET REMOTE DEVICE DATE/TIME: to set the date and time
- CHANGE PASSWORD: to change the password to access the settings menu (default: "100")

8.1.1. Language

You can change the display's navigation language here.
Choose from: English, French, German, Italian, Spanish, Flemish, Polish, Turkish, Russian, Solvenian and Chinese.

Select your language with the arrow pad and confirm with "OK".

PARAMETERS	
ENGLISH	
FRANCAIS	
DEUTSCH	
ITALIANO	
POLSKI	
…	

8.1.2. Date format

You can select the display's date format, including the separator between the day, month and year:

DATE FORMAT	
DATE FORMAT:	MM/DD/YYYY
DATE SEPARATOR:	◀ / ▶

8.1.3. RS485 communication

Configure the display's Modbus address.
Configure the baudrate, stop bits, parity of the RS485 and Digiware bus.

DIRIS Digiware D-50 / D-70 are master devices on Digiware and RS485 buses (baudrate, parity, stop bits).

PARAMETERS	
BAUDRATE:	◀ 38400 ▶
STOP:	1BIT
PARITY:	NONE
ADDRESS:	001

8.1.4. Ethernet communication

You can configure the Ethernet settings of DIRIS Digiware D-50 / D-70 displays:

- DHCP (IP address dynamically assigned by the Ethernet network) ENABLED/DISABLED
- IP address
- Subnet mask
- LAN gateway

PARAMETERS	
DHCP	◀ DISABLED ▶
IP ADDRESS	192.168.000.003
MASK	255.255.255.000
GATEWAY	000.000.000.000

8.1.5. Setting the date/time on the remote product

You can configure the date and time on the DIRIS Digiware D-50/D-70 display:

- Manually by entering the year, month, day, hour, minute, second
- Automatically (like a computer) by SNTP server

If the DIRIS Digiware D-50/D-70 is synchronised by SNTP, it will broadcast and synchronise the date and time of all downstream devices.

CONF. DATE/TIME	
AUTO. REMOTE DATE/TIME SET	◀ MANUAL ▶
YEAR	00
MONTH	01
DAY	01
TIME	00
…	

To configure the SNTP server, you will need to enter the following fields:

- SNTP server IP address
- SNTP server port

CONF. DATE/TIME	
AUTO. REMOTE DATE/TIME SET	◀ SNTP ▶
SERVER IP ADDRESS:	000.000.000.000
SERVER PORT:	00123
TIME ZONE:	GMT +9:00
OK	

8.2. Automatic detection of slave devices

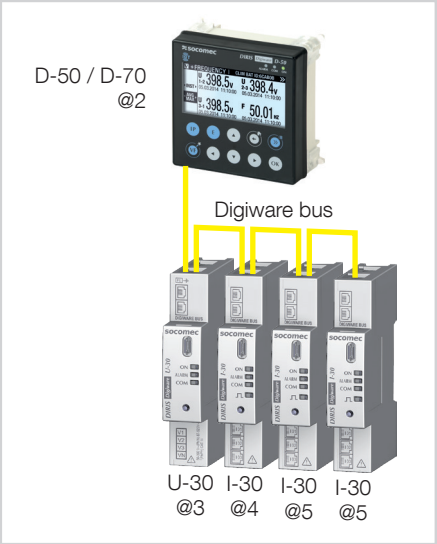
The auto-discovery function scans and discovers slave devices connected to the Digiware and RS485 buses and automatically assigns a unique Modbus address to each device.

The auto-discovery function is compatible with DIRIS Digiware modules, DIRIS B and DIRIS A-40 power meters.

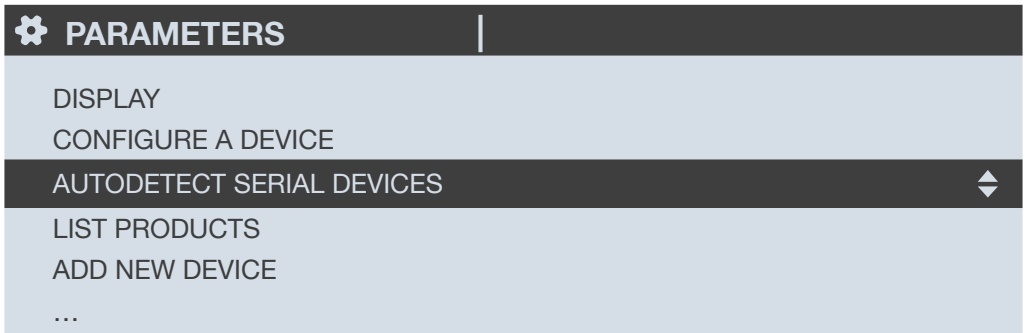
For other devices such as COUNTIS energy meters and DIRIS A-10/A-20/A-30/A-60 power meters, you must change their Modbus address manually.

Example of auto-discovery on a D-50/D-70 display.

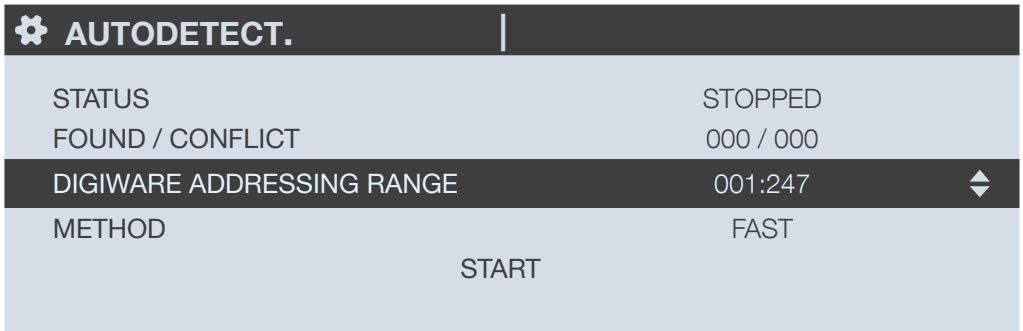
Four products are connected to the D-50 / D-70. Two are addressed correctly, the other two have an identical address.



Go to “PARAMETERS” / “AUTODETECT SERIAL DEVICES”:



Click on “DIGIWARE ADDRESSING RANGE”:



This allows you to allocate Modbus addresses to the connected devices within a specific range:

AUTODETECT.	
START ADDRESS	001
END ADDRESS	247
NB ADDR. POSSIBLE	032
ADDR. SET METHOD	AUTO SET
APPLY SETTINGS	

Choose the conflict resolution method (“ADDR. SET METHOD”):

- “PUSH BUTTON”: you must press the push button on each module to resolve address conflicts. The order you will use to press the push buttons on the modules will also determine the order for the Modbus addressing of those modules.
- “AUTOSET”: connected devices are automatically allocated individual Modbus addresses within the specified range.

Click on “APPLY SETTINGS” to apply your modifications.

Choose the auto-discovery “METHOD”:

AUTODETECT.	
STATUS	STOPPED
FOUND / CONFLICT	000 / 000
DIGIWARE ADDRESSING RANGE	001:247
METHOD	◀ FAST ▶
START	

- FAST (default mode): this mode will only detect DIRIS Digiware modules on the Digiware bus and RS485 bus, DIRIS B and DIRIS A-40 on the RS485 bus.
- FULL: this mode will also detect other Socomec PMDs (DIRIS A) and meters (COUNTIS E) connected on the RS485 bus.

Click on "START" then "OK" to start the auto-discovery process (this can take up to 5 minutes).

AUTODETECT.	
STATUS	STOPPED
FOUND / CONFLICT	000 / 000
DIGIWARE ADDRESSING RANGE	001:247
METHOD	FAST
START	

Please be aware that this removes all previously found devices (if they are still there they will be found again).

AUTODETECT.

WARNING: AUTODETECT WILL REMOVE ALL
DEVICES ALREADY PRESENT!
PRESS OK TO CONTINUE.
PRESS BACK TO CANCEL.

After pressing "OK", the steps below will automatically follow:

- ADDRESS DETECTION

AUTODETECT.

STATUS	ADDR DETECTION
FOUND / CONFLICT	000 / 000
DIGIWARE ADDRESSING RANGE	001:247
METHOD	FAST

STOP

- ADDRESS SCANNING

AUTODETECT.

STATUS	ADDR SCANNING
FOUND / CONFLICT	002 / 001
DIGIWARE ADDRESSING RANGE	001:247
METHOD	FAST

STOP

If you have chosen an automatic address conflict resolution ("AUTOSET"), the STATUS automatically goes to "STOPPED" once the auto-discovery process is finished.

AUTODETECT.

STATUS	STOPPED
FOUND / CONFLICT	002 / 000
DIGIWARE ADDRESSING RANGE	001:247
METHOD	FAST

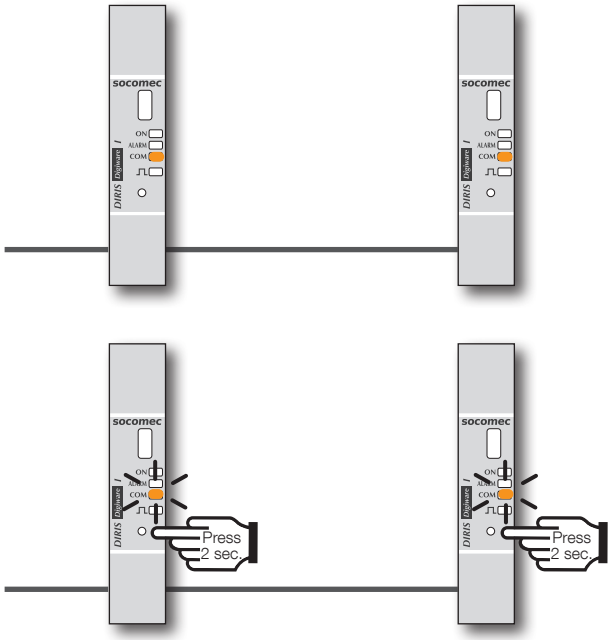
START

If you have chosen a manual address conflict resolution ("PUSH BUTTON"), there will be one or several conflicts if multiple devices have the same Modbus address.
A pop-up message will be displayed on the HMI:

AUTODETECT.

ADDRESS CONFLICTS DETECTED!
PRESS THE AUTOADDRESS BUTTON ON
ALL NON-BLINKING DEVICES TO SOLVE THE
CONFLICTS.

To manually resolve address conflicts, locate the devices which have a lit and stable "COM" LED. Press and hold down the addr. button on the front face of the module for about 2 seconds until the LED flashes:



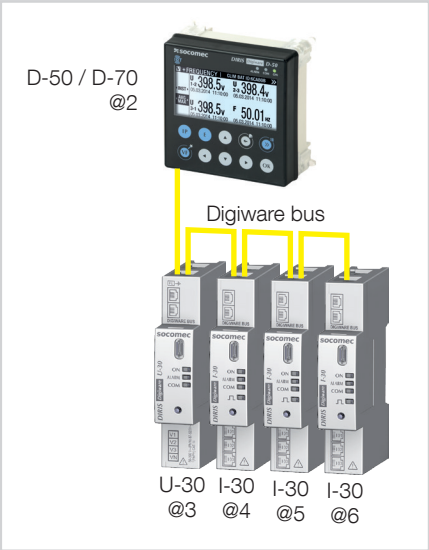
COM LED ON AND STABLE = address conflict
COM LED FLASHING = product address identified correctly.

AUTODETECT.

STATUS	STOPPED
FOUND / CONFLICT	004 / 000
DIGIWARE ADDRESSING RANGE	001:247
METHOD	FAST

START

The number of detected products increases and the number of conflicts decreases to reach zero once all products have a unique address.



You can then check the list of detected products along with their Modbus addresses in the “LIST PRODUCTS” menu:

PARAMETERS	LOAD1
DISPLAY	
CONFIGURE A DEVICE	
AUTODETECT SERIAL DEVICES	
LIST PRODUCTS	
ADD NEW DEVICE	
…	

Example:

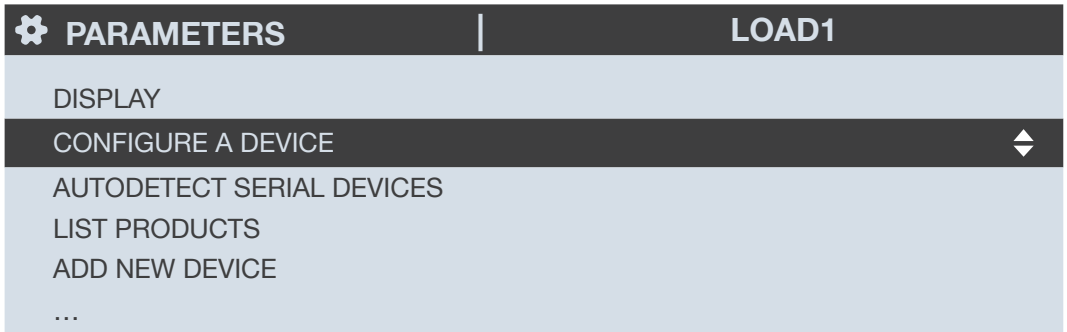
LIST PROD.	LOAD1
U-30@3 ID:545434	@003
I-30@4 ID:F0C1D2	@004
I-30@5 ID:F0C1D3	@005
I-30@6 ID:F0C1D4	@006

You can find the IDs on the marking on the products (546434 on the U-30 and F0C1D2 on one of the I-30s) as shown in the picture below:

You can now perform the configuration of the system. Each product must be configured individually.

8.3. Configuring the DIRIS Digiware system from the D-50/D-70 display

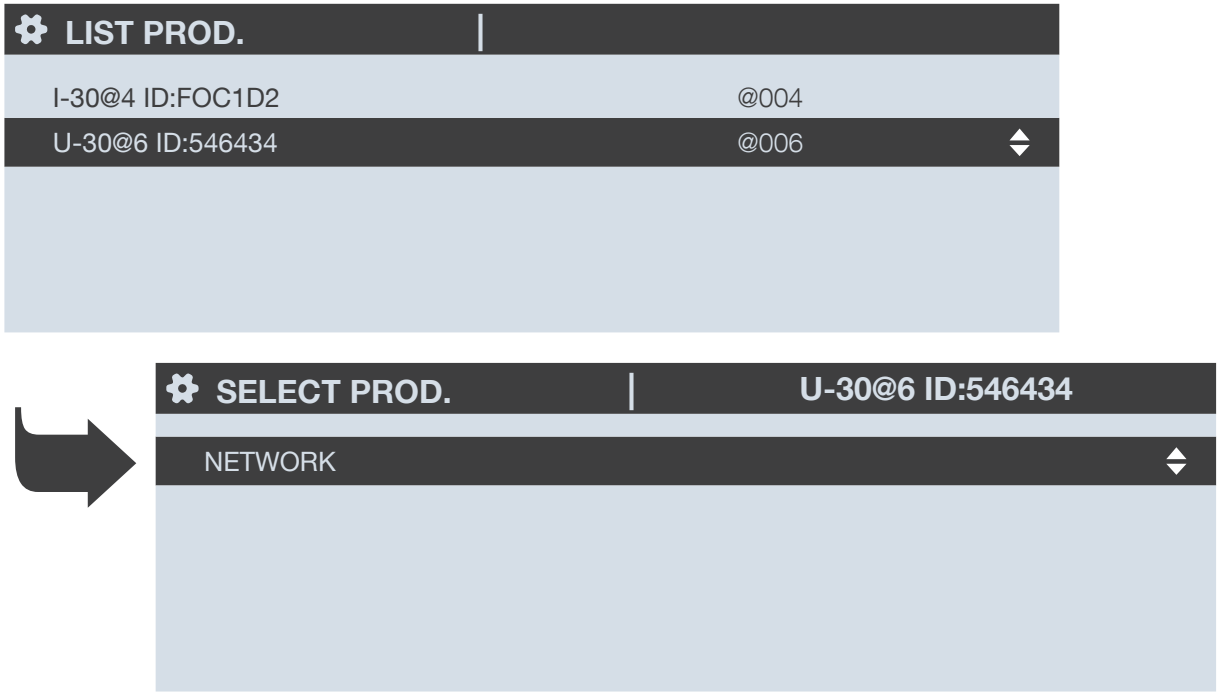
Go to "Parameters" > "Configure a device".



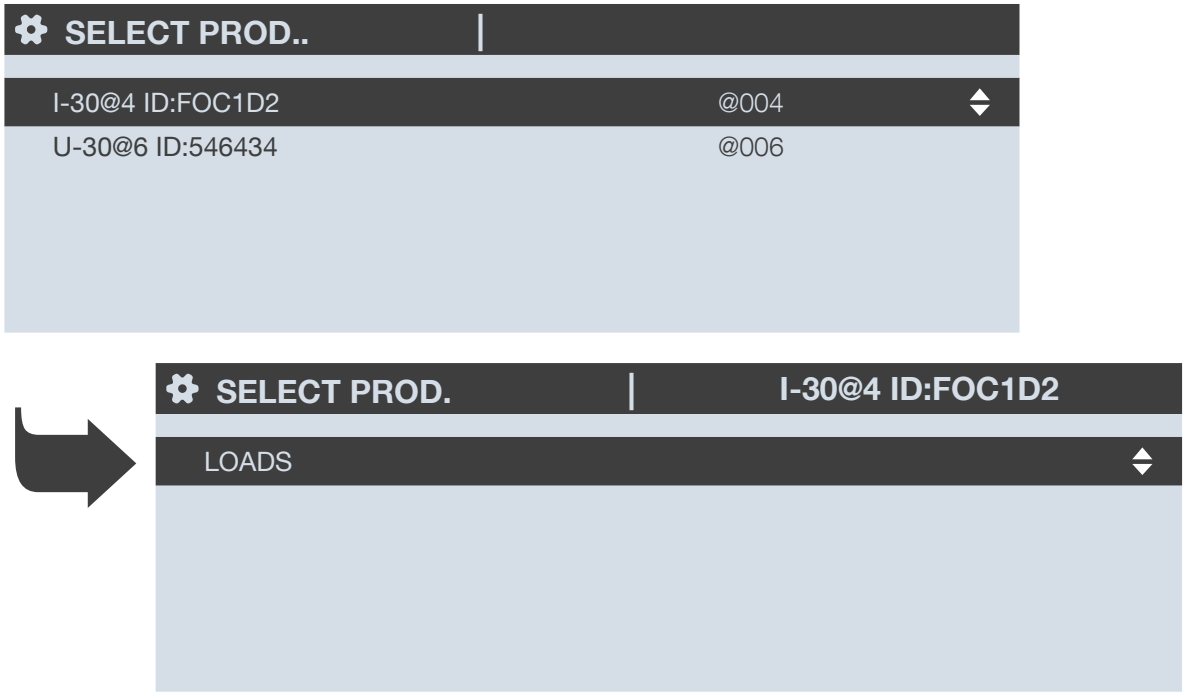
There are 2 steps to configure the DIRIS Digiware system:

- **Network:** setting the type of voltage network: single-phase (1P+N), two-phase (2P), three-phase without neutral (3P), three-phase with neutral (3P+N).
- **Load:** configuring the loads/circuits measured. You can, for example, measure three-phase and single-phase loads connected to a three-phase electrical network.

Electrical network settings are configured from the DIRIS Digiware U-xx module.



Load settings are configured from DIRIS Digiware I-xx modules



With DIRIS B power monitoring devices, network and loads settings are accessible from the DIRIS B altogether.

8.3.1. Network configuration

You can configure the various network voltage parameters:

- Network type: single-phase (1P+N), two-phase (2P), three-phase without neutral (3P), three-phase+neutral (3P+N)
- Nominal voltage:
  This is the phase-phase voltage (usually 400 V) for three-phase networks
  This is the phase-neutral voltage (usually 230 V) for single-phase networks
- Nominal frequency: 50 or 60 Hz depending on the country
- Phase rotation: V1-V2-V3 (Direct) or V1-V3-V2 (reverse).

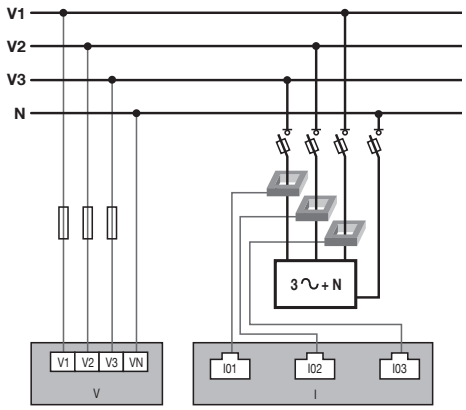
PARAMETERS	U-30@6 ID:546434
NETWORK TYPE	00400
NOMINAL FREQUENCY	3P + N
NOMINAL VOLTAGE (V)	50HZ
PHASE ROTATION	V1-V2-V3
PRESS OK TO CONFIRM	

8.3.2. Configuring loads

Multiple loads (single-phase, two-phase or three-phase) can be measured on a DIRIS B or DIRIS Digiware I module.

8.3.2.1. Example of a load configuration

This example shows a DIRIS Digiware I-30 module measuring a three-phase + neutral load using 3 current sensors.



LOAD	I-30@4 ID:FOC1D2			
INPUT	I01	I02	I03	
CT	250 A	250 A	250 A	
WAY	+/DIRECT	+/DIRECT	+/DIRECT	
V LINE	V3	V2	V1	
LOAD	L1	L1	L1	
TYPE	3P+N_3CT	3P+N_3CT	3P+N_3CT	
PRESS OK TO ENTER SETTINGS				

The current sensor connected to the current 1 input measures the current of phase 3 (V3)
The current sensor connected to the current 2 input measures the current of phase 2 (V2)
The current sensor connected to the current 3 input measures the current of phase 1 (V1)

LOAD	I-30@4 ID:FOC1D2			
INPUT	I01	I02	I03	
CT	250 A	250 A	250 A	
WAY	+/DIRECT	+/DIRECT	+/DIRECT	
LINE V	V3	V2	V1	
LOAD	L1	L1	L1	
TYPE	3P+N_3CT	3P+N_3CT	3P+N_3CT	
PRESS OK TO ENTER SETTINGS				

The 3 current inputs I01, I02, I03 are assigned to the same three-phase load no. 1 (L1).

LOAD	I-30@4 ID:FOC1D2			
INPUT	I01	I02	I03	
CT	250 A	250 A	250 A	
WAY	+/DIRECT	+/DIRECT	+/DIRECT	
LINE V	V3	V2	V1	
LOAD	L1	L1	L1	
TYPE	3P+N_3CT	3P+N_3CT	3P+N_3CT	
PRESS OK TO ENTER SETTINGS				

The “CT” field indicates the current rating of the sensor connected and the “WAY” field shows if it was mounted in the correct orientation (+/DIRECT = P1 --> P2) or backwards (-/INV = P2 --> P1)

LOAD	I-30@4 ID:FOC1D2			
INPUT	I01	I02	I03	
CT	250 A	250 A	250 A	
WAY	+/DIRECT	+/DIRECT	+/DIRECT	
LINE V	V3	V2	V1	
LOAD	L1	L1	L1	
TYPE	3P+N_3CT	3P+N_3CT	3P+N_3CT	
PRESS OK TO ENTER SETTINGS				

8.3.2.2. Changing the load settings

Following the example above, to change the settings, press "OK".

LOAD	I-30@4 ID:FOC1D2			
INPUT	**I01**	**I02**	**I03**	
CT	250 A	250 A	250 A	
WAY	+/DIRECT	+/DIRECT	+/DIRECT	
LINE V	V3	V2	V1	
LOAD	L1	L1	L1	
TYPE	3P+N_3CT	3P+N_3CT	3P+N_3CT	
PRESS OK TO ENTER SETTINGS				

You can change each parameter to configure each of the loads (the values in bold are shown on the screen in the example below)

- LOAD -> configure load 1: **L1** - load 2: L2 - load 3: L3
- NAME -> name of the load: **LOAD 1** (edit with max. 16 characters)
- TYPE -> type of load: single-phase (1P+N), two-phase (2P), three-phase (3P), **three-phase+neutral (3P+N)**
- NOMINAL I (A) -> set the nominal current of the load: **20A** (caution: the nominal current of the load may differ from the rating of the current sensor (CT1) used: a 63A current sensor can be used to monitor a 20A circuit breaker.
- CT1 -> current measured by the current sensor connected to input: **I01**, I02, I03.

LOAD	I-30@4 ID:FOC1D2
LOAD	◀ L1 ▶
NAME	LOAD 1
TYPE	3P+N_3CT
NOMINAL I (A)	00020
CT1	I01
…	

Go to "CT settings" to perform the configuration of current sensors.

LOAD	I-30@4 ID:FOC1D2
…	
NAME	LOAD 1
TYPE	3P+N_3CT
NOMINAL I (A)	00020
CT1	I01
CT settings	
…	

Configure:

- WAY -> Direction of the current sensor **+/DIRECT**, -/INV.
- V Line -> V1, V2, **V3** (position of the current sensor on phase 1, phase 2 or phase 3).
- CT -> Indicates the rating of the current sensor used. Click on “DETECT” to automatically detect the rating. After 2 seconds, the rating is displayed.

Complete the process by selecting "OK" then "OK" again

LINE SETTINGS	I-30@4 ID:FOC1D2
WAY	+/DIRECT
V LINE	V3
CT	0600
DETECT	
OK	

If a load is configured as three-phase or three-phase+neutral, for example, you would have to configure multiple current sensors (e.g. 3 current sensors for one three-phase load):

LOAD	I-30@4 ID:FOC1D2
…	
	CT SETTINGS
CT2	I02
	CT SETTINGS
CT3	I03
	CT SETTINGS
…	

When you have finished configuring the entire load (L1) (type of load, name, nominal current, current sensors), scroll right from the “LOAD” line to configure loads 2 and 3 (L2, L3):

LOAD	I-30@4 ID:FOC1D2
LOAD	◀ L1 ▶
NAME	LOAD 1
TYPE	3P+N_3CT
NOMINAL I (A)	00020
CT1	I01
…	

For example, a DIRIS Digiware I-30 with 3 current inputs is best for measuring:

- 1 three-phase load (1 three-phase load L1 using the current inputs I01, I02, I03)
- 3 single-phase loads (1 L1 single-phase load with a current sensor connected to the I01 current input, 1 L2 single-phase load with a current sensor connected to the I02 current input, 1 L3 single-phase load with a current sensor connected to the I03 current input).

Numerous other load combinations are possible.

When all the circuits/loads are configured (maximum 3 on one DIRIS Digiware I-30), apply your settings by selecting "SEND SETTINGS" and click "OK".

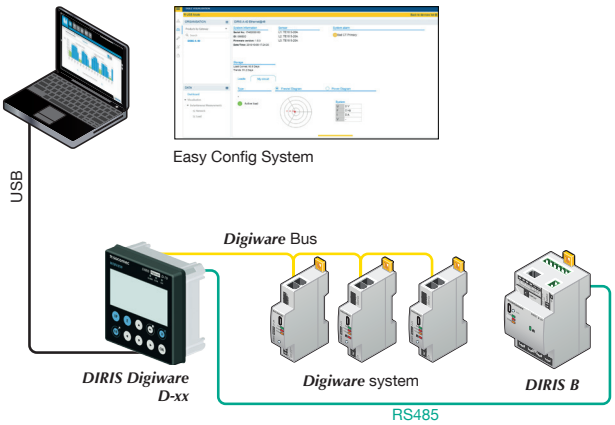
LOAD	I-30@4 ID:FOC1D2
…	
CT3	I03
	CT SETTINGS
CT4	I01
	CT SETTINGS
SEND SETTINGS	

9. CONFIGURATION VIA EASY CONFIG SYSTEM

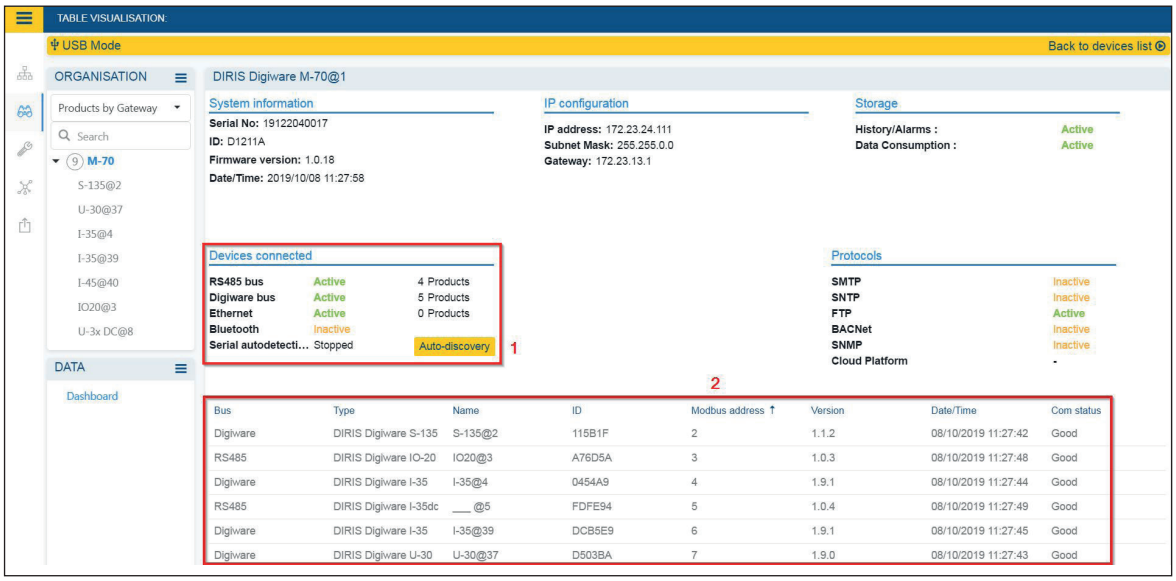
The Easy Config System software can be downloaded from the Socomec website at the following link:
www.socomec.com/easy-config-system_en.html

The Configuration of the DIRIS Digiware D-50/D-70 display and downstream Socomec devices can be done from the Easy Config System software, by connecting a computer to the D-50/D-70 display either via USB or via Ethernet.

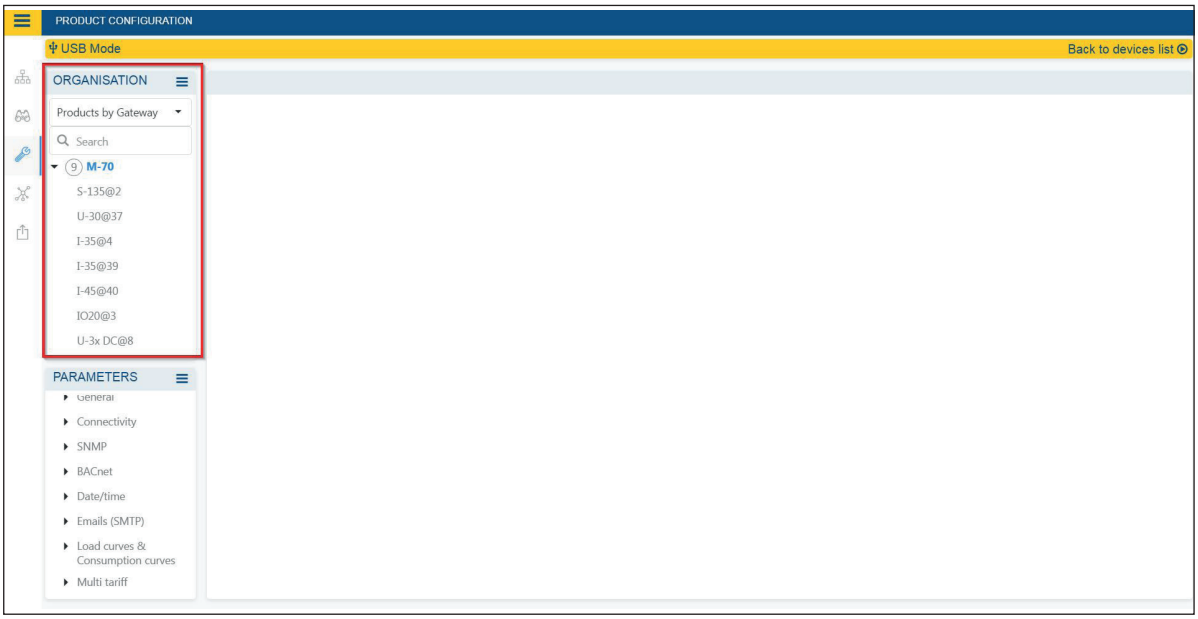
9.1. USB connection mode



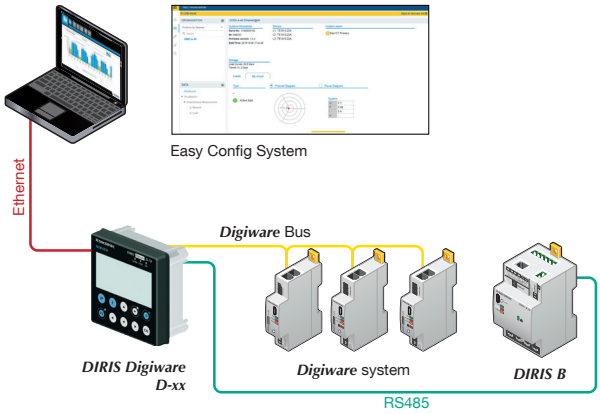
- Open Easy Config System.
- Connect a USB cable between the DIRIS Digiware D-50/D-70 display and a computer.
- Log in as User or Admin. Admin default password is “Admin”.
- Click on “New Configuration”, enter a name and icon.
- Click on the newly created configuration.
- Click on “USB mode” on the right top corner to connect to the D-50/D-70 display and access configuration menus.
- Click on the “Binocular” icon on the left side bar.
- Under the “Organisation” part, select the D-70/D-50 display.
- Click on “Dashboard” to visualise general information about the display.
- Click on “Auto-discovery” (1):



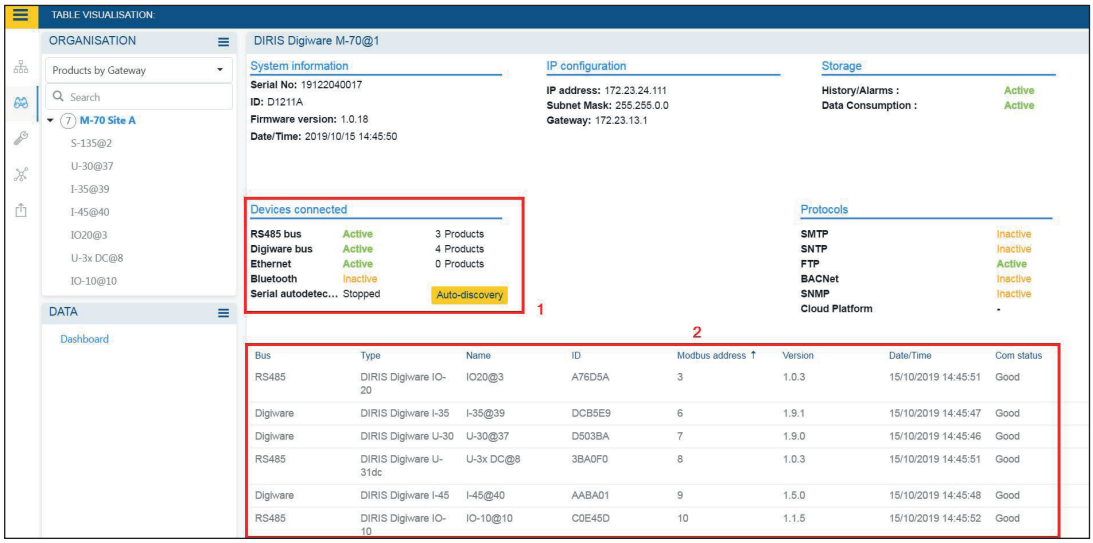
- Once the slave auto-discovery process is finished, slave devices will be displayed in the lower part of the dashboard (2). The number of devices accessible downstream the D-50/D-70 display is also displayed in the “Organisation” part, next to the D-50/D-70 display.
- Configuration of slave devices can be done directly without unplugging the USB cable, by clicking on the Wrench icon on the left side bar:



9.2. Ethernet connection mode



- Open Easy Config System.
- Log in as User or Admin. Admin default password is “Admin”.
- Click on “New configuration”, enter a name and icon.
- Click on the newly created configuration.
- Click on the “+” icon to manually add the D-50/D-70 display to the topology, by selecting the product, entering the IP address, Modbus address. To be able to communicate with the D-50/D-70 display, your computer must be in the same network as the D-50/D-70
- Click on the “Binocular” icon on the left side bar.
- In the “Organisation” part, select the D-70/D-50 display.
- In the “Data” part, click on “Dashboard” to visualise general information about the display.
- Click on “Auto-discovery” (1).



- Once the slave auto-discovery process is finished, slave devices will be displayed in the lower part of the dashboard menu (2). The number of devices accessible downstream the D-50/D-70 display is also displayed in the “Organisation” part, next to the D-50/D-70 display.
- Configuration of slave devices can be done directly by clicking on the Wrench icon on the left side bar and selecting the right device:

10. WEBSERVER EMBEDDED IN THE D-50/D-70 DISPLAYS

A webserver is embedded for the configuration of network parameters (WEB-CONFIG, D-50/D-70) and the remote visualisation of measurement data (WEBVIEW-M, D-70 only).

To connect to the gateway's webserver, enter its IP address in the address bar of your web browser.

Default Ethernet parameters of the DIRIS Digiware D-50/D-70 displays are as follows:

- IP address: 192.168.0.4
- Mask: 255.255.255.0
- Gateway: 192.168.0.1

10.1. User profiles

Several profiles are available:

- User (default)
- Advanced User
- Administrator
- Cyber security

The Advanced User, Administrator and Cyber security profiles are authorised to modify settings.

PROFILE	ACCESS	DEFAULT PASSWORD
User	- Visualisation of measurement data - Access to diagnostics	None
Advanced User	- Visualisation of measurement data - Access to diagnostics + Password management of the Advanced User profile + Reset of counters	Advanced
Admin	- Visualisation of measurement data - Access to diagnostics + Password management of the Admin profile + Access to configuration menu	Admin
Cyber security	- Visualisation of measurement data - Access to diagnostics - Password management of all profiles - Access to configuration menu + Cyber Security configuration menu + Firmware upgrade via web server	Cyber