

Ver 20210403

# Installation and user manual guide-book CO2 Checker monitoring tool for condensing units OCU-CR Series

\*\*\*INTERNAL USE ONLY\*\*\* \*\*\*DRAFT\*\*\*

# Models: PAW-CO2-CHECKER SARORA00X701

Topic: Installation and user manual

Please read this instruction guide-book and correctly comply with the explanations. In particular, please read "Cautions for Safety" for ensuring safe operations. In addition to this guide, please always follow as a complementary instructions also in terms of "Caution for Safety" in "ELIWELL DEVICE MANAGER CONFIGURATION SOFTWARE USER MANUAL 8MA10219 Device Manager - 11/14 - EN".

Please retain this instruction guide-book in a safe place.

#### CONTENTS

Cautions for Safety	1
, Warranty	2
Part 1 / Installation Manual	
PAW-CO2-CHECKER	2
Necessary elements to run the PAW-CO2-CHECKER	3
How to download the "Device Manager" software	3
How to install the file .DRX	5
Part 2 / User Manual	

#### Part 2 / User Manual

Preliminary Operations	7
Operation Instructions	12





#### **Cautions for Safety**

Please read "Cautions for Safety" for ensuring safe operations. For the purpose of avoiding harm to people and damage to properties, items to be complied with are explained here if necessary with this below symbol.



If appear, indicates possibility of death, serious injury, minor injury, damage to properties or system malfunction.

In addition to this guide, please always follow as a complementary instructions also in terms of "Caution for Safety" in "ELIWELL DEVICE MANAGER CONFIGURATION SOFTWARE USER MANUAL 8MA10219 Device Manager - 11/14 - EN".

#### Warranty

PANASONIC request strongly to carry out the works and recommendations that are exposed here in this document and in addition on ELIWELL User 8MA10219 Device Manager - 11/14 - EN manual with the intention to well cover the warranty.

Otherwise, PANASONIC will reserve the right to provide these warranty and this must be understood from the beginning.

#### PAW-CO2-CHECKER

The CO2 Checker consist in 3 main components :

- 1. USB-RS485 converter (Provided by Panasonic).
- 2. Drivers .DRX (Provided by Panasonic).
- 3. Device Manager (Downloading it from the Eliwell web page).

This tool can be used for different functionalities related to Panasonic CO2 condensing units, such as:

- 1. Commissioning
- 2. Maintenance
- 3. Troubleshooting

In general terms, this device can be used for all models and it will allow you to see the operation of the unit providing valuable information for the technician / field engineer such as:

1. Allows the reading of all the operating variables of the CO2 condensing unit, such as all pressures, all temperatures, all opening of expansion valves, all states of solenoid valves, rotational speeds of the gas-cooler fan motor, frequency and compressor's current, etc.

2. It allows to check the actual operating settings such as the ON Value, Off Value, Lim Value, and FST value and change this settings values according to the needs allowing to see the standard initial value as a reference value and the modified value at the same time.

3. Allows to graph the live operating variables, such as seeing the evolution of pressures, temperatures, etc. in a visual and graphic way.

4. Allows to monitor the status of alarms, for example the status of the compressor oil level.

5. Allows to record all the parameters and variables to be simply stored for a later analysis.

This tool has been possible thanks to the integration of ELIWELL's Device Manager software with PANASONIC condensing units Modbus library.

#### Necessary elements to run the PAW-CO2-CHECKER

1. A laptop (not provided by Panasonic) should be used as an element of visualization and governance of the software where Device Manager and CDU drivers must be installed.

Minimum Operating System Requirements:

- Windows XP Pro SP2, Italian and English.
- Windows XP Home SP2, Italian and English.
- Windows 2000 Professional SP4, Italian and English.
- Windows 7 Premium, Windows 7 Professional, Windows 7 Ultimate 32bit/64bit versions, Italian and English.
- Windows10, both 32 and 64bits.

Minimum Hardware Requirements:

- 1024x768 graphic resolution.
- 700MHz CPU.
- RAM 256MB.
- HD 1GB.
- Mouse or other pointing devices.
- 2. USB-RS485 converter

The checker (USB-RS485 converter) will be distributed by PANASONIC commercially. Please acquire the USB-RS485 converter **PAW-CO2-CHECKER** firs of all.

3. Required software

The necessary software must be acquired in two directions:

- 1. Device manager: It must be downloaded from the Eliwell website (free of charge).
- 2. CDU Drivers: This will be provided by PAPAEU (Jaume Casanovas).

Note: Follow the below instructions to purchase the software and necessary files.

#### How to download the "Device Manager" software

The software "Device Manager" must be downloaded free of charge from the platform enabled by ELIWELL.

- 1. Go to https://www.eliwell.com/en/Products/Refrigeration.html .
- 2. Push on LOGIN button.
- 3. Create your own account (just need to fill data, no authorization is required).



4. Once registered, the web page will show below notice:

Thank you for your registration! You should receive an e-mail to confirm your address.

5. Confirm your e-mail address before proceed.

#### 

Eliwell Controls Srl

Note: If you can't find the e-mail in your inbox, check your spam box or alternatively, check directly with Eliwell contacting by e-mail or phone.

6. Once the e-mail is confirmed , click on the "search icon" **Q** and type "device manager".

Note: You cannot download the "Device Manager" software without first confirming the email address properly.

7. Select the "Software" tab and then download "Device Manager" software.

in o		@ ITALY≓ IN ~ LOGIN
Life Is On by Schoolder Discore	Digital@cademy	
PRODUCTS OEM SERVICES SUPPORT APP H	GHLIGHTS ABOUT US CONTACTS ELIWELL DIGITAL ACADEMY	(
	Search	
	Search Home	
Results for device manager	es Gallery 📀 Contents 💿	
Results for device manager	es Gallery 2 Contents	

Device \_Manager\_set....zip ....

And you will get this below zip file.

Name Name	Date modified	Туре	Size
🗹 🥌 Device _Manager_setup_060404_02_07_20.zip	1/11/2021 4:28 PM	IZArc ZIP Archive	471,533 KB

8. Before to install this software, shut down all applications that might interfere with the installation.

After that you can install the software "DEVICE MANAGER" on your laptop.

Note:

Once the Device Manager software has been installed you will found the below direct access icon on your desktop:



Then, PC must be restarted (please ensure this point).

# How to install the file .DRX

Note: File MC\_OCU\_CR.DRX is **\*\*\*CONFIDENTIAL\*\*\***. This file can only be installed in your laptop and it is strictly forbidden to share it with third parties for any purpose. This fall into your **RESPONSIBILITY**.



Only PAPAEU (Jaume Casanovas) will provide these file MC\_OCU\_CR.DRX internally and its distribution could have legal consequences.

Follow the next steps in order to upload the driver into the Device Manager:

1. Open the Device Manager software by using the direct access available in your desktop:



2. Click on the "Import Model" tab :

	·		import Model
Unical Device Hanager  Connection  Settings  Detect DMI  Scan Hetwork  Detection Status DM bit Authorization Level MAN	etect MFK 🔄 Format MFK 🔯 Load Fi Iterface NOT Detected JFACTURER_NO_DMI	le 🛔 Import Model Ingert Model	rC Senal Post Name COM
Version Seria Operating Mode C Network Network Protocol Type Modbus F Enable Direct Serial Address Family Min D	C Local  C Local  Modbus Baud Rate	Ø 9000         Model           10200         Model Name           38400         Model Language           15200         115200	Master Boud Rate 10000
Address Device Min 1 🖃 Max	1	Even y	

3. Select the **MC\_OCU\_CR.DRX** file from the folder where you have it saved... (from your desktop for example).

Organize 🔻 New folder				
🗸 者 Ouick access	Name	Date modified	Туре	Size
Desktop 🛪	MC_OCU_CR.DRX	1/13/2021 12:27 PM	DRX File	57 KB

4. Push "Open" to import the file .DRX into the Device Manager.



Congratulations!

Now you have installed the drivers that will allow you to connect to the CO2 Panasonic condensing units.

Close the software simply by clicking on the "X" at the top right of the software.



# **Preliminary Operations**

#### OCU-CR200

Use one of the two connectors that you will find on the top at left hand in the control box. Originally the connector has 5 cables but you only need to use 2 of the 5 cables, the black and the green.



- a) Connect the green cable to the terminal A (USB-RS485 converter).
- b) Connect the black cable to terminal B (USB-RS485 converter).
- c) X (SHIELD) is not necessary.



Connector for OCU-CR200

# OCU-CR400 and OCU-CR1000

Use the dedicated terminal bed ready for this purpose on the CDU indicated as : "Communication Line".



#### Selecting the Modbus Address on the CDU

Select the decided Modbus Address on the CDU, for example, address 1.

For this, you have to access to the CDU and follow the below process:

- 1) SW13-8Off → On
- 2) Select PRESSURE on SW11 and select Pan  $\rightarrow$  Mod
- 3) Select **FREQUENCY** on the SW11 and select  $0 \rightarrow 1$  (for example address 1)
- 4) SW13-8On → Off
- 5) Select **OPERATION** on the SW11.

- 6) Connect the USB-RS485 converter interface (**PAW-CO2-CHECKER**) to the CDU Modbus communication connector "5P-2" or "5P-3" for the OCU-CR200 or on the dedicated terminal bed "communication line" for OCU-CR400 / OCU-CR1000.
- 7) Connect the USB-RS485 converter interface to the laptop before launching the program. You are advised to use the supplied USB extension lead for the connection.

As soon as the USB-RS485 converter interface is connected, the Windows XP operating system installation wizard will start the installation procedure (this will happen only the first time the USB-RS485 converter interface is connected).

Follow the wizard. Afterwards, the software can be launched normally.

Launch the software Device Manager by using the direct access installed in your desktop and make sure that the USB-RS485 converter interface has been recognised by the program.

If, after launching "Device Manager", it is found that the COM port the USB-RS485 converter interface is connected to is different to the one set for the application, then a window will appear, as shown in this picture...

Eliwell	Device Manager	
	Errore di Apertura Port	a Seriale
	ОК	

Then, click OK to close the window and check on the below procedure...

# Changing the COM port setting

If there are contradictions, or for any other reason, another port is assigned to the interface, then check below instructions/image:

- 1. Right mouse click on the COM port in question.
- 2. Click on "Properties".
- 3. Select the port settings window.
- 4. Click on the Advanced button.
- 5. Change the COM port number as desired.

Note: If needed alternatively, download the CTI driver from : https://www.cti-shop.com/en/driver/

Gestione peri	Proprietz - RM Virtual Sinial Port v2	(COM4)				
File Azione Vi	Generale Impostazioni della porta Deve	Dettagi				
	BR persecond	× 9600				
O Control     O Control	da	8				
🛞 ॡ Control	Part	x Nessuna				
H Modem	Bit casto	x 1				
Porte (0	Controllo di ta	x Nessuno	•			
→ J Rim # ● Process # ■ Schede # ③ Schede # ③ Schede # ④ Unkå de # ④ Unkå D	OK But	vanzale	Ripristina:	ompatibile) ggere i problemi di connession stazioni più veloci.	e. J Abs(14) (14) J Abs(16) (16)	OK Annuls Predelinite

Just in case, once set the right COM port, if the installation and the entire process has been successful, the "Device Manager" software will open the below screen:

Please, follow these below steps in the numbered order, this is very important :

- 1. Select Operating Mode: Network
- 2. Select Modbus Parity Type: None,1
- 3. Select Scan Network: Add Controller

etect DMI Scan Network	E Format MFK	File Import M	odei			
stection Sta Add Controller terface h	IOT Detected				PC Serial Port Name	COM4
uthorization Level 200 controle manually	without network scan					
rrsion Serial Number						
Network C Loca	i .					
twork			Model			
etwork Protocol Type Modbus 🕑	Modbus Baud Rate	9600	Model Name			
Enable Direct Senal		□ 19200 □ 38400	Model Language	•	Master Baud Rat	te 19200
Idress Family Min 0 7 Max 0 7		57600				
		115200				
dress Device Min 1 관 Max 1 관 schrift Sevice Min 1 관 Max 1 관 schrift Sevice Min 1 관 Max 1 관	Modeus Parity Type Model Descript	Even V	>			
ddreis Device Min 1 2 Marc 1 2 dd	Modeus Parity Type Model Descript	115200 Even x	>			
atress Device Min 1 2 Max 1 2 dd.	Modeus Parity Type	I 115200 Even I	- Multi-Function-Key Meeder Moo	F Application Prosent		
dres Device Min 1 2 Mar 1 2 dd. 'smily2' Rel. MOD Noted Kerne	Modeus Partig Type	trisso Even E	- Malt Function Key Header POI POI TOI to to	F Application Present Fram. Ret.		

After step 3 is selected, this below window will appear:

Select on "Address Family" the Modbus address 1 (or the one assigned to the CDU) and then push the "Add" button ...

歸 Add controller without scan			- <b>-</b> ×
Enable Direct Serial Network Protocol Type Modbus Parity Type	COM3 Modbus Even	y y	
Modbus Baud Rate Address Family Address Device Model Name	9600 V 0 11 0 11 MC_OCU-CR		Y
			Add

...and then "Accept".

🛃 Add controller without scan	-	×
Pay Attention		
Connecting to the wrong thid party device may damage the device.		
]		
🗱 Cancel	Accept	

Now the software is ready to monitor the operation of the unit and/or adjust the necessary parameters.

# **Operating Instructions**

#### 1. Resource of Parameters

If we want to see the current parameters (settings), the default parameters or if we want to change them, we will access to the "**Parameters**" tab, where we will access the following screen:

🖳 Eliw	ell Device Manager					_		×
Co	nnection 🖪 Parameters 🛇 Resources 😡 Settings							
R	oad File 📊 Save Group Filter 🔷 Desc Filter	🏦 Read	📥 Write SE	EL 🛛 🚫 Sto	ор 💽 Сору	Device		Ŧ
ID	Description	Unit	Min	Max	Default Value	Device Value	User Value	
1	ON_Value - On Value	MPa	0	5	2.96		2.96	
2	OFF_Value - Off Value	MPa	0	5	2.8		2.8	
3	DIFF_Value - Differential Value	MPa	0	5	0.9		0.9	
4	Std_ON_Value - Standard On Value	MPa	0	5	2.96		2.96	•
5	Std_OFF_Value - Standard Off Value	MPa	0	5	2.8		2.8	
6	Std_DIFF_Value - Standard Differential Value	MPa	0	5	0.9		0.9	
7	Interval - Forced Stop Time Interval	s	30	180	30		30	
8	Control_T1 - Control Temperature 1	°C	-100	200	15		15	
9	Control_T2 - Control Temperature 2	°C	-100	200	15		15	
10	Control_T3 - Control Temperature 3	°C	-100	200	15		15	
11	Control_P - Control Pressure	MPa	0	5	0.02		0.02	2
Refe	Differences: 0/0							
Done	ndont Downmotows							
Бере	nuent Parameters							
📀 Co	nnected III MC_OCU_CR:				Ν	MANUFACTURE	R_NO_DM	r

ID: identification number.

Description: Parameter description.

Unit: Defines the metric system.

Min. And Max: Define the minimum and maximum values that we can select.

Default Value: Defines the default setting.

Device Value: Defines the current setting.

User Value (Yellow Cell): Used to modify the setting.

- a) Double click on yellow cell.
- b) Modify the value (use only even numbers).
- c) Then push on "Write" button.

#### Available ID only: 1, 2, 3 & 7.

ID	
1	ON_Value - On Value
2	OFF_Value - Off Value
3	DIFF_Value - Differential Value
7	Interval - Forced Stop Time Interval

On Value, Off Value, Diff Value and FST (forced stopping time) are the main parameters to be adjusted. Please do not change \*never\* the parameters of Control T1,2,3 or Control P.

# All others ID , 4, 5, 6 have not any repercussion if you change these values.

2. Select "SEL $\rightarrow$ ALL" (All the parameters will be selected at the same time in blue).

🖷 Eliwe	II Device Manager					-		×
Cor	nnection 🔄 Parameters 🚫 Resources 🌍 Settings							
<b>i</b>	oad File 📊 Save Group Filter 🔷 Desc Filter	🏦 Read	📥 Write 🖪	u 🗸 🔊 s	top 💽 Copy	Device		Ŧ
ID	Description	Unit	Min	Max	Default Value	Device Value	User Value	
1	ON_Value - On Value	MPa	0	5	2.96		2.96	;
2	OFF_Value - Off Value	MPa			2.8		2.8	
3	DIFF_Value - Differential Value	MPa			0.9		0.9	
4	Std_ON_Value - Standard On Value	MPa			2.96		2.96	5
5	Std_OFF_Value - Standard Off Value	MPa			2.8		2.8	
6	Std_DIFF_Value - Standard Differential Value	MPa			0.9		0.9	
7	Interval - Forced Stop Time Interval	s	30	180	30		30	
8	Control_T1 - Control Temperature 1	°C	-100	200			15	
9	Control_T2 - Control Temperature 2	°C	-100	200	15		15	
10	Control_T3 - Control Temperature 3	°C	-100	200	15		15	
11	Control_P - Control Pressure	MPa	0	5	0.02		0.02	2
Refer	enced Parameters					Differences	: 0/0	
Depe	ndent Parameters							
📀 Cor	nnected III MC_OCU_CR:				Ν	IANUFACTURE	R_NO_DM	I 🕾

3. Select: **Read** (The device will read and display ALL the actual settings).

ID	Description	Unit	Min	May	Default	Device	User
	outurtes courtes	one		Mux	Value	Value	Value
1	ON_Value - On Value	MPa			2.96	2.96	2.90
2	DIFF_Value - Off Value	MPa			2.8	2.8	2.8
3	Std. ON Value - Standard On Value	MPa			2.06	0.9	0.9
•	Std_OEE_Value - Standard Off Value	MPa			2.90	2,90	2.96
9 5	Std_DTEE_Value - Standard Differential Value	MPa			2.0	2.0	2.0
0 7	Internal - Forced Sten Time Internal	мга	20	190	20.9	20	20
•	Control T1 - Control Temperature 1		-100	200	15	15	15
9 0	Control T2 - Control Temperature 2	Eliwell Device Manager	× 00	200	15		15
	Control T3 - Control Temperature 3	Entren bevice mundger	00	200	15		15
	Control P - Control Pressure		1		0.02	0.02	0.02
		ОК				Difforoncos	2/11
le							
_	ndent Parameters						

# Adjusting / Changing default Parameters (write process)

- 1. If you want to **modify any of the default control parameters**, simply select it by clicking on it individually (it will be marked in blue).
- 2. Go to the "yellow" cell and double click on it.
- 3. Modify the value, for example from 2.96 to 2.98.

🖳 Eliwell Dev	ce Manager					-		×
Connecti	Parameters 🛇 Resources 🕥 Settings							
Load F	le 🔚 Save Group Filter 🔹 Desc Filter	and Read	k Write	SEL 🔹 🔀 S	Stop 🕝 Copy	Device		Ŧ
ID	Description	Unit	Min	Max	Default Value	Device Value	User Value	
1 ON_	/alue - On Value	MPa	0	5	2.96	2.96	2.98	
2 055	Value - Off Value	MDa	0	-	2.0	2.0	2.0	

### 4. Press "Write" button.

Eliwell Device Manager								
Connection 🔍 Parame	ters 🚫 Resources	Settings						
-				-		-		
Load File 📊 Save	Group Filter	• Desc Filter	Read	Write	SEL 🔹 🔘 S	Stop 🔘 Copy	Device	
Load File 🔜 Save	Group Filter Descripti	Desc Filter	Unit	Min	SEL + 🐼 S	Default Value	Device Device Value	User Value
ID ON_Value - On Valu	Group Filter Descripti	Desc Filter	Unit	Min 0	SEL + S	Copy Default Value 2.96	Device Device Value 2.98	User Value 2.98

Once the value has been modified, it will appear in red, indicating that have been modified with respect to the original default value.

🖳 Eliw	II Device Manager					-		×
Co	nnection 🖪 Parameters 🕥 Resources 🕥 Settings							
<b>R</b>	oad File 📊 Save Group Filter 🔹 Desc Filter	🏦 Read	📥 Write S	EL 🛛 🔀 SI	top 💽 <b>Copy</b>	Device		Ŧ
ID	Description	Unit	Min	Max	Default Value	Device Value	User Value	
1	ON_Value - On Value	MPa	0	5	2.96		2.98	
2	OFF_Value - Off Value	MPa	0	5	2.8		2.8	
3	DIFF_Value - Differential Value	MPa	0	5	0.9		0.9	
4	Std_ON_Value - Standard On Value	MPa	0	5	2.96		2.96	
5	Std_OFF_Value - Standard Off Value	MPa	0	5	2.8		2.8	
6	Std_DIFF_Value - Standard Differential Value	MPa	0	5	0.9		0.9	
7	Interval - Forced Stop Time Interval	s	30	180	30		30	
8	Control_T1 - Control Temperature 1	°C	-100	200	15		15	
9	Control_T2 - Control Temperature 2	°C	-100	200	15		15	
10	Control_T3 - Control Temperature 3	°C	-100	200	15		15	
11	Control_P - Control Pressure	MPa	0	5	0.02		0.02	
Refe	renced Parameters					Differences:	0/0	
Depe	ndent Parameters							
📀 Co	nnected IMC_OCU_CR:				1	ANUFACTURE	R_NO_DMI	r 🕭

#### Resource of Variables (and parameters)

If you want to monitor the operation of the CDU, we will access the "**Resources**" tab, where we will access to the following screen:

🖳 Eliv	well De	vice Manager											_	
C	onnec	tion 🔄 Parameters 🛇 Resources 🕥 Se	ttings											
R	Load	from File 📊 Save to file Group Filter	• 予 Start F	Read	×	Stop Re	ad 🕞	Start Log	Sto	p Log	10	Log Perio	bd	
	ID	Description	Label	Gro	up	Axis	Unit	Min	Max	Value	^	Resour	ce Groups	
0	2	Software Version		0	$\sim$	~	num	0.01	10			ID	Description	
	3	Operation Switch		0	$\sim$	~	flag	0	1			0	General	
	4	Status		0	$\sim$	~	num	0	65535					
	5	Operation Signal		0	$\sim$	~	flag	0	1					
	6	Starting		0	$\sim$	~	flag	0	1					
	7	Operation		0	$\sim$	~	flag	0	1					
	8	Setting Change		0	$\sim$	~	flag	0	1					
$\odot$	) 10	On Value		0	$\sim$	~	MPa	0	5					
$\odot$	) 11	Off Value		0	$\sim$	~	MPa	0	5					
$\odot$	) 12	Differential Value		0	$\sim$	~	MPa	0	5					
$\odot$	13	Standard On Value		0	$\sim$	~	MPa	0	5					
$\odot$	) 14	Standard Off Value		0	$\sim$	~	MPa	0	5					
$\odot$	) 15	Standard Differential Value		0	$\sim$	~	MPa	0	5					
$\odot$	16	Forced Stop Time Interval		0	$\sim$	~	s	30	180			New	Delete	Apply
$\odot$	) 17	Control Temperature 1		0	$\sim$	~	۰C	-100	200		$\checkmark$			
	1.2							1					1	1.2
1	1.0													1.0
	.8 -													0.8
New Constant	0.6													0.6 🙀
	.4													0.4
	.2 -													- 0.2
0	00:00:00	06:00:00		12:00:00				18:00	1:00			0	0:00:00	0.0
© c	onnec	ted IMC_OCU_CR:										MAN	UFACTURER_	NO_DMI 🍇

# We can read 87 lines of information:

Under normal reading conditions, the information is refreshed approximately every 6-10 sec. (this time is very approximate and may change due to different reasons). Scrolling down, we can access up to 87 lines of information.

#### Important:

Some values will not be read and this fact will depend on the model of the CDU and the components with which it is equipped these model.

In the case of "target" values, they will only be shown if the CDU software allows it (April 2021). Values read as 65535 should not be considered as faults, but will change their value when triggered, for example, when an alarm or status change and is triggered.

Below are all 87 different lines:



1.2					1.2
0.8					0.8
1906 -					9.6 ¥II
0.4 -					0.4
0.0	06:00:00	12.00:00	18:00:00	00:00:00	0.0

onnection 🖪 Parameters 🛇 Resources 😡 Se	ettings	Read 🕥	Stop Rea	id 🔝	Start Log	Sto	p Log	10	Log Period	ł	
		-				-	5		Bocourc	o Croupe	
ID Description	Label	Group	Axis	Unit	Min	Max	Value		TD	Description	
48 Mov 3 Target		0 ~	× v	steps	0	480				Conoral	
49 Mov 4		0 ~	× v	steps	0	480				serierai	
50 Mov 4 Target		0 ~	× v	steps	0	480					
51 Mov 5		0 ~	× v	steps	0	480					
52 Mov 5 Target		0 ~	× v	steps	0	480					
53 Mov 6		0 ~	× v	steps	0	480					
54 Mov 6 Target		0 ~	× v	steps	0	480					
55 Mov 7		0	×	steps	0	400					
50 MOV 7 Target		0	×	flog	0	400					
57 EV 1		0	×	flag	0	1		_			
50 EV 2		0 -	×	flag	0	1					
59 EV 3		0 ~	~	nag	100	1					
60 Heatsink 1 Temperature		0 ~	~	°C	-100	200					
61 Heatsink 2 Temperature		0 ~	~	~	-100	200		5	New	Delete	Appl
bz   Oil Level 1 Upper		0 ~	$\vee$	tlag	0	1		*			
				_			_				
·											
6 -											
2											
0:00:00 06:00:00		12:00:00			18:00:0	00			00:0	00:00	
vell Device Manager									MANU	FACTURER_I	
vell Device Manager	ttings								MANU	FACTURER_I	
vell Device Manager	ettings	Read 🐼	Stop Rea	d   🜗	Start Log	Stop	) Log	10	MANU Log Period	FACTURER_I	
vell Device Manager	ettings	Read Sroup	Stop Rea	d Dit	Start Log Min	Stop	) Log Value	10	MANU Log Period	FACTURER_I	
ID     Description       ID     Description       63     Oil Level 1 Lower	ettings - Start F Label	Read Group	Stop Rea Axis	d Unit	Start Log Min 0	Stop Max	) Log Value	10	MANU Log Period Resource	FACTURER_I	
ID     Description       63     Oil Level 1 Lower	ettings - Start F Label	Read Group 0 ~	Stop Rea Axis	d Unit flag	Start Log Min 0	Stop	) Log Value	10	MANU Log Period ID I	FACTURER_I	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper	ettings - Start F Label	Read Group 0 × 0 × 0	Stop Rea Axis	d Unit flag flag	Start Log Min 0 0	Stor Max 1 1	) Log Value	10	MANU Log Period Resource ID I	FACTURER_I	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper	ettings - Start F Label	Read Croup	Stop Rea	d Unit flag flag flag	Start Log Min 0 0	Stop Max 1 1 1 1	) Log Value	10	MANU Log Period Resource	FACTURER_1	
Image: Connected     Image: Connection       Image: Connection     <	ettings	Read Croup	Stop Rea	d Unit flag flag flag num	Start Log Min 0 0 0	Stop Max 1 1 1 65535 65525	) Log Value	10	MANU Log Period Resource ID I	FACTURER_1	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 1       68     Loced 1	ettings	Group           0           0           0           0           0           0	Stop Rea	d Unit flag flag flag num num	Start Log Min 0 0 0 0 0	Max 1 1 1 55535 65535	) Log Value	10	MANU Log Period	FACTURER_I	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 2       68     Alert Code 1       69     Alert Code 1	Label	Group           0           0           0           0           0           0           0           0           0           0	Stop Rea	d Unit flag flag flag num num	Start Log Min 0 0 0 0 0 0 0	Max 1 1 65535 65535 65535	) Log Value	10	MANU Log Period	FACTURER_1	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 2       68     Alert Code 1       69     Alert Code 2	Label	Group           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0	Stop Rea	d Unit flag flag flag num num num num	Start Log Min 0 0 0 0 0 0 0 0 0 0 0	Max 1 1 65535 65535 65535 65535	) Log Value	10	MANU Log Period	FACTURER_I	
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ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 2       68     Alert Code 2       70     Alert Code 3       71     Oil Level SW Error	Label	Read Group 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~	Stop Rea	d Unit flag flag flag num num num num flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Max 1 1 65535 65535 65535 65535 65535 1	Value	10	MANU Log Period	FACTURER_I	
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ID     Description       G3     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 2       68     Alert Code 1       69     Alert Code 3       71     Oil Level SW Error       72     Oil Level Error	ettings	Read Croup 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~ 0 ~	Stop Rea Axis	d Unit flag flag flag num num num flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stop Max 1 1 1 65535 65535 65535 65535 65535 1 1 1 1 1	Value	10	MANU Resource ID ( 0 C	FACTURER_I	
ID     Description       63     Oil Level 1 Lower       64     Oil Level 2 Upper       65     Oil Level 2 Lower       66     Error Code 1       67     Error Code 2       68     Alert Code 2       70     Alert Code 3       71     Oil Level SW Error       72     Oil Level Error       73     Unit Alert       74     High Pressure Error	Label	Group           0	Stop Rea	d Unit flag flag flag num num num num flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Max 1 1 1 65535 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1	Value	10	MANU Log Period ID I 0 G	FACTURER_I	
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Image: Connection     Connection     Connection       Image: Connection     Image: Connection     Image: Connection	ttings Label Label	Read Croup 0 ~ 0 ~	Stop Rea Axis	d Unit flag flag flag flag num num num flag flag flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stor Max 1 1 1 65535 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Value	10	MANU Log Period ID I 0 G	FACTURER_I	
Image: MC_OCU_CR:         vell Device Manager         connection       Parameters       Resources       Seesources         connection       Parameters       Resources       Seesources       Seesources         connection       Parameters       Resources       Seesources       Seesources       Seesources         connection       Parameters       Save to file       Group Filter       Seesources       Seesources         1D       Description       63       Oil Level 1 Lower       Get       Get       Seesources       Seesources       Seesources       Seesources       Get       Get       Get       Seesources       See	ttings	Group           0	Stop Rea Axis 	d Unit flag flag flag flag num num num num flag flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Example 2 Control 2 Contro	Value	10	MANU Log Period ID I 0 G	FACTURER_I	
onnected       Image: MC_OCU_CR:         well Device Manager       Image: Sevent of the sevent	ettings	Group         0       ~	Stop Rea	d Unit flag flag flag num num num num flag flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Max 1 1 1 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1	Value	10	MANU Log Period ID ( 0 G	FACTURER_I	
onnected       Image: MC_OCU_CR:         well Device Manager       Image: Solution in the second secon	ettings	Read Group 0 0 0 0 0 0 0 0	Stop Real Axis V V V V V V V V V V V V V	d Unit flag flag num num num flag flag flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Max 1 1 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1	Value	10	MANU	FACTURER_I	
onnected       Image: MC_OCU_CR:         well Device Manager       Image: Sevent of the sevent	ettings  Label  Label	Read Croup 0 ~ 1 0 ~ 2 0 ~	Stop Rea Axis V V V V V V V V V V V V V	d Unit flag flag flag num num num flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stor Max 1 1 1 65535 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Value		MANU	FACTURER_I	
onnected       Image: MC_OCU_CR:         well Device Manager       Image: Solution of the second secon	ettings	Read Coup 0 ~ 0	Stop Rea Axis 	d Unit flag flag flag flag num num flag flag flag flag flag flag flag	Start Log Min 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stor Max 1 1 1 65535 65535 65535 65535 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Value		MANU	FACTURER_1	
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•	Eliwell Dev	vice Manager		-									-		×
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ſ	ID	Description	Label	Gro	up	Axis	Unit	Min	Max	Value	^	Resourc	e Groups		_
	75	Pressure Sensor Error		0	~	~	flag	0	1			ID I	Description		
Ē	76	Temperature Sensor Error		0	~	~	flag	0	1			0 6	General		
	77	Discharge Temperature Alert		0	~	~	flag	0	1						
Ī	78	Discharge Temperature Error		0	~	~	flag	0	1						
	79	Refrigerant flood back		0	$\sim$	~	flag	0	1						
	80	FM Error		0	$\sim$	~	flag	0	1						
	81	Heatsink Temperature Alert		0	$\sim$	~	flag	0	1						
	82	Inverter Error		0	$\sim$	~	flag	0	1						
	83	Communication Error		0	$\sim$	~	flag	0	1						
	84	Operation Signal Error		0	$\sim$	~	flag	0	1						
	85	Reversed/Open Phase		0	$\sim$	~	flag	0	1						
	86	Drive Status		0	$\sim$	~	num	0	65535						
	87	Compressor 1		0	$\sim$	~	flag	0	1						
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# How to read the working variables (Monitoring the CDU)

In order to start to "read", please push on the "**Start Read**" button... Then, the software will start to read all the information and operation of the CDU filling the "**Value**" cell with the information read.

	ID	Description	Label	Gro	gup	Axis	Unit	Min	Max	Value	^	Resou	rce Groups-	
5	2	Software Version		0	~	~	num	0.01	10	0.21		ID	Description	
	3	Operation Switch		0	~	~	flag	0	1	1		0	General	
	4	Status		0	~	~	num	0	65535	2049				
	5	Operation Signal		0	~	~	flag	0	1	0				
	6	Starting		0	~	~	flag	0	1	0				
	7	Operation		0	~	~	flag	0	1	0				
	8	Setting Change		0	~	~	flag	0	1	0				
0	10	On Value		0	~	~	MPa	0	5	2.98				
0	11	Off Value		0	~	~	MPa	0	5	2.8				
)	12	Differential Value		0	~	~	MPa	0	5	0.9				
0	13	Standard On Value		0	~	~	MPa	0	5	2.96				
•	14	Standard Off Value	-	0	~	~	MPa	0	5	2.8				
0	15	Standard Differential Value		0	~	~	MPa	0	5	0.9				
9	16	Forced Stop Time Interval		0	~	~	s	30	180	30		Nev	/ Delete	Appl
0	17	Control Temperature 1		0	V	~	°C	-100	200	15	~			
1.2														
0.6														-
0.4	1													
	-													

# How to graph the values

If you want to graph , then first "Stop Read".

Now, select the variables you want to graph, for example ID 21 (Compressor 1 Speed).

Select "Axis 2" (but you can select Axis 1 or 2 for each single ID).

#### Now, press "Start Read".

It will begin to graph the selected value.

l	oad f	rom File 🔚 Save to file Group Filter	- Sta	art Read	×	Stop	Rea	ad b	Start Log	Sto	p Log	10	Log Period	ł	
	ID	Description	Label	Gro	oup	Ax	is	Unit	Min	Max	Value	^	Resourc	e Groups—	
0	18	Control Temperature 2		0	~		~	°C	-100	200	0		ID	Description	
	19	Control Temperature 3		0	~		~	°C	-100	200	-15		0 0	Seneral	
0	20	Control Pressure		0	~		~	MPa	0	5	0.02				
0	21	Compressor 1 Speed		0	~	2	~	RPS	e	100	62				
0	22	Compressor 1 Target Speed		0	~		~	RPS	0	100	62				
)	23	Compressor 1 Current		0	~		~	Α	0	100	10				
0	24	Compressor 2 Speed		0	~		~	RPS	0	100	0				
0	25	Compressor 2 Target Speed		0	~		~	RPS	0	100	0				
)	26	Compressor 2 Current		0	~		~	A	0	100	0				
)	27	Fan Motor Speed		0	~		~	RPM	0	1000	600				
D	28	Fan Motor Target Speed		0	~		~	RPM	0	1000	600				
0	29	Gas Cooler Outlet Temperature		0	~		~	°C	-100	200	39				
0	30	Gas Cooler Outlet Temperature Target		0	~		~	°C	-100	200	0		_		
0	31	Discharge Temperature Stage 1		0	~		~	°C	-100	200	68.8		New	Delete	Apply
2	32	Discharge Temperature Stage 2		0	V		V	٩٢	-100	200	0	×			_
70 50 50 40 30 20															
10	07:00				1	8:12:00		2		5		,		*	18.17

How to save reading data in a .txt.

- a. In "**Resources**" tab, when you click on "**Start Log**" you will be asked where to save the file and the name of the **.txt** file. Once done, data will be written on the file.
- b. Then stopping recordings, file will be closed, and you can reopen from the path where was saved.

vell De	vice Manager	6					-						-
Conne	ction 🔄 Parameters 🗿 Resources 🎮 Alarms 🖄 Application 😡 Settings												
Load	l from File 🔚 Save to file 🛛 Group Filter 🛛 🗜 🌄 Start Read 🔘 Stop F	lead 🚯 Start Log 🔝	Stop Lo	g	10 Log	Period							
m	Description	t abat	1.00		Andre	Tin A	Min	Mary	Malva		Resour	ce Groups	
D	Analogue input AT 1	Label	Gr	eup	AXIS	Unit	MIN -50	Max 00:00	Value	Ē.	to	Description	
0 2	Analogue input All 2		0	-		°C	-50	99.9		8	0	General	
0 3	Analogue input All 3		0	-		●C/Rar	-50	99.9				active an	
4	Analogue input All 4		0	-	-	°C/Bar	-50	99.9					
0 5	Analogue input All.5		0	-	-	°C	+50	99.9					
3 6	Digital input DI 1		0			num	0	1		5			
1 7	Digital input DI 2		0	-	-	num	0	1					
8	Digital input DI 3		0	-	-	num	0	1					
9	Dinital input DI 4		0	-		num	0	1					
10	Dioital input DI 5		0	-		num	0	1					
11	Digital input DI 6		0	-		num	0	1					
12	Digital input DI 7		0	-	-	num	0	1					
13	Digital output DQI 1		0	-	1	num	0	1					
14	Digital output DOL2		0	-	-	num	0	1		2			
15	Digital output DOL3		0	-		num	0	1		1			
16	Digital output DOI 4		0	-		num	0	1					
17	Digital output DQL5		0	-	*	num	0	1					
18	Digital output DOL6		0	-		num	0	1					
10	Digital output 2011		0	-		num	0	1					
20	Digital output AQL2		0	-		num	0	1					
21	Analogue output TCL1		0	-	-	0100	0	100			New	Delete	Ap
/ 21	Analogue output i cut					ngaist		100		-	-		
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00.0	0.00 06.00.00	12:00:00			16	00:00				0	0:00:00		

Save it in the Desktop for example...

File name:	jaumetest2.txt
Save as type:	TXT Files (*.txt)



Once saved the file, the software will start immediately to log all the information which will be saved later in the .txt file that we had created.

When you consider that you have already saved what you need, for example after 1h, press "**Stop Log**". You can go to your .txt file and open it.

jaumet File Edit	est2.txt - N Format	otepad View He	ы 3.	51110	- 111	116 1	INC	tha																				-	٥
Log of	MC OCU	CR]																											
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line	2	3	4	5	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
2	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88			
.977	0.21	1	2849	0	0	0	0	2.96	2.8	0.9	2.96	2.8	0.9	30	15	0	-15	0.4	58	58	10	0	0	0	688	600	39	0	68.8
	8.41	8,79	5.19	3.01	0	0	36.5	36.4	19	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32768	0	0			
3.075	0.21	1	2849	0	0	0	0	2,96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	58	58	10	0	0	0	600	600	39	0	68.1
	8.41	8,79	5,19	3.01	0	0	36.5	36.4	18.9	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32768	0	0			
3.132	0.21	1	2849	0	0	0	0	2,96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	59	59	10	0	0	0	600	600	39	0	68.
	8.41	8.79	5.19	3,01	0	8	36.5	36.4	19	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	ø	0	0	0	0	0	0	ø	0	ø	32768	0	0			
3.148	0.21	1	2849	0	0	0	0	2.96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	59	59	10	0	0	0	688	688	39	0	68.
	8.41	8.79	5.19	3.01	9	9	36.5	36.4	19	34	0	0	0	0	30	30	0	0	0	0	0	Ø	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32768	0	0			
3.200	0.21	1	2849	0	0	0	0	2,96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	59	60	10	0	0	0	600	600	39	0	68.
	8.41	8,79	5.19	3.01	0	0	36.5	36.4	19	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32768	0	0			
3.297	0.21	1	2849	0	0	0	0	2,96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	60	60	10	0	0	0	600	600	39	0	68.
	8.41	8,79	5.19	3.01	0	0	36.5	36.4	18.9	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32768	0	0			
3.305	0.21	1	2849	0	0	0	0	2,96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	60	60	10	0	0	0	600	600	39	0	68.
	8.41	8.79	5.19	3,01	0	8	36.5	36.4	18.9	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	0	0	32768	32768	32768	0	0	0	0	0	0	0	0	0	0	0	0	ø	0	ø	32768	0	0			
3.389	0.21	1	2849	0	0	0	0	2.96	2.8	0.9	2,96	2.8	0.9	30	15	0	-15	0.4	60	60	10	0	0	0	688	600	39	0	68.
	8.41	8.79	5.19	3.01	0	8	36.5	36.4	18.9	34	0	0	0	0	30	30	0	0	0	0	0	0	0	0	1	0	0	0	0
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It will open something like that.

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...and paste (Ctl+V) directly on cell A1 in a new excel sheet. Save the excel file.

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# Additional information

Using the "**New**" tab and "**Apply**" tab buttons a new Resource Group can be created, for example group 1, then, selecting the "**Group Filter**" 1, it will show us the special group that we have created.

Everything else is as explained in advance.

You can delete the group simply by using the "**Delete**" button.

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#### ANNEX 1 USB-RS485 converter interface setup with Windows 7

As soon as the Device Manager interface is connected, the Windows 7 operating system recognises the newly connected hardware. The steps to be followed are described below.

1. Once the hardware is connected, the message shown in the figure will appear:



Click on the message to start the guided installation procedure.

2. The screen shown below will appear: select the second option to identify the driver:

Search automatically for up Windows will search your compute for your device, unless you've disat settings.	odated driver software r and the Internet for the latest driver software led this feature in your device installation
Browse my computer for d Locate and install driver software n	river software anually.

3. In the next screen, select the installation path for the Device Manager programme. Unless changed during installation, the path will be as shown in the figure;

4. Once you have selected the correct path, the screen shown below will appear: select "Install this driver software anyway.



- 5. The screen shown below will appear, indicating that the action has been performed
- 6. On completion of the process, the screen shown below will appear.



To check correct installation of the driver and the port to which the hardware has been allocated, check the Windows screen shown below.

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- 👻 Hamachi Network Interface
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Ports (COM & LPT)
1 AT90USBxxx CDC USB to UART MGM (COM4)
一徑 Communications Port (COM1)
- 1/2 Communications Port (COM2)
二徑 ECP Printer Port (LPT1)
D - Processors
5 📲 Sound, video and game controllers
> 📲 System devices
Universal Serial Bus controllers

\*\*\*END OF THE DOCUMENT\*\*\*