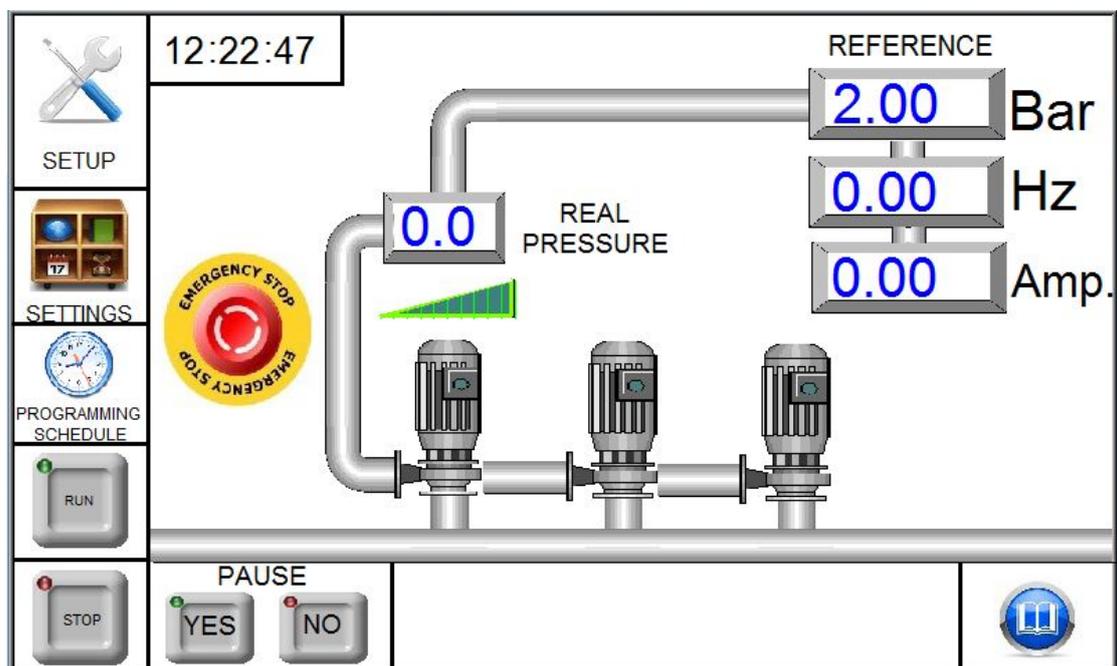




PUMPING ELECTRONIC CONTROL



MITOS-cbrh (V 1.0) Installation Manual
for Toshiba inverters **VF-S15**, **VF-PS1** Series

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1. SECURITY INFORMATION

Mandatory

It is important to read this manual before commissioning, applying power to the MITOS-cbrh or connecting to the Inverter. This manual only applies when installing with VFS15 (VFS15S) or VFPS1 series TOSHIBA Inverters.

Warning

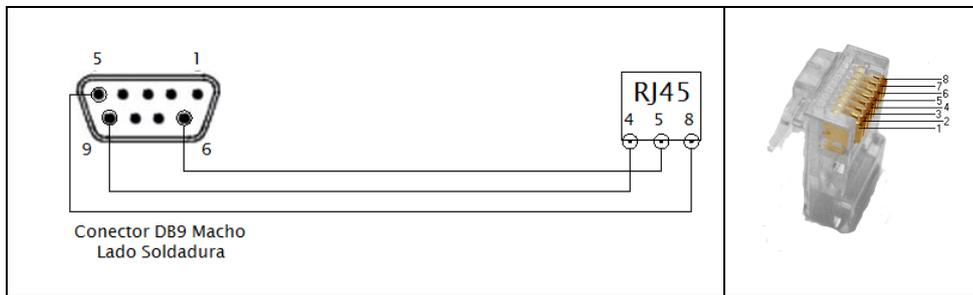
It is necessary to have read and know the VFS15 or VFPS1 Inverter instruction manual.

2. FIRST STEPS

To connect the MITOS-cbrh module to a Toshiba VFS15 or VFPS1 series Inverter you will need following:

2.1. CABCBRH Cable

To communicate from the MITOS-cbrh module to a VFS15 or a VFPS1 series Inverter the following cable will be needed



3. CONNECTING THE CABLE

The CABCBRH cable mentioned above will have to be connected as follows.

Connect the RJ45 connector to the RJ45 port of the inverter and the DB9 connector to the DB9 port on the MITOS-cbrh module.

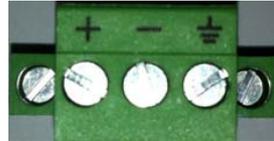


4. MITOS-CBRH POWER SUPPLY

The MITOS-cbrh has to be connected to an external power supply 24 VDC. Please, take care to connect the right polarity to the supplied connector.

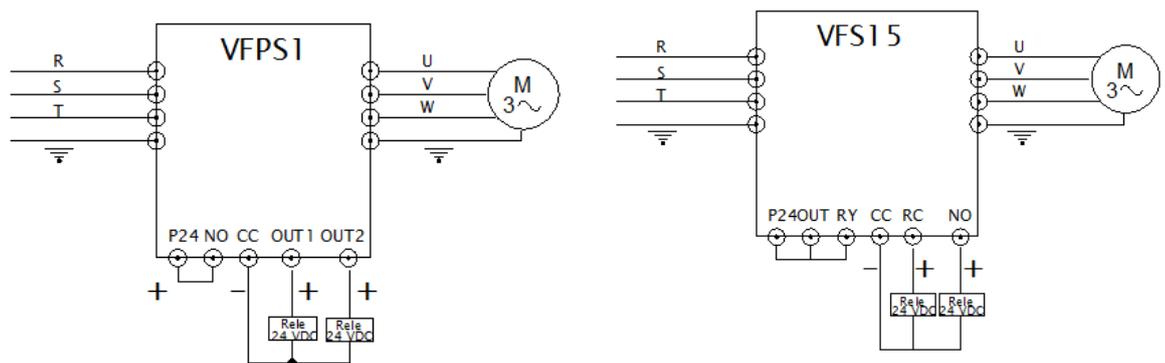
+ positive - negative & ground.

Note: It is highly important to connect properly the ground.



5. GENERAL DRAWING

5.1. WIRING THE INVERTER



IMPORTANT NOTE:

Never connect the OUT1, OUT2 & NO outputs directly to the contactor coils. This could damage seriously the inverter.

For VFPS1 series Toshiba inverters use a:

24 VDC Relay connected to the OUT1 output to drive the additional pump 1 contactor.

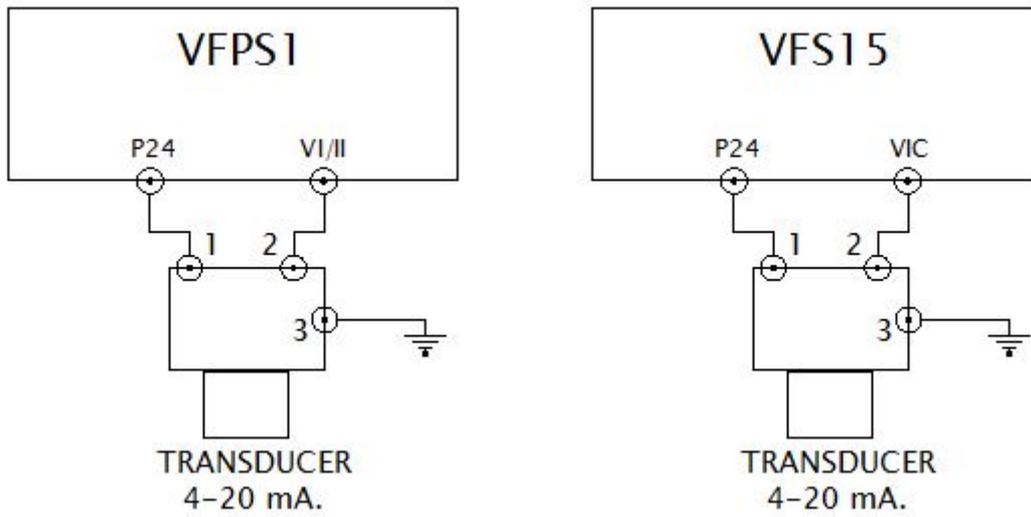
24 VDC Relay connected to the OUT2 output to drive the additional pump 2 contactor.

For VFS15 series Toshiba inverters use a:

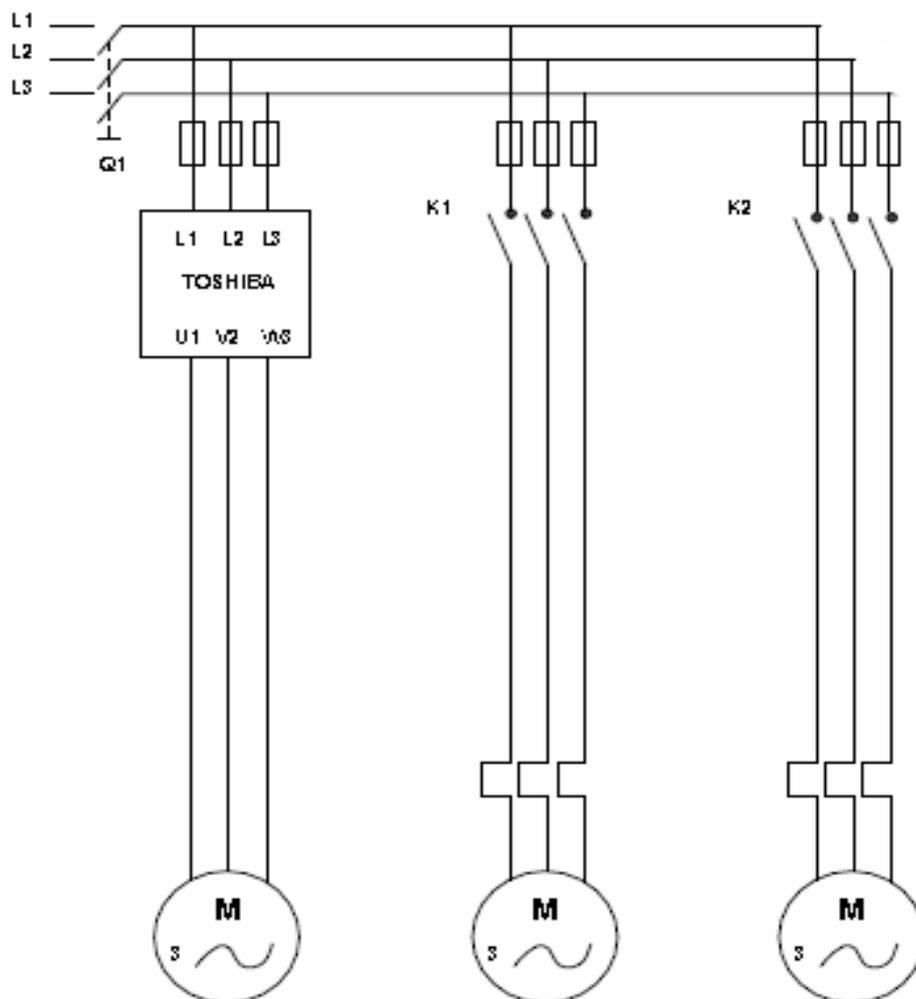
24 VDC Relay connected to the RC output to drive the additional pump 1 contactor.

24 VDC Relay connected to the NO output to drive the additional pump 2 contactor.

5.2. WIRING THE TRANSDUCER TO THE INVERTER

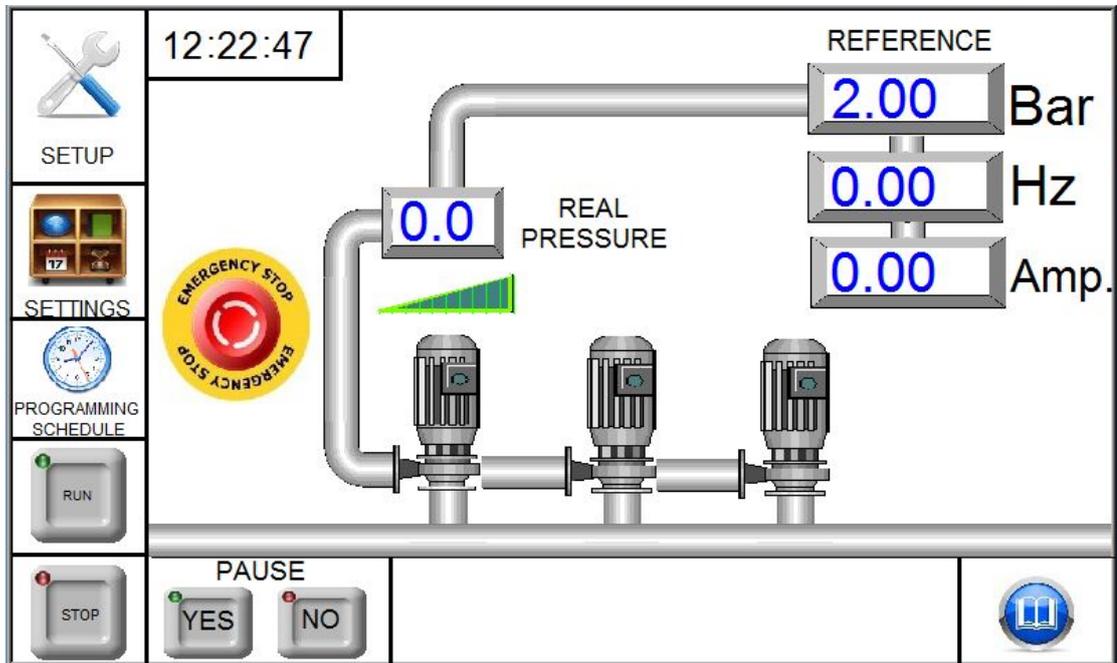


5.3. STANDARD WIRING DIAGRAM: INVERTER + 2 PUMPS



6. HMI

This is the main screen of the system. It shows the most relevant working information, allows starting and stopping the system and gives access to the system settings.



7. MITOS-cbrH SETUP

7.1. Initial settings

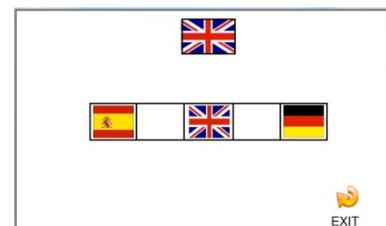
For the first SET UP please press the SETUP button



SETUP

7.2. SELECTING YOUR LANGUAGE

Press on the flag of your country to select your language. All messages and displays will be shown in your language from now on.



7.3. SELECTING THE INVERTER TYPE

A screen will appear in which you will have to choose the type of inverter you have connected. Follow the on screen instructions.

Once you have pressed on the type you need, the inverter will be automatically programmed with the necessary parameter values for this application. A message informing that the inverter has been correctly programmed will appear.

SELECT INVERTER TYPE TO BE PROGRAMMED



VF-S15



VF-PS1

8. SETTINGS

After the SETUP but also every time you need to readjust the system to your needs, you will have to establish some parameters.



SETTINGS

8.1. PRESSURE PARAMETERS

This step will allow you to adjust the system to your needs. Introduce:

TRANSDUCER RANGE	Maximal pressure that the transducer can work with.
REFERENCE PRESSURE	Pressure that the system has to maintain on the system.
START PRESSURE	Pressure that will make the system to start.
STOPPING POINT HZ	Set the Hz value at which, when the REFERENCE PRESSURE has been achieved, the inverter driven pump will give a 0 flow rate (all valves closed).
TIME GOT TO SLEEP	Enter the time after which, when STOPPING POINT achieved, the inverter will automatically stop (sleeping function)

Pressure Transducer Range	<input type="text" value="10.00"/>	Bar
Reference Pressure	<input type="text" value="2.00"/>	Bar
Start Pressure	<input type="text" value="1.50"/>	Bar
Stopping Point Hz.	<input type="text" value="40.24"/>	Hz.
Time go to Sleep	<input type="text" value="2.0"/>	Seg.



8.2. ADDITIONAL PUMPS

On this section it will be requested to enter the number of additional pumps (1 or 2) the system has. Please follow the on screen instructions to fulfill other options (pump alternation).



8.3. PROGRAMMING SCHEDULE

The Programming schedule screen will allow to program 4 different run times for every day, from Monday to Sunday. The system will then start and stop according with the programmed timetable. The programmed times have to be different to 00:00 as this value means that the timetable is disabled.



PROGRAMMING SCHEDULE

When having a timetable enabled a green light will appear on the right side of the clock icon and the message PROGRAMMED SCHEDULE ENABLED

will be also shown.

The PROGRAMMING SCHEDULE will have always priority in front of any working system.

Example: If a SCHEDULE is active on any day the system will not start if there is a drop on the pressure during the non working hours of that day. The START STOP buttons will be also disabled during that day. The day after (if no SCHEDULE active) the system will then run according to the programmed working pressure at any time.

To disable a SCHEDULE go to the specific day and press on the DISABLE button of the SCHEDULE you want to disconnect. The SCHEDULE will then show 00:00 and will remain disabled.



8.4. START, STOP, PAUSE BUTTONS

These buttons will allow us to start and stop the system at any time, if there is no SCHEDULED RUN on and the system is not PAUSED.

Nevertheless, if the system is not working because it has reached the reference pressure and there is a programmed value for minimal pressure, the system will start again if the pressure fails below that value (minimal pressure). It will remain working till it arrives to the reference pressure.



This is because the pressure drop has always priority and would connect the RUN command. To avoid it press STOP again. The system will then remain still till the RUN button is pressed again.

To PAUSE the system, press the YES button. It will remain paused, completely disabled. It will not respond neither to programmed SCHEDULES nor to the START button
Press the NO button to reactivate the system.



8.5. INFORMATION

Pressing this icon you will access to different OPTIONS:
ALARMS, HISTORY, COUNTERS, SYSTEM,
ADDITIONAL SECURITY OPTIONS



8.5.1. ALARMS

ALARMS will allow to access to any alarm happened on the system showing type of alarm, time of alarm, etc.

When an alarm appears the alarm information will appear on RED colour. Once the alarm has been solved the alarm information will turn to GREEN. Pressing on the alarm information, the time on which the alarm was solved will be saved.

An alarm will show a blinking icon together with a beep advising about it. Pressing the alarm icon it will show directly the Alarm section.



ALARMS



8.5.2 HISTORY

On the HISTORICAL section the daily information will be available. It registers the system information every minute showing data like, inverters working frequency, current consumption, number of active pumps and also, in case of failure, the error code. The error information is available on the ALARM section.



HISTORY

8.5.3 COUNTERS

The COUNTERS section shows the time that all the pumps have been running.

These counters can be reset, pressing the button PUT TO 0.



COUNTER

8.5.4 SYSTEM

SYSTEM will allow to configure some options like:

DATE and TIME

Display LIGHT disconnection time

Display BRIGHTNESS intensity



SYSTEM

SYSTEM SETTINGS

DATE / TIME

DAY	MONTH	YEAR	HOUR	MIN	SEG
24	05	2013	12	58	13

DISPLAY LIGHT DISCONNECTION TIME

10 Minutes

If the value is "0" it will be deactivated.

DISPLAY BRIGHTNESS INTENSITY

0

Minimum Value = 0 Maximum = 31

- Date and Time:** It is important to set date and time correctly to allow the proper behaviour of the SCHEDULED RUNNING.
- Display light disconnection time:** Once the time set on this field has elapsed, the display light will turn off. To turn it on touch the screen. In case of an alarm the light would automatically turn on.
- Display brightness:** It can be set according to your needs within a range from 0 to 31.

8.5.5 SECURITY

This section allows to set some security parameters:



SECURITY

REQUEST PASSWORD FOR SETTING CHANGES (PRESSURE, NUMBER OF PUMPS)

DISABLED

STOP BY TUBING BREAKAGE DELAY TIME
PRESSURE NOT ACHIEVED WITH ALL THE PUMPS TO 100 X 100

Minutes

DISABLED

MOTOR LOW CONSUMPTION PROTECTION

REAL CONSUMPTION	<input style="width: 40px;" type="text" value="0.00"/>	Amp.	MINIMUM CONSUMPTION	<input style="width: 40px;" type="text" value="0.0"/>	Amp.	TIME SECONDS	<input style="width: 40px;" type="text" value="0"/>
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Request Password:

On this section it can be selected if the system will request for a password to access to the most important menus:

SETTINGS, ALARMS, HISTORY, etc.

The password can be modified by the user after enabling the request for it.

When entering on SETTINGS and typing the password (1234 by default) the button CHANGE PASSWORD will appear. Follow the instructions on screen to proceed.

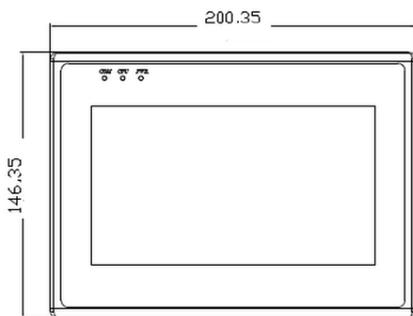
WARNING: Please save the password in a safety place or use one you will always remember. There is no way to reset the by default one.

Enable/disable tubing breakage control

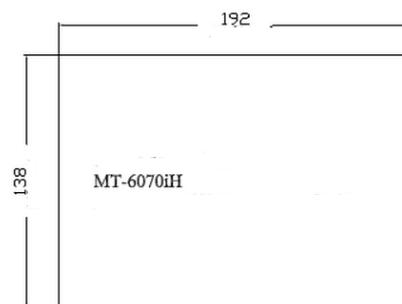
If all the additional pumps are running and the Inverter pump is working at the maximum frequency without achieving the set point value a failure in the system may have occurred. Examples of possible failures in the system are a breakage in the pipe work or tap/valve failure. Once the delay time set in this screen has been reached, the system will shut down displaying the alarm TUBING BREAKAGE.

The **motor low consumption protection** is aimed for the case that a too low consumption is detected that could mean that the pump is working without water. As this could damage the pump the system can be programmed to stop after a delay time.

Please, enter the minimum consumption of the inverter driven pump and the delay time you consider.

9. DIMENSIONS OF THE MITOS-cbrh MODULE

External dimensions



Mounting dimensions



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