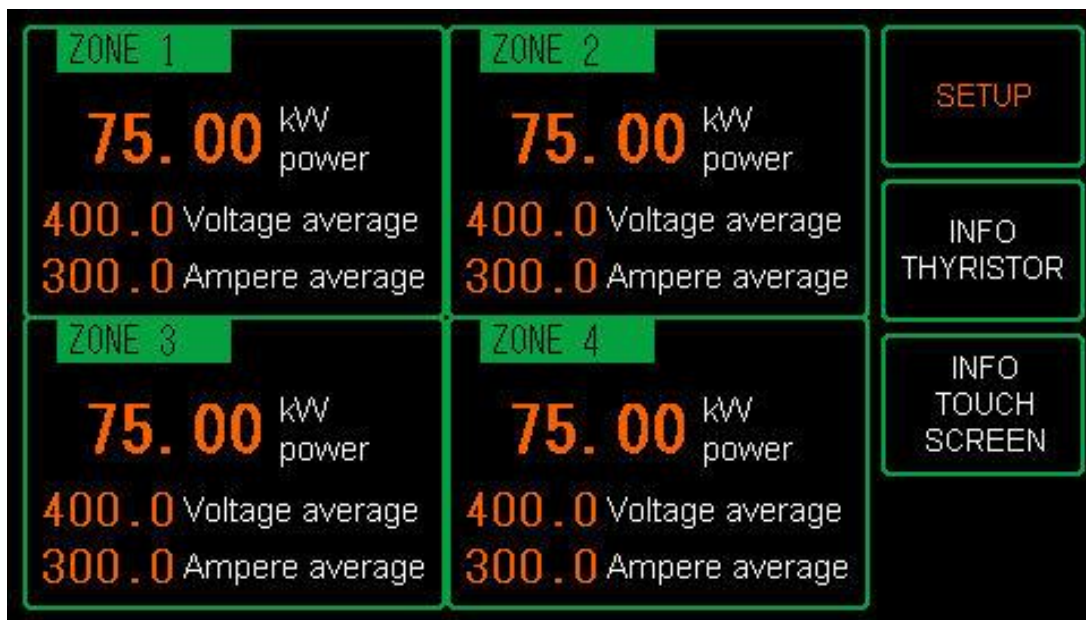


Engineering manual



REVO C / REVEX service terminal

PLEASE READ THIS MANUAL BEFORE ATTEMPTING TO CONNECT AND/OR SWITCHING POWER ON THE MODULES. THIS DOCUMENT CONTAINS VERY IMPORTANT INFORMATION THAT WILL PREVENT WRONG CONNECTIONS THAT CAN CAUSE DAMAGE TO THE UNITS.

Thank you for choosing the “REVO C/REVEX service terminal”

This manual should enable you to use your machine to full satisfaction.

Every effort has been made to provide you with maximum performance,
ergonomics and benefits from this premium quality product.

Version History:

07-02-2020 Initial version V1.0 for software version V100.001.

This document describes the installation, service and configuration of the REVO C/REVEX service terminal application in Pro-Face GP4116 touchscreen. **It is a technical manual for the equipment manufacturer.** For the normal operation of this equipment we refer to the *user manual*. You can use parts of this manual for the manual that you supply with the equipment.

REMARK: CasCade strongly advises you read this manual thoroughly before starting up the system. This can prevent damage and a dangerous situation for yourself and the end user of the equipment.

WARNING: The configuration/setup must be performed by **technically educated personnel**. This can prevent damage and a dangerous situation for yourself and the end user of the equipment.

This system consists of:

- 1x Pro-face GP4116 touchpanel with COM1 3 wire RS-485 interface
- 1x REVO C/REVEX power module (1, 2 or 3 phase versions)

Care has been taken for the correctness of this manual. When there should be errors in this manual, CasCade, nor her employees, can be held responsible for any consequential damage that could be caused by this.

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READ THIS FIRST

Explanation of symbols

The following signs have been used throughout this manual to draw your attention.



**Hint: Useful hints for ease of operation.
Printed in Blue.**



**Info: Information you should know to fully understand your system and
benefit from its properties. Printed in green.**



**Warning: Read these important messages before executing the desired
operation.
Printed in red.**



**Warning: Read these important messages before executing the desired
operation.
Printed in red.**

Touchscreen introduction

Your machine has been equipped with a “Human Machine Interface” or HMI or -more popular called-: A touch screen.

If you are familiar with touch screen operation, found nowadays on modern cell phones, navigation systems, informational displays etc. you may want to skip this section. If however, this is the first time you are using a touch screen, please keep in mind that in contradiction with older fashioned operating panels utilizing mechanical buttons, lamps and displays, both the displays and images on a touch screen can be interactive too, meaning they will react on a touch by your finger. The interface on the touch screen is optimized for ergonomic operation. In practice this means that all objects are positioned and sized such, that they can be touched easily with your finger without the need for a stylus or precise positioning. A soft tipped stylus can be used if preferred, but is normally not required for proper operation.

Touching objects on a touch screen can be compared with a mouse-click on a computer screen. Based on the shown graphical user interface and your finger's position on the screen, the system can determine what action it should take when an object is touched.



To prevent accidental, unwanted actions some objects may require a prolonged touch, meaning you should keep your fingers pressed longer on a certain object (like a button or display) to invoke the required action.

Touchscreen maintenance



IMPORTANT - READ THIS FIRST

Never operate a machine until you have fully understood it's safe working conditions and operating principles.

Never operate the machine unless you are authorized to do so

NORMAL EVERY DAY USAGE

Your touch screen utilizes a sensitive touch mechanism. The technique used provides reliable operation, even when the screen is modestly covered with moist and dirt. It also allows the wear of rubber gloves. And even under these conditions it should normally react already on a **gentle touch**.



Some buttons may require a prolonged touch to prevent unwanted actions.

If the touch screen fails to respond, ask yourself first whether you have applied a valid command. If in doubt, you could check the responsiveness of the touch screen by using other commands.

Each valid command will invoke a short beep, confirming the reception of the touch. However, whether or not the actual action is performed depends also on other conditions



**Avoid applying excessive force on the touch screen and never use sharp or hard objects (e.g. nails, tools, kitchenware or a pencil) to operate it !
In either case you might damage the screen and void your warranty.**

Touchscreen cleaning

Your touch screen is provided with a durable front sheet which is water, oil and fat resistant. The best way to clean the front sheet is with a soft, lukewarm and mildly moist cloth. Special, disposable front cover protection sheets that will reinforce and protect your touch screen, are available through your dealer.



Never use solvents (e.g. thinner, tri, turpentine) hot water, soda, abrasives or other aggressive matter for cleaning.

1. CONNECT REVO C/REVEX MODULE AND GP-4116 screen

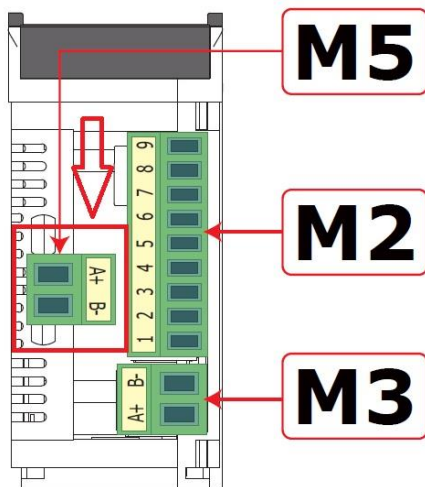
This part describes how to connect the power supply and communication cable to the REVO C/REVEX. Also consult the CD Automation manual that was supplied with the REVO C/REVEX module.

1.1 Connect communication cable between REVO C/REVEX and GP4116.

You can connect the RS485 modbus communication cable between the REVO C M5 port and the GP4116 COM1 connector.

REVO C:

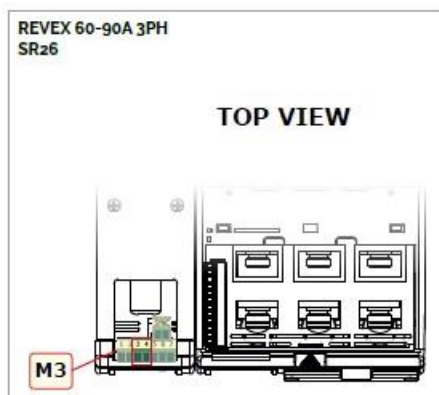
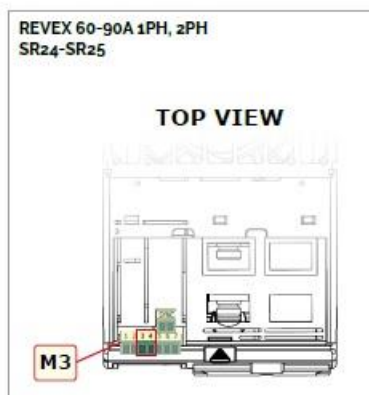
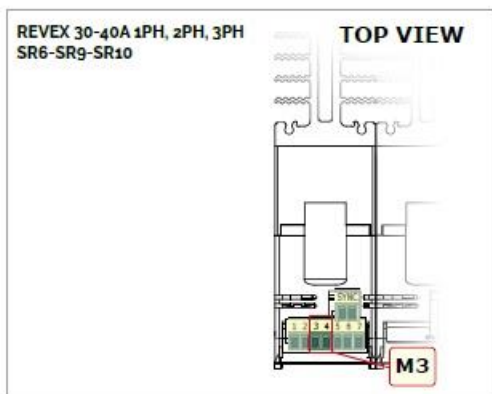
M5 point 9=B and M1 point A+ (white wire to GP4116) and M1 point B- (brown wire to GP4116)



REVEX: different connections depending on the size of the thyristor

For 30-40A and 60-90A: use M3

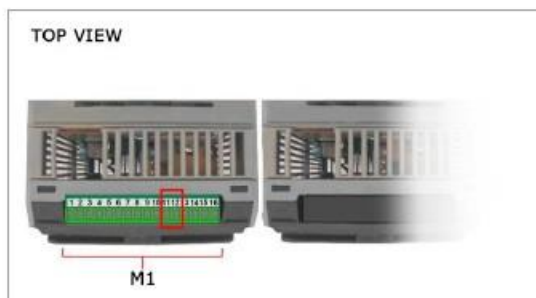
For the larger thyristors, use M1 point 11-12



Here is the REVEX communication port for higher currents than above.

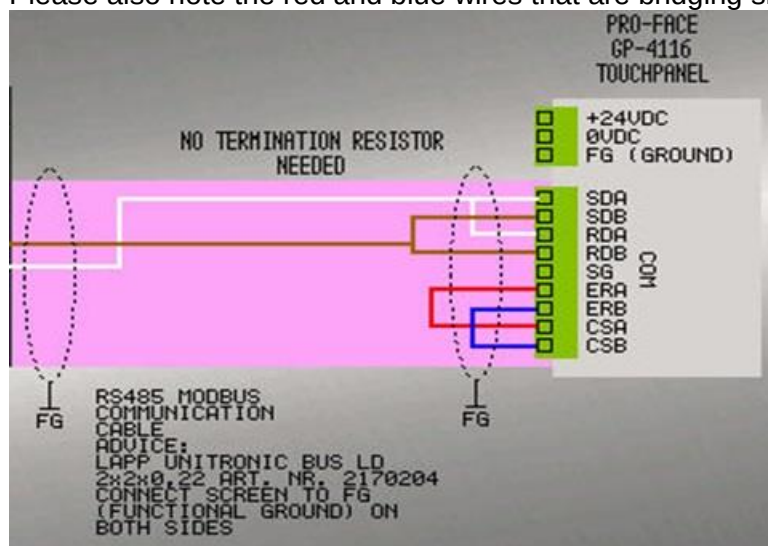
1.2.1 RS485 standard Serial Port

Terminal M1	Description	The serial communication port RS485 is available on the Command terminals. On this port may be done a network up to 127 REVEX.
11	RS485 B	
12	RS485 A	



For good EMC/EMI immunity, use a Lapp RS-485 modbus communication cable that is 120ohm impedance corrected. Use Lapp Unitronic bus LD 2x2x0.22 article number 2170204. You can order per meter at Conrad electronic.

Please also note the red and blue wires that are bridging signals on the GP-4116 connector.



For completeness here an extra informative picture from the Pro-face manual. You see here a description of all signals that are present on the GP4116 COM1 connector.

RS-422/485

COM I/F Connector (9-pin, 2-piece terminal block)

Cable connection side	Pin No.	RS-422/RS-485		
		Signal name	Direction	Meaning
9 1	1	CSB	Input	Send possible B (-)
	2	CSA	Input	Send possible A (+)
	3	ERB	Output	Data terminal ready B (-)
	4	ERA	Output	Data terminal ready A (+)
	5	SG	-	Signal ground
	6	RDB	Input	Receive data B (-)
	7	RDA	Input	Receive data A (+)
	8	SDB	Output	Send data B (-)
	9	SDA	Output	Send data A (+)

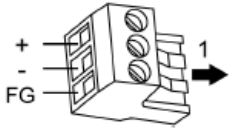
1.5 Connect power to GP-4116

The touchscreen must be supplied with 24VDC. This must be connected to the power supply connector of the touchscreen.



Please regard the polarity of the +24VDC signals!!! This is also marked on the touch screen. The incorrect connection of the power supply can result in irreparable damage that is outside the normal warranty.

DC Power Supply Connector Specifications

	Connection	Wire
 1 Insertion direction	+	12...24 Vdc
	-	0 Vdc
	FG	Grounded terminal connected to the panel chassis.



The FG (functional ground) must also be connected to the central PE (protective earth) connection of the unit. This can prevent damage to the touchscreen in case of an electrostatic discharge.

2. CONFIGURING THE REVO C/REVEX COMMUNICATION PORT SETTINGS

To configure the REVO C/REVEX communication port (i.e. set to correct Modbus address 1, 2, 3 or 4 and 19200bps N81) you must make use of the thyristor configurator tool that you can download from the CD automation website.

<https://www.cdautomation.com/product/software/#gref>

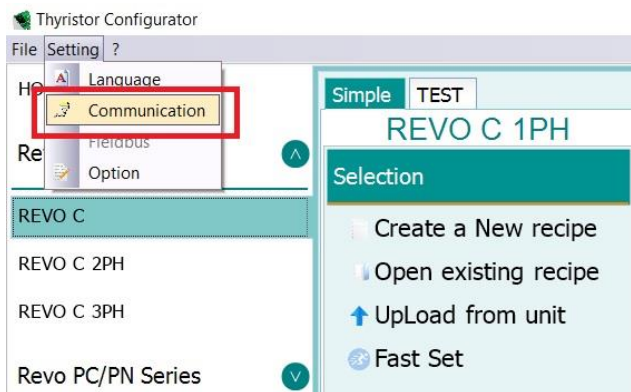
Here you can also download the drivers for the USB interface

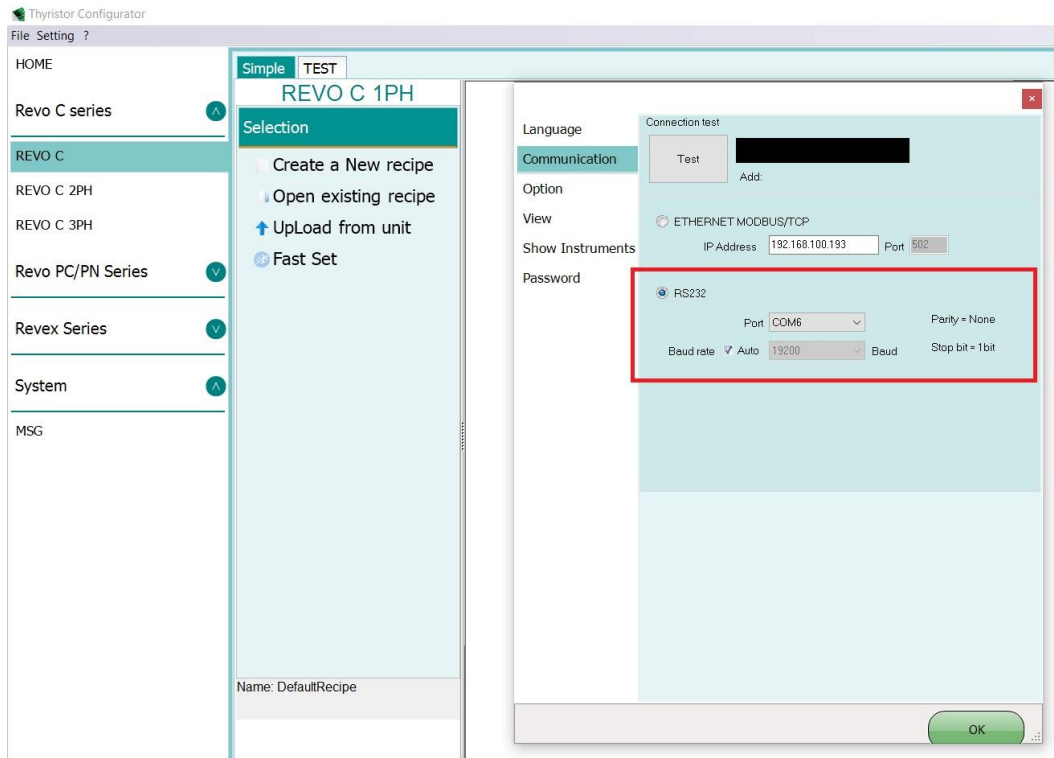
For the service touchscreen, you need to adjust the Modbus slave port on each REVO C/REVEX to a Modbus address 1, 2, 3 or 4 and 19200bps N81.

First connect the 24VDC power supply to the Revo C or REVEX unit (see manual) and make sure you have connection with it via a micro-usb cable (maybe your mobile phone has it).

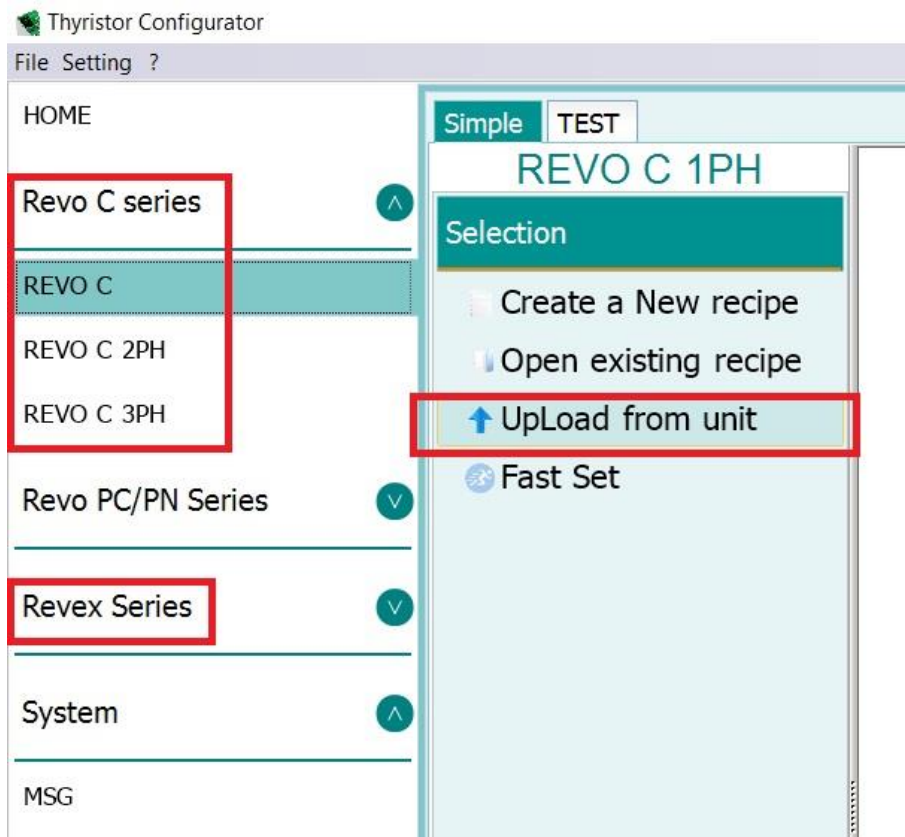
First check in windows on which comport the interface to the Revo C/REVEX has been mapped. Keep on using always the same USB port because windows mappes other COMport number to each different USB port (don't know why?).

Start the thyristor configuration tool and adjust the comport settings to what you found in the device settings. Do this with setting-communication





Select Revo C or REVEX and push “upload from unit



Up Load Recipe

Address

1

READ ->

CANCEL

UP-LOAD

Function:
This function reads all values stored in the unit.

It's necessary to write the address.

To Up-load click on "Read" on the left side.

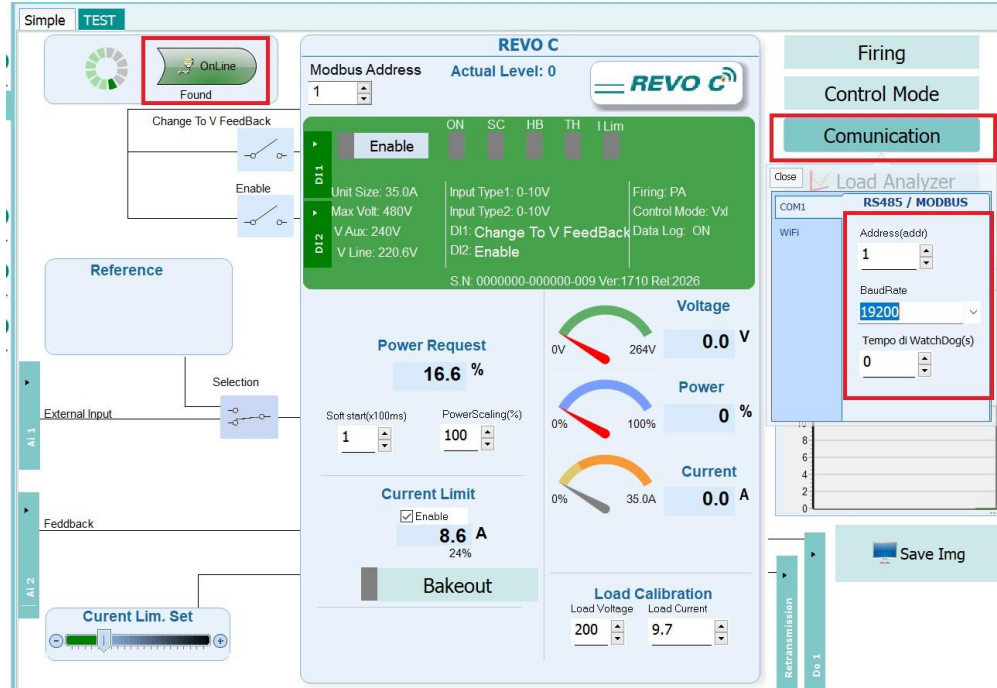
Address:
It is used to set the address of the unit

To set address write the number or click on the arrow

Set address 1 and push read". All parameters will now be read from the Revo C/REVEX (takes a short while, just wait).

Push test, click on the blue actual level 0 and login with 1111 when you want to make changes

Now move the window a bit to the left and push ONLINE, to go online with the Revo C/REVEX. Push communications



Set the COM1 comport speed to 19200bps and the desired Modbus address of the module (either 1, 2, 3 or 4).

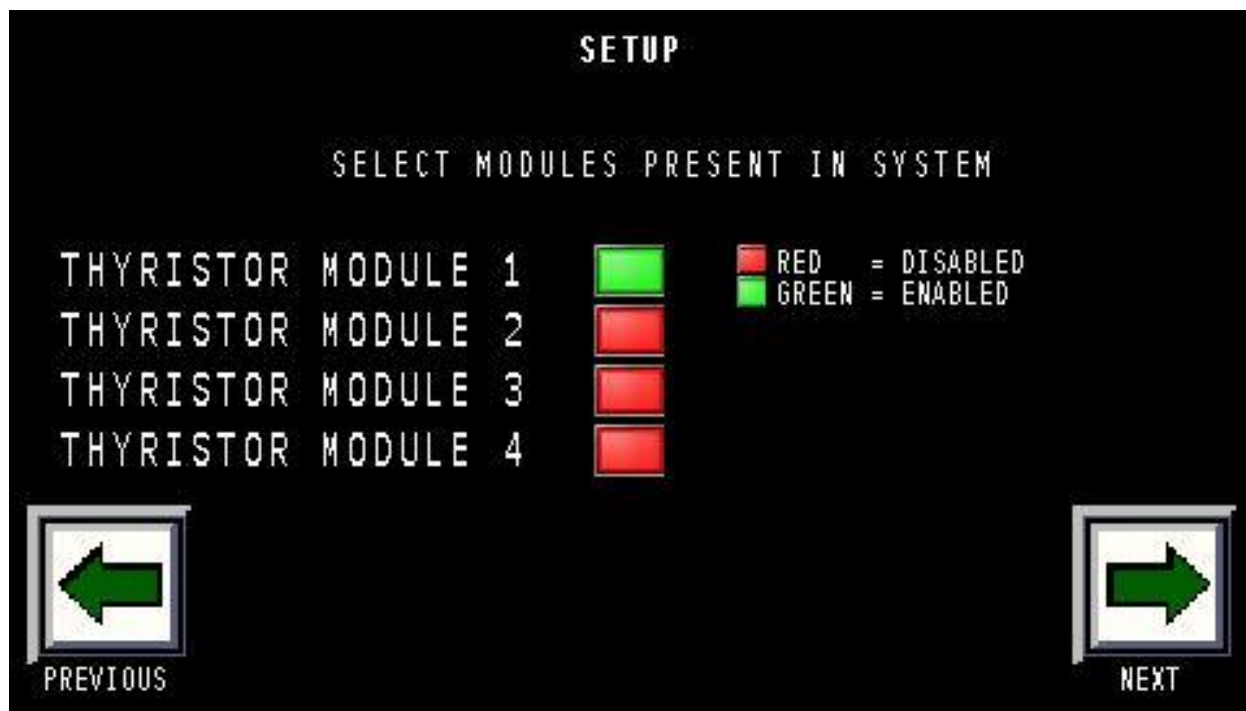
3. SETUP of GP4116 touchpanel

When the Revo C/REVEX thyristor modules are configured properly we can start the GP4116 screen for the first time.

First we need to configure the touchpanel in the initial setup. This will only be necessary when the screen starts for the first time. After that the settings are stored and the screen will start automatically.

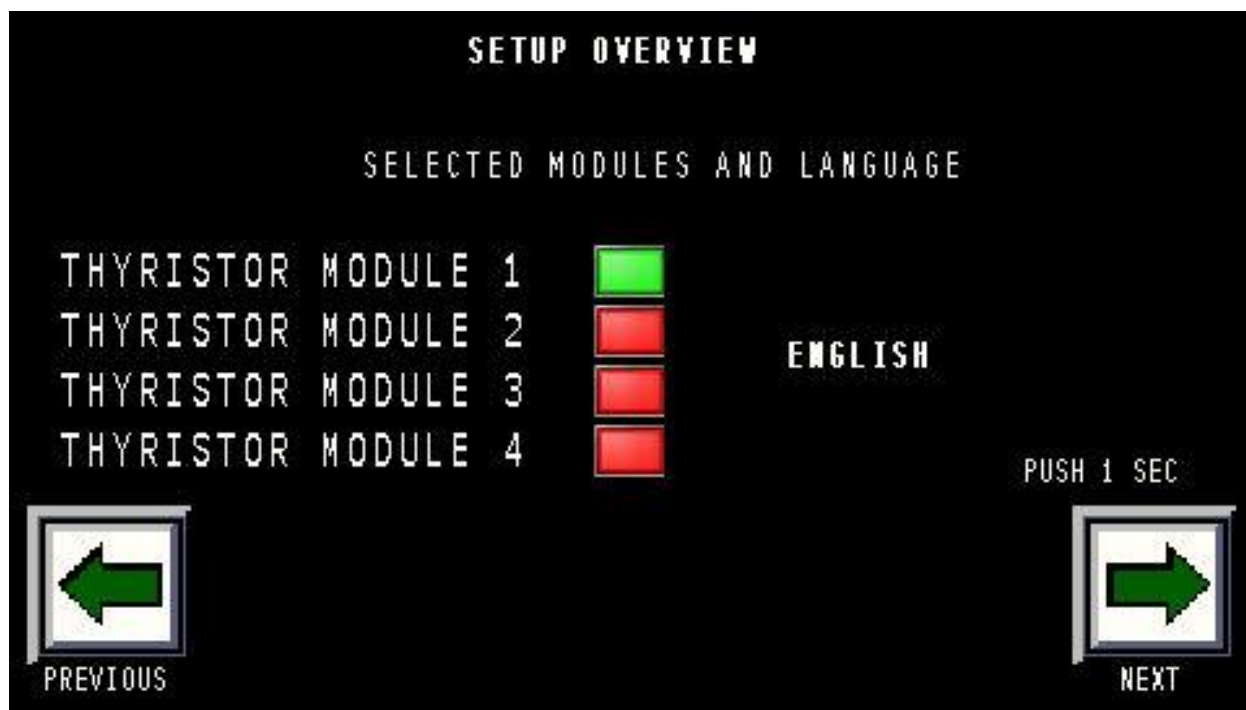


First select the language and push next



Then select which modules are present in the system.

There can be a mix of both the REVEX and REVO C modules of different sizes, since the communication protocol of the REVEX and the REVO C is the same.



This is an overview what has been selected in the setup. Push next and the settings will be stored in the screen and the system is ready for use.