

# **MULTI-LINE 2**



# Getting started - USW 3.x

- Software download from internet
  - Software installation
    - Device setup
    - Data backup



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1. Delimitation	
1.1 Scope of Application notes, Getting started - USW 3.x	
2. General information	
2.1 Warnings, legal information and safety	4
2.1.1 Warnings and notes	
2.1.2 Legal information and disclaimer	4
2.1.3 Factory settings	4
3. Cable connections between PC and DEIF controller	
3.1 General information	5
3.2 Connection table - flashing	
3.3 Connection table - setting up	
4. PC utility software	
4.1 General information	7
4.2 Supported Windows systems	7
4.3 Obtain USW from DEIF	
4.3.1 USW	
4.4 Getting connected	
4.4.1 Getting connected	
4.4.2 Password	
5. Multi-line 2 application software	
5.1 General information	
5.2 Reason for upgrade	
5.2.1 Main reasons	
5.3 Precautions	
5.3.1 Warning	
5.3.2 Genset condition	
5.3.3 Protection	
5.3.4 Relay status	
5.4 Application software	
5.4.1 How to obtain ASW from DEIF	
6. Before writing new application software	
6.1 General information	
6.2 How to get a project file for backup	17
7. Upgrading application software	
7.1 General information	
7.2 Download of new ASW to unit	

# **1. Delimitation**

## 1.1 Scope of Application notes, Getting started - USW 3.x

This document covers the following products:

- AGC 100 from SW version 4.xx.x
- AGC 200 from SW version 3.5x.x
- AGC-3 from SW version 3.40.0
- AGC-4 from SW version 4.xx.x
- CGC 200 from SW version 1.xx.x
- CGC 400 from SW version 1.xx.x
- ECU 100 from SW version 1.xx.x
- GCU 100 from SW version 1.xx.x
- GC-1F from SW version 1.00.0 and 2.0x.x
- GPC-3 from SW version 3.0x.x
- GPU-3 from SW version 3.0x.x
- GPU-3 REC from SW version 3.0x.x
- PPM-3 from SW version 3.0x.x
- PPU-3 from SW version 3.0x.x

Utility Software USW version 3.45.4 and later.

# **2. General information**

## 2.1 Warnings, legal information and safety

### 2.1.1 Warnings and notes

Throughout this document, a number of warnings and notes with helpful user information will be presented. To ensure that these are noticed, they will be highlighted as follows in order to separate them from the general text.

#### Warnings



#### DANGER!

This highlights dangerous situations. If the guidelines are not followed, these situations could result in death, serious personal injury, and equipment damage or destruction.



#### CAUTION

INFO

This highlights potentially dangerous situations. If the guidelines are not followed, these situations could result in personal injury or damaged equipment.

#### Notes



Notes provide general information, which will be helpful for the reader to bear in mind.

## 2.1.2 Legal information and disclaimer

DEIF takes no responsibility for installation or operation of the generator set or switchgear. If there is any doubt about how to install or operate the engine/generator or switchgear controlled by the Multi-line 2 unit, the company responsible for the installation or the operation of the equipment must be contacted.



#### INFO

The Multi-line 2 unit is not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

#### Disclaimer

DEIF A/S reserves the right to change any of the contents of this document without prior notice.

The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is a discrepancy, the English version prevails.

### 2.1.3 Factory settings

The Multi-line 2 unit is delivered from factory with certain factory settings. These are based on average values and are not necessarily the correct settings for matching the engine/generator set in question. Precautions must be taken to check the settings before running the engine/generator set.

## 3.1 General information

Different cables are used for connection, depending on type of the ML-2 unit.

Connection table - Flashing describes the connections to load new application software into the unit.

Connection table - Setting up describes the connections to configure the unit (that is, set up and change functions and parameters).

## **3.2 Connection table - flashing**

This table gives an overview of the different connection possibilities if flashing of the unit is desired.

Product name	TTL service port cable: option J9	USB service port cable: option J7	Ethernet service port: option N cable: option J4
AGC 100	Х		
AGC 200		Х	X
AGC-3		Х	
AGC-4		Х	X <sup>1</sup>
CGC 200		Х	
CGC 400		Х	
ECU 100	Х		
GCU 100	Х		
GC-1F	Х		
GPC-3		Х	
GPU-3		Х	
GPU-3 REC		Х	
PPM-3		Х	
PPU-3		Х	X <sup>1</sup>

<sup>1</sup>To be able to flash on a TCP-IP connection, the following must be fulfilled:

- SW version: AGC-4: 4.40.0 or later; PPU-3: 3.10 or later •
- Option N SW version: 2.20.0 or later •
- Boot SW version: 1.03.0 or later

INFO



If the boot SW version is prior to 1.03, only 0 is shown in Identifiers.

The boot SW version can be found by connecting to the unit and opening the *Identifiers* window, as shown below.

Ø Identifiers	_		$\times$
🛃 🤔 🤧 🎒 🖾			
Communication SW versions Labels Redund	lancy Production	info	
SW version	9910		
SW revision	7096		
PM version	1180		
M4 SW version	2033		
M4 SW revision	17267		
M4 protocol version	1011		
N-Option SW version	2200		
Boot SW version	1100		

# 3.3 Connection table - setting up

This table gives an overview of the different connection possibilities if change of parameters or other settings in the unit are desired.

Product name	TTL service port cable: option J9	USB service port cable: option J7	Modbus RTU on RS-485 option H2	Ethernet service port: option N cable: option J4
AGC 100	Х		Х	
AGC 200		Х	Х	Х
AGC-3		х	Х	Х
AGC-4		х	Х	Х
CGC 200		Х		
CGC 400		Х	Х	
ECU 100	Х		Х	
GCU 100	Х		Х	
GC-1F	х		Х	
GPC-3		х	Х	Х
GPU-3		х	Х	Х
GPU-3 REC		х	Х	Х
PPM-3		х	Х	Х
PPU-3		х	Х	Х

# 4. PC utility software

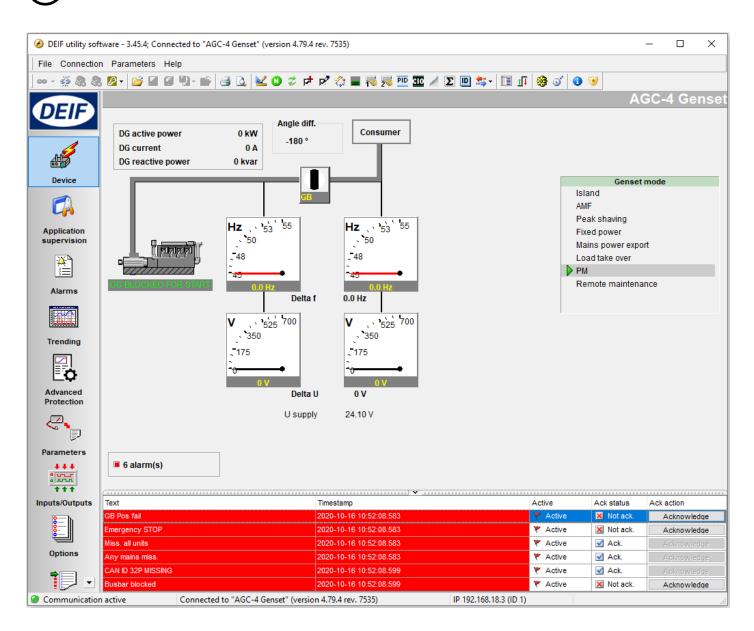
## 4.1 General information

The PC utility software (hereafter called USW) is a software programme that can be used for configuration of the Multi-line 2 products. There are two versions, 1.x and 3.x. This document only describes USW 3.x.

# (i)

INFO

The utility software is the software that is installed on the PC, notebook or desktop computer.



## 4.2 Supported Windows systems

The supported Windows versions are (32 and 64 bit variants):

- Windows 10
- Windows 8/8.1
- Windows 7

## 4.3 Obtain USW from DEIF

## 4.3.1 USW

The USW is normally obtained from DEIF via the internet. Visit www.deif.com.

Select Software from the top line on the web page:



Scroll down and select Multi-line 2 Utility Software v.3.x.

La	Land Power Marine & Offshore Wind Power											
<b>DED</b>	Products ~	Industry	Retrofit	Services	Cases	Applications						
Multi-line 2 Utili	ty Software v.1.x.			1.43.0		26-04-2013						
Multi-line 2 Utili	ty Software v.3.x.			3.45.4		03-09-2020						
Multi-line 300 C	ODESYS-Add-on			1.0.2.0		04-02-2020						
Multi-line 300 D	U 300 ver 1.x.x			1.0.13.1		03-08-2020						

Scroll down to the field where you can enter your email address.

Enter email address and click Download.

English	<b>~</b>	Land Power Marine & Offshore Wind Power About Contact Career Softwa	are Support Training Knowledge 🗸 🔷
	<b>DEF</b>	Products - Industry Retrofit Services Cases Applications	Q
		► GPU-3 hydro - Generator protection unit	
		<ul> <li>AGC plant management - Automatic genset controller</li> </ul>	
		You're about to download 3.45.4	
		The main changes implemented since the last version are as follows:	
		USW3 build version: 1518 USW3 product database revision: 6586	
		What's new:	
		<ul> <li>Adds support of upcoming AGC 150 Hybrid.</li> </ul>	
		<ul> <li>Adds support of upcoming AGC-4 version 4.79.0.</li> </ul>	
		<ul> <li>Adds support of upcoming ASC-4 version 4.14.0.</li> </ul>	
		Corrections:	
		<ul> <li>Solved issue with CIO alarm setpoint shown as zero.</li> </ul>	
		<ul> <li>Solved issue where AGC 150 multi input alarm delays were possible to set outside the allowed range.</li> </ul>	
		Email	
		E-mail notification on future releases	
		Download	Ţ



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## INFO

There is information about changes in the recent software on this page. The entire change log can also be found on the top of this page.

After clicking *Download*, an email is sent with a download link.

8	5 ত 🕈	<ul> <li>↓ &amp; +</li> </ul>	& ₹	Thank you for down	oading software	e from DEIF A/S	6 - Message (HTM	ب <b>(</b> 7)	ħ			×/
File	Message	Help 🤇	🖓 Tell m	ne what you want to do							$\square$	
		10-2020 11:26										
		eply@de										
To	Thar	ik you for d	downloa	ading software from	n DEIF A/S							
Click I	nere to downlo	oad pictures. To	o help pro	tect your privacy, Outlo	ok prevented au	tomatic downlo	oad of some picture	s in this message.				~
		tware by click	_									
https:/	/www.deif.o	:om:443/soft	tware/mu	ulti-line-2-utility-soft	ware-v3x/3-4	<u>5-4</u>						
Having	trouble usir	ng the softwa	are? Plea:	se contact <u>support@</u>	deif.com							
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-	-			nd downloading the http://www.deif.com	-	matically acce	ept DEIF A/S' cop	right and licen	se agreen	nent (El	JLA).	
	-											-

Follow the instructions in this email carefully.

When the USW has been saved to your PC, the software can be installed by executing the file you just downloaded. Follow the instructions on the screen.



**INFO** If you do not receive the email, check your spam folder.

## 4.4 Getting connected

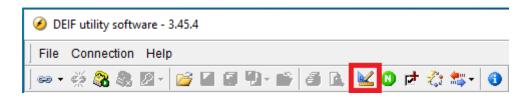
#### 4.4.1 Getting connected

Connect the service port to the USB on the computer.

Click the Utility Software 3 icon on the desktop or in the Windows Start menu.



The software opens, with the top bar shown below. Open the application settings by clicking the Application settings icon:



The Setting window opens.

Settings	×	<
Communication General Modem Trending Maintainance Firmware Time Synchronization Logo printouts Notification sound	Communication-related settings (modbus and port) Communication type Service port O Serial port O TCP-IP	
	Communication port: COM4 (Not present ~	
Favorites Data logging	Scan ports Advanced settings	
	OK Cancel	

In the *Communication* tab, you can select the type of communication:

- Service port is USB port or TTL port
- Serial port is for an RS-485 connection
- TCP-IP is for an Ethernet connection

The screenshot above shows Service port selected.

Select *Scan ports* to scan the system for new COM ports. Note that this may take some time. Choose the *COM port* of the desired DEIF controller on the drop-down menu. Click **OK**.

Т	he Sett	ings wind	dow (	closes. I	n the	top ba	ar, clicł	k the C	onneci	icon*		•			
	🧭 DE	IF utility	softv	vare - 3.4	45.4										
	1	Connec													
	69 <b>-</b>	ž 🗞	8	2 - 1	<b>ë</b> 🛛		<b>D</b> -		s d	. 🛛 🔛	0	Þ	₹:	\$* -	0

\*Note: You can select the drop down arrow on the Connect icon to choose the communication settings.

You are now online with the unit.



The USW has an integrated help function (press F1).

## 4.4.2 Password

The unit typically includes three password levels: Customer, Service and Master. The passwords corresponding to these levels can be adjusted in the PC software.



CGC 200 only has one password level, and GC-1F/2 only has two password levels.

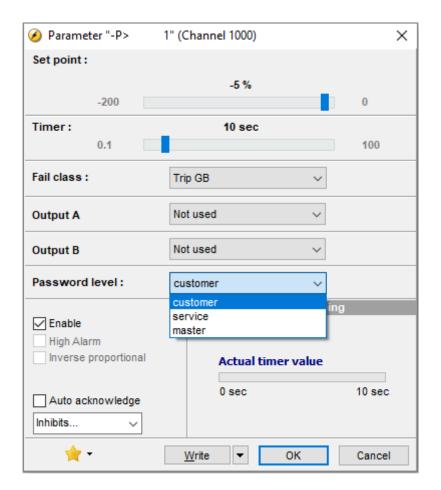
Available password levels:

INFO

Password level	Factory setting	Access					
		Customer	Service	Master			
Customer	2000	х					
Service	2001	х	х				
Master	2002	Х	х	х			

An example is that a parameter cannot be changed with a password level that is too low. The settings can be displayed without a password.

Each parameter can be protected by a specific password level. To do so, the PC utility software must be used. Enter the parameter to be configured and select the required password level.



In the following steps of this guide, it can be necessary to acquire project-specific passwords to access the different functions.

# 5. Multi-line 2 application software

## **5.1 General information**

**INFO** The application software (hereafter called ASW) is the software in the ML-2 device.

When you receive the unit from the factory (DEIF A/S), ASW software has already been installed. The unit is ready to be configured.

## 5.2 Reason for upgrade

#### 5.2.1 Main reasons

There are various reasons for upgrading the ML-2 device. The main reasons are:

- 1. To get new functions available in the latest ASW version.
- 2. The software has an error (bug) that needs to be fixed.
- 3. To prepare several ML-2 units with the same software, so they are identical prior to forwarding.

Information about functions and bugs can be found on www.deif.com.



In most cases, it is not necessary to upgrade the units.

## **5.3 Precautions**

INFO

#### 5.3.1 Warning



**DANGER!** Read this section carefully before attempting to upgrade your units.

### 5.3.2 Genset condition

All software downloading to the ML-2 device must be carried out while the genset is at standstill.

### 5.3.3 Protection

All protections are deactivated during download.

### 5.3.4 Relay status

All relays are de-energised during download. Check your diagrams carefully to understand the effect of this.

Status relay

Check relay on terminals 3 and 4 (AGC 100, AGC-3, AGC-4, GC-1F, CGC400, GPC, GPU and PPU only).

Check relay on terminals 16 and 17 (AGC 200).

## **5.4 Application software**

## 5.4.1 How to obtain ASW from DEIF

Finding and downloading ASW is similar to the process for obtaining USW from DEIF.

#### Finding a product

Use the website search function to find the product page.

- 1. Select the search icon to bring up the search bar.
- 2. Type in the product name. For example: "agc-4". This search is not case-sensitive.
- 3. The website offers a number of products. Select the required product.

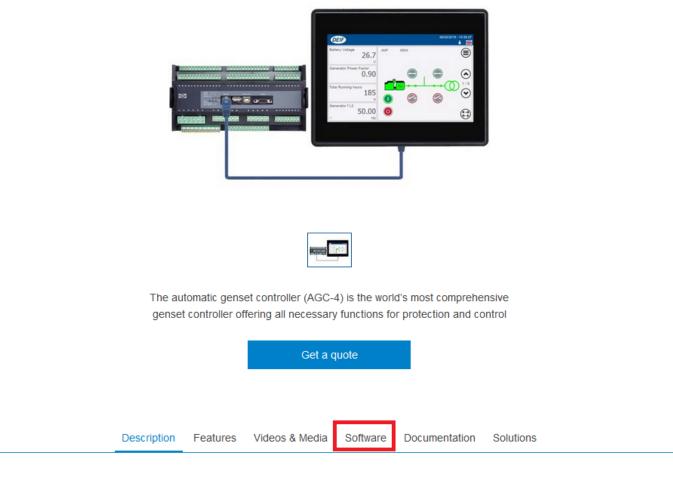
🗮 English 🗸	Land Power Marine & Offshore Wind Power	About Contact Career Software Support Training KnowledgeΥ
	Products 🛩 Industry Retrofit Service	s Cases Applications
	agc-4	٩
	AGC-4 - Automatic genset controller The automatic genset controller (AGC-4) is the world's most comprehensive genset controller offering all necessary functions for protection and control	Applications  APPLICATION: Fully redundant control system -  APPLICATION: Off-grid hybrid power -  APPLICATION: Multiple, grid connections -  APPLICATION: Grid connection with or without synchronisation -
	TDU 107 - Touch Display Unit TDU TDU 107 is a preprogrammed touch screen display for DEIF's AGC-4 controllers.	APPLICATION: Grid-tied hybrid power - APPLICATION: Combination (off-grid/grid-tied) hybrid power - APPLICATION: Combination (off-grid/grid-tied) hybrid power - APPLICATION: Gas engine driven generator control - APPLICATION: Multiple generators in island mode

#### Finding product software

The product page includes a tab for the product software.



## Automatic genset controller AGC-4



## Automatic genset controller (ACG-4)

The automatic genset controller (AGC-4) can be used as a single genset controller, or several AGCs can be connected in a complete power management system for synchronising projects, islanded or paralleled to the mains.

#### Selecting the application software

Select General Software, then select the application software link.

🊟 English 🗸	Land Power	Marine & Offsho	ore Wind P	ower		About	Contact (	Career	Software	Support	Training	Knowledge 🗸
<b>DEID</b>	Products ¥	Industry F	Retrofit	Services	Cases	Applicatio	ns					Q
	Descripti	on Features	s Video	os & Media	Softwar	e Docu	imentatio	n S	Solutions			
	Mu	Software Iti-line 2 AGC A Iti-line 2 Profi-Bu options firmware	us GSD-file		ies 4 <u>x</u>							
	+ Utility Sc	oftware										

#### Downloading the software

This is similar to the process for downloading the utility software.



#### INFO

After downloading the application software to your computer, unpack the zip file. You can then see the application software file, and a readme file (if present).

# 6. Before writing new application software

## **6.1 General information**

When new application software (hereafter called ASW) is installed, the controller is reset. If you want to reuse the controller configuration\*:

- 1. Before installing new ASW, save the configuration to a project file.
- 2. Install the new ASW in the controller.
- 3. After installation, write the project file to the controller.

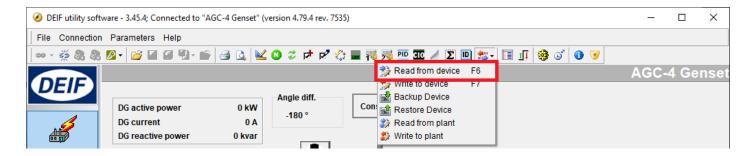
\*Note: You can only reuse the controller configuration if none of the parameters have been changed, moved or removed in the new ASW. Check the configuration carefully after installing the new software.

## 6.2 How to get a project file for backup

Once the project configuration is complete, save the project file from the Multi-line 2 unit. This project file is a backup of the configuration. DEIF recommends saving the file somewhere easy to remember, for example, together with other project files.

Open the USW and connect to your device.

Read parameters from the unit using the Batch read and write function. Select Read from device:



Select the parameters to be saved in the USW project file (file.usw):

-	I JOD (IKEA	ding)		—		$\times$		
All N	one Tog	gle						
Additional Read actions								
Select	Status	Name	Progress					
$\checkmark$		Logs		0%				
Device settings								
Select	Status	Name	Progress					
$\checkmark$		Identifiers		0%				
$\checkmark$	0	Counters		0%				
$\checkmark$	0	RRCR		0%				
$\checkmark$	0	Views configuration		0%				
$\checkmark$	0	Inputs configuration		0%				
$\checkmark$	0	Outputs configuration		0%				
$\checkmark$	0	Translations		0%				
$\checkmark$	0	M-Logic configuration		0%				
$\checkmark$	0	AOP 1 configuration		0%				
$\checkmark$	0	AOP 2 configuration		0%				
$\checkmark$	0	Application configuration		0%				
$\checkmark$	0	Parameters		0%				
$\checkmark$	0	CIO		0%				
$\checkmark$	0	PID		0%				
$\checkmark$	0	Modbus configuration		0%				
	0	Permissions		0%				
$\checkmark$	0	Network parameters		0%				
$\checkmark$	0	Advanced protections		0%				
				Run	Clos	se		

#### Choose file name and where to save the project file on the PC:

	×
$\leftrightarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ Windows	✓ 5 ✓
Organize 👻 New folder	
Image: A product access     ▲       Image: A product access     Image: A product access       Ima	Date modified     Type     Size       No items match your search.
File name:	Save Cancel

# 7. Upgrading application software

## 7.1 General information

Before attempting to download application software to the unit, make a backup of the configuration. See How to get a project file for backup.



INFO

The ASW download to the unit resets all the parameters. If you do not save the parameter configuration before downloading the ASW to the unit, it will be lost, and cannot be recovered.

## 7.2 Download of new ASW to unit

Select the Write a firmware icon.

Ø DEIF utility software - 3.45.4; Connected to "AGC-4 Genset" (version 4.79.4 rev. 7535)			×
File Connection Parameters Help			
==			

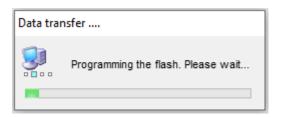
Find the new ASW on the PC.

🧭 Open					×
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\square$ $\flat$ This	PC > Downloads > AGC_appl_v4794	~	ට 🔎 Sea	rch AGC_appl_v4794	
Organize 🔻 New folder				· · · · · · · · · · · · · · · · · · ·	?
A Quick access	Name	Date modified	Туре	Size	
Downloads *	agc4_r7535v4794.a37	16-10-2020 13:09	A37 File	5.477 KB	
🖹 Documents 🖈					
📰 Pictures 💉 🗸					
File nar	me: agc4_r7535v4794.a37		✓ Device fi	rmware file (*.a37)	~
			Оре	en Cancel	

INFO

File type: AGC 100 = file.1ax, AGC 200 = file.2xx, AGC-3/4 = file.a37, CGC 400 = file.4cx, ECU 100 = file.1ax, GCU 100 = file.1ax GC-1F = file.a79, GPC-3 = file.a37, GPU-3 = file.a37, PPM-3 = file.a37 and PPU-3 = file.a37.

This will force the DEIF unit into boot mode.



INFO

If the programming is interrupted, disconnect the aux. voltage, connect the aux. voltage, and the unit is in boot mode. Restart the download procedure, the USW will now ask you to choose which product you have.

#### **INFO** GC-1F: If the programming is interrupted, you can force the unit back into boot mode by disconnecting the aux. voltage. Press and hold the *Stop* button. Connect the aux. voltage, and the unit is in boot mode.

After download of new firmware, parameters saved in the project file (file.usw) can be downloaded to the unit.

Open a saved project file from the PC.

Ø DEIF utility software - 3.45.4; Connected to "AGC-4 Genset" (version 4.79.4 rev. 7535)



🧭 Open				×				
$\leftrightarrow$ $\rightarrow$ $\land$ $\uparrow$	> This PC > Downloads	~	✓ Č Search For release					
Organize 🔻 New	folder			::: • 🔟 ?				
🧊 3D Objects	^ Name	Date modified	Туре	Size				
其 Desktop 🚰 Documents	Controller backup.usw	18-10-2020 22:23	USW3 file	222 KB				
Downloads								
Music	ile name: Controller backup.usw		Project 1	file (*.usw) 🗸 🗸				
			Ор					

Select Batch read and write and select Write to device.



Select the parameters you want to download to the unit.

🧭 Batch	n job (Writ	ting)					_		×
All None Toggle									
Additional write actions									
Select	Status	Name	Progress		ess				
	0	Device firmware	select file				0%		
	0	Clock synchronization	n				0%		
Device s	ettings	·							
Select	Status	Name		ASV	v	Progress			
	0	Identifiers		4.79	-		0%		
	0	Counters		4.79	.4		0%		
	0	RRCR		4.79	4.79.4		0%		
	0	Views configuration		4.79.4			0%		
	0	Inputs configuration		4.79.4			0%		
	0	Outputs configuration		4.79.4			0%		
	0	Translations		4.79.4			0%		
	0	M-Logic configuration		4.79.4			0%		
	0	AOP 1 configuration		4.79.4			0%		
	0	AOP 2 configuration	4.		.4	0%			
	0	Application configuration	ion	4.79	.4		0%		
	0	Parameters		4.79.4		0%			
	0	CIO		4.79.4			0%		
	0	PID		4.79.4			0%		
	0	Modbus configuration		4.79.4			0%		
	0	Permissions		4.79			0%		
	0	Network parameters		4.79		0%			
	0	Advanced protections		4.79	.4		0%		
							Run	Clos	se

When the configuration is completed, the unit resets. After the reset, the unit is operational again.