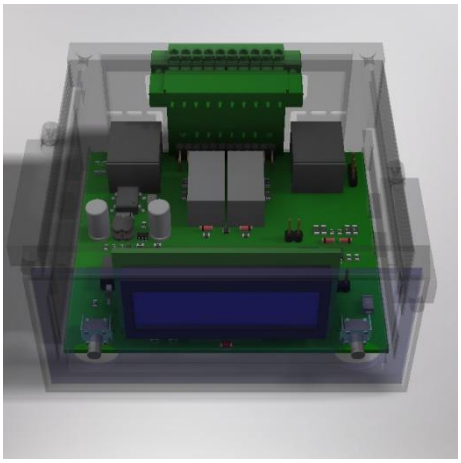
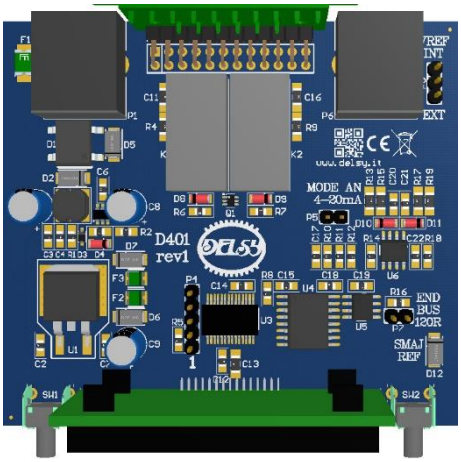
UV76X16

UNIVERSAL VISUALIZER 76*16





SUMMARY:

INTRODUCTION:

The Universal Visualizer 76*16 is designed for many applications.
The oled display can show the position of a mechanical moving part by using a potentiometer or an encoder. It supports many types of restive sensors and also can handles 4-20mA output. Two relays are used for outputs.
Easy to configure, using the two push buttons.
Calibration and other options are editable in specifics sub menu, even applications are interchangeable.

All the information in the manual are updated to the publication date. DELSY however reserve the right to make changes at any time for actuate her politic of improvement of the product.
Pictures of the screens shows can be different in the device.

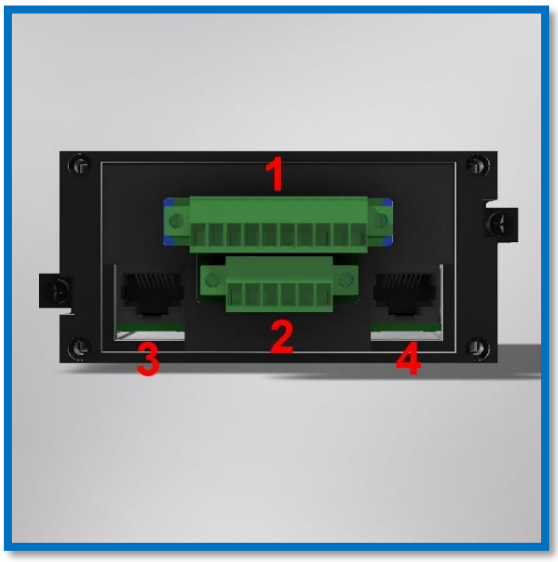
MAIN PARTS:

_ 1 Display oled 76*16 pixel.
_ 2 Push buttons.
_ 1 Analog input 12 bit resolution.
_ 2 Relays 6A.
_ 2 Fast digital input / 1 push-pull encoder (Optional).
_ 1 BUS RS485 (Optional).

FRONT SIDE:

1) Graphical display oled 76*16pixel.
2) Power ON LED. Indicates the correct working of the internal power supply.
3) Left push button. Left scrolling or ESC menu button.
4) Right push button. Right scrolling or OK menu button.

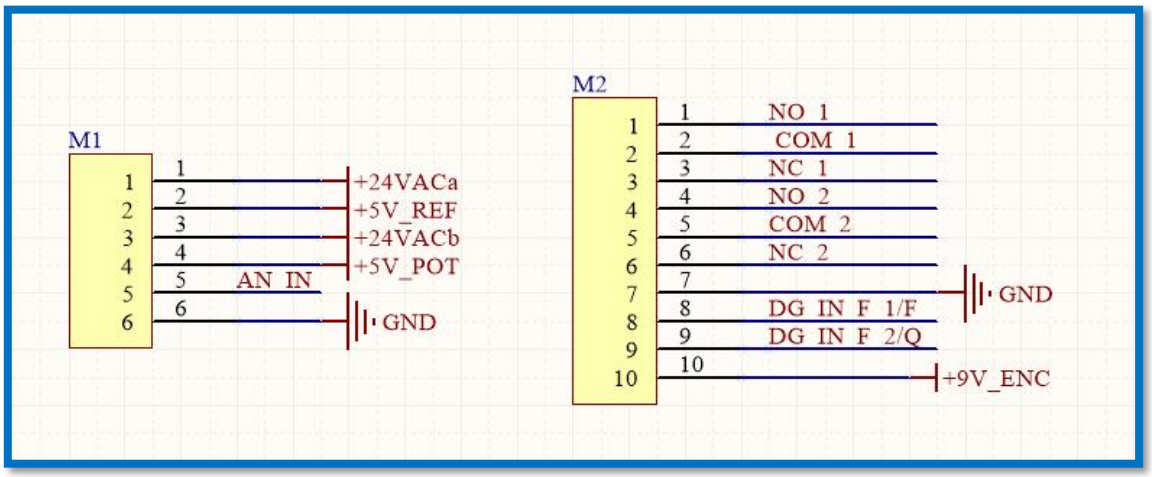
BACK SIDE:



1) Terminal block M2.
2) Terminal block M1.
3) RJ45 connector.
4) RJ45 connector.

ELECTRICAL CONNECTIONS:

All the electrical connections required are made whit terminal blocks in the back of the device. In the following photo are shown the pins purposes:



POWER SUPPLAY:

PIN1 and PIN3 of M1 are the power supply inputs. For a proper use, it must be since +12V AC/DC to +24 AC/DC.

ANALOG INPUT:

PIN4 of M1 is the +Vcc input of the sensor.
PIN5 of M1 is the output of the sensor.
PIN6 of M1 is the GND input of the sensor.

RELAYS:

PIN1 of M2 is the NO (normal open) contact of the relay1.
PIN2 of M2 is the C (common) contact of the relay1.
PIN3 of M2 is the NC (normal close) contact of the relay1.
PIN4 of M2 is the NO (normal open) contact of the relay2.
PIN5 of M2 is the C (common) contact of the relay2.
PIN6 of M2 is the NC (normal close) contact of the relay2.

PUSH-PULL ENCODER / FAST INPUT: (OPTIONAL)

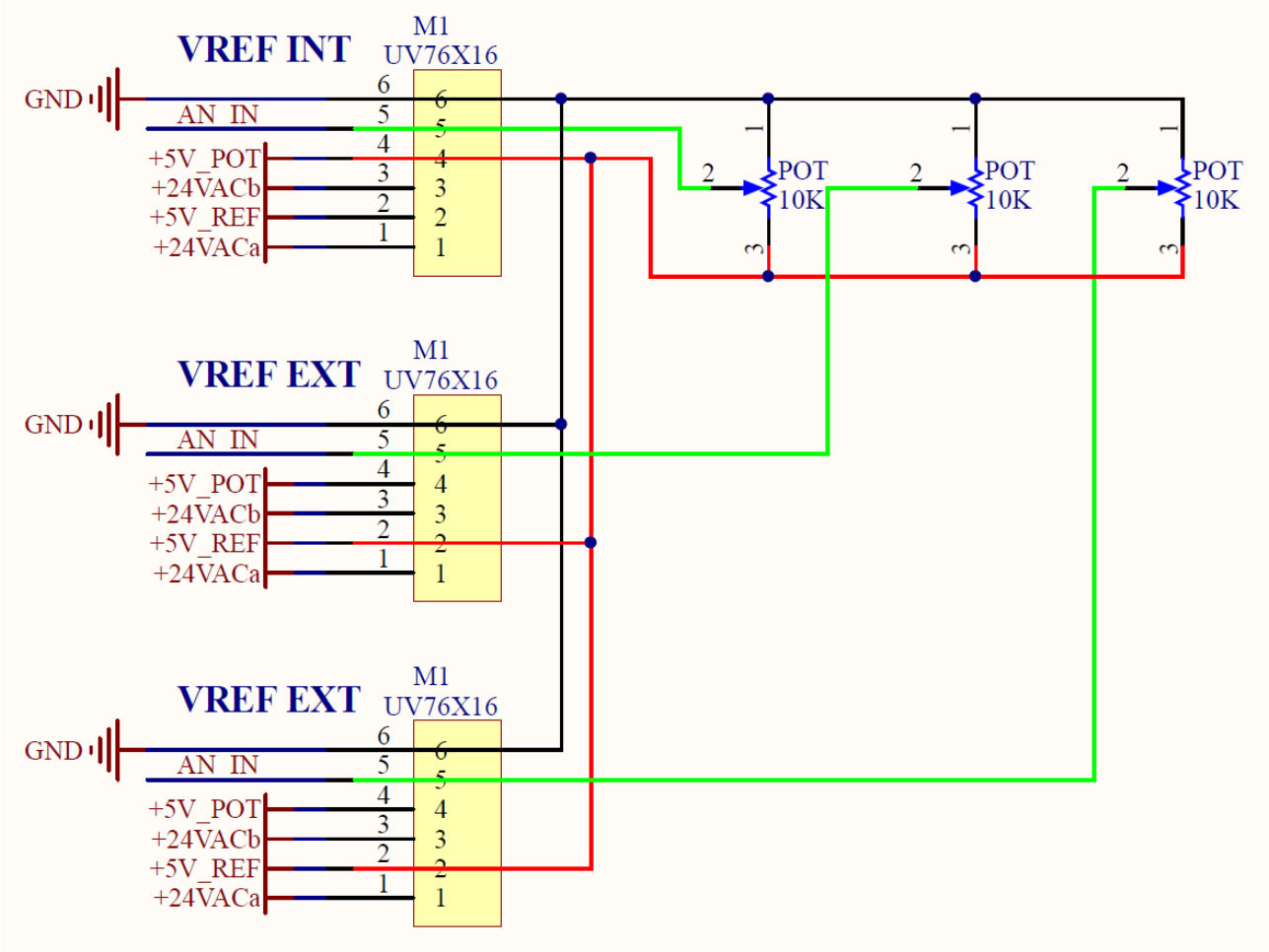
PIN7 of M2 is the GND input of the encoder.
PIN8 of M2 is the F output of the encoder.
PIN9 of M2 is the Q output of the encoder.
PIN10 of M2 is the +Vcc input of the encoder.

BUS RS485: (OPTIONAL)

Two RJ45 connection provides to the BUS RS485 connection. It is an optional only for the full version of the UV16*16.
The connectors are in parallel. Many visualizers can be connected together in series.

MULTIPLE CONNECTION:

The picture below is the schematic for connecting multiple UV76*16.
This configuration allows reduce the numbers of wires required for connecting potentiometers sensors.



For a correct configuration follow the steps below:

_ Connect all sensor's power pin to one device, the negative pole to M1_6 GND and the positive to M1_4 +5V_POT.

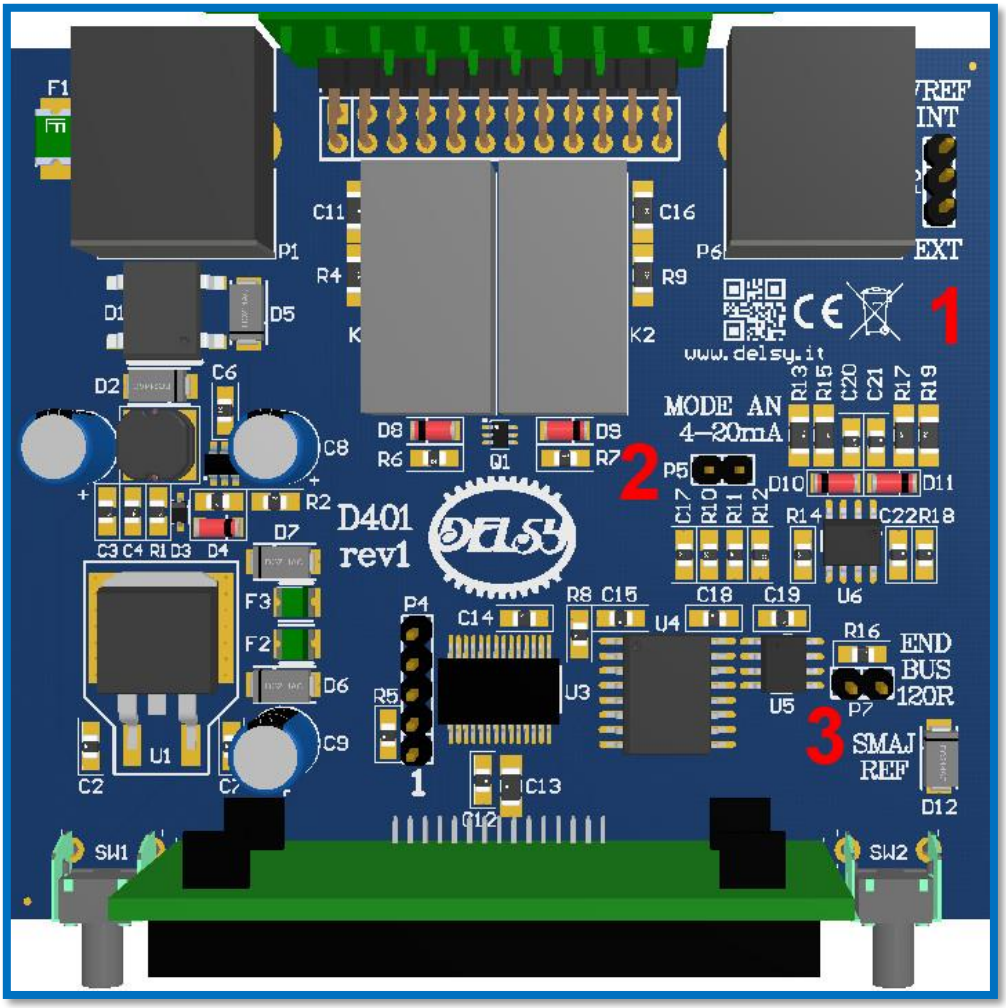
_ Put all the VREF jumpers of the outer devices in position EXT. For more information look at the PCB D401 paragraph.

_ Link together all GND pin.

_ Link together +5V_REF to the +5V_POT of the first UV76*16. The +5V_REF of this is leaved free.

_ As always connect AN_IN to the corresponding sensor's cursor.

PCB D401:



D401 is the main board of the visualizer.
The printed circuit board is protected by self-resetting fuses in the power supply input and outputs to the sensors.

CONFIGURATIONS:

1) Analog +Vcc reference:
Look at the top legend “VREF”. A 2,54mm jumper in P8 is required to set the “INT” internal or the “EXT” external reference. The internal reference is the default mode. The external reference allows to reduce the number of wires required for an installation of several universal visualizer. For more information look at the multiple connection paragraph.

2) Mode Analog 4-20mA:
Look at the top legend “MODE AN 4-20mA”. A 2,54mm jumper in P5 is required to enable the 4-20mA mode on the analog input.

3) RS485 End BUS resistor:
Look at the top legend “END BUS 120R”. A 2,54mm jumper in P7 is required to enable the terminal BUS resistor. This is only required on the last device of the RS485 BUS.

VERSIONING:

_BASIC:
Basic version for visualize a resistive sensor.

_POSITIONATOR:
Adds the feature of a semiautomatic positioning of the axes in a specify quote.

_ENCODER:
Allow to use a push pull encoder as sensor.

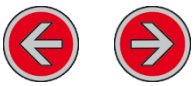
_RS485:
Connect the device with an industrial BUS.

ABSOLUTE MAXIMUM RATINGS:

_POWER SUPPLY INPUT:	+12V to +30V AC/DC
_ANALOG INPUT:	+5V DC
_Vcc mA ANALOG OUTPUT:	150mA
_V DC RALAYS INPUT:	+24V DC
_A RALAYS OUTPUT:	6A
_ENCODER / FAST INPUT:	+30V DC
_Vcc mA ENCODER OUTPUT:	150mA

MENU':

In operating mode, push together the buttons for a few seconds to enter in the main menu.



This photo represents how the main menu of the visualizer looks like:

The menu has a timeout of ten seconds. After that the visualizer returns in the operating mode. The timeout is disable when the set-up procedure is active.
The buttons change their function according to the menu page active. To understand the active function you can look at the symbols in the corner of the display. Symbol description:

LEFT  **BUTTON**

 Single pressure. Left scrolling in the menu or decries a number.

 Continuous pressure. Esc from the current menu.

 Continuous pressure. Don't confirm the changings of settings.

RIGHT  **BUTTON**

 Single pressure.

 Continuous pressure.

 Continuous pressure. Confirm the changings of settings.

MENU SETTINGS:

It is the most important menu. It contains general settings, all the settings required for the setup of the device and also allows to change the working application.

MENU STATUS:

Shows the status of the I/O. All inputs and outputs have a dedicated page.

MENU INFO:

This menu contains some useful information about the UV76*16, such as contacts, firmware and PCB release.

SETTINGS:

Path: Main menu / Settings.
All regulations are included in the settings menu. It contains three sub menus, each one is dedicated to a specific area of customization.

GENERAL SETTINGS:

Path: Main menu / Settings / General.
From here is possible to customize the data input. Those regulations aren't referred to a specific application of the visualizer. They can be changed individually.
After each change, will be asked to confirm the data saving.

_N Sample: number of samples acquired by the analog digital converter.
_Degrees: select temperature degrees unit (Celsius/Fahrenheit).
_Decimals: select the number of decimals displayed.
_Pos. mode: activate/deactivate positioner mode.

SETUP:

Path: Main menu / Settings / Set-up.
Those settings are required for the setup. They are different according to the needs of the application. For example, the visualizer app needs to be set the minimum and the maximum analog value.
When the setting mode is on, it isn't possible to exit until it hasn't been completely done.

If the procedure was successful and no errors were found, will be asked to save the new data acquired.
More detailed information will be provided in the description of the specific applications.

MAIN APP:

Path: Main menu / Settings / Main-up.
This menu is dedicated to the choice of the main operating mode. By changing the main app all other settings are restored to the default value.

Mains apps available:

_ANALOG:
Is the default application. Shows the position of a mechanical moving part by using a potentiometer.
With the Positioner option active helps the machine's operator to reach the established target of a specific moving part.

_THERMOMETER:
Is a thermometer visualizer. Two temperature thresholds can be set. Once a threshold is exceeded, the corresponding relay deactivates its normally open contact. That allows to control the temperature of an industrial machine.

_ENCODER:
This application is optional. Is not available on the basic hardware.
Shows the position of a mechanical moving or rolling part. As sensor must be used a push-pull encoder.
With the Positioner option active helps the machine's operator to reach the established target of a specific moving part.

More detailed information will be provided in the description of the specific applications.

ANALOG:

Is the default application. Show the position of a mechanical moving part by using a potentiometer sensor. This photo represents how the main screen of the app looks like.

SET-UP:

Path: Main menu / Settings / Set-up.
Put the mechanical moving part at the MINIMUM level required. Confirm for hold the actual position and continue whit the set-up.

Put the mechanical moving part at the MAXIMUM level required. Confirm for hold the actual position and continue whit the set-up.

Choose the scaling factor. It represents the number displayed at the maximum level request. The standard scaling factors available are: 400, 500 and 1.50. Confirm your choice and continue.

Choosing the free scale for a custom value. Before selecting the maximum value that will be displayed. Use a light pression on the arrows for increase/decrees the value.
Confirm your choice and continue.

After select the number of decimals. This option is for establish the position of a comma. The value available are 0, 1, 2. Use a light pression on the arrows for increase/decrees the value. Selecting 0 the comma is disabled.
Confirm your choice and continue.

Chose if activate the target. This allows to use the UV76*16 as a positioner. For more detail read the specific paragraph. Confirm your choice.

If the setting procedure is successful, the following screen will appear. Confirm to save all the settings data.

With an incorrect setting procedure, a warning screen will appear. All acquired data will be discarded and defaults parameters will be restored. The warning page appears when, by processing the data acquired with the procedure, the visualizer detects a problem. The problem could be caused by a wrong electrical connection or the sensor's data are not sufficient to guarantee the numbers of points on the scale of the desired values.
Press the right or left button for a few seconds to exit.

ENCODER:

Is similar to the analog application. Is not available for all variant of the hardware. Show the position of a mechanical moving part by using a push-pull encoder.
Heavy press the left button for make the zero of the axis.

The setting procedure is similar to the standard version.
Put the mechanical moving part at the MINIMUM level required. Confirm for hold the zero11 position and continue whit the set-up.

Put the mechanical moving part at the MAXIMUM level required. Confirm for hold the actual position and continue whit the set-up.

POSITIONER:

It is the upgrade of the Visualizer App. Shows the position of a mechanical moving part by using a potentiometer sensor. Besides helps the machine's operator to reach the established target of a specific moving part. A dedicated sub-menu allows to set the target. The two relays of the UV76 * 16 allow the semi-automatic management of the axis.

Path for changing application: Main menu / Settings / Main-up / Positioner.

This photo represents how the main screen of the app looks like.

After selecting this application, it is required to make the set-up of the analog sensor. To allow calibration, the relays that manage the movements are active.
The procedure is the same as the Visualizer app. Set the minimum position, the maximum position and the scale. Pay attention to guarantee the minimum number of points of the analog digital converter necessary for the desired scaling factor. Confirm for saving all the settings data.
When the setup procedure is successful, the additional properties and the dedicated application sub-menu are unlocked.

Path for the setup: Main menu / Settings / Set-up.

TARGHET MENU:

The target menu is unlocked after performing the set-up procedure.
To enter, just heavy press a button. Here is possible to set the desired target by pressing the scrolling buttons. For exit press heavy both buttons.
The minimum target option is 0 and the maximum target corresponds to the scaling factor.

ENABLE / DISABLE THE POSITIONER:

Light press a button for enable/disable.

_ ENABLE:
The target **T** is displayed.
Only one relay at time is active **ON: Up or Down**.
The target menu is NOT reachable.

_ DISABLE:
The target **T** isn't displayed.
All relays are active **ON: Up and Down**.
The target menu is reachable.

This photo represents how the main screen of the app looks like when positioner is active.

When is active helps to reach the desired target. Only one direction of movement at time will be active. When the target is reached, the movement in that specific direction will be blocked. The arrows in the display, that follow the word **ON:,** indicate which direction is allowed. For restoring both directions disable push the left button.

THERMOMETER:

Is a thermometer visualizer. The temperature degrees unit can be Celsius or Fahrenheit.
As a precision sensor uses a LM35DZ/NOPB. Electricals connection are the same as a normal potentiometer:

PIN4 of M1 is the +Vcc input of the sensor.
PIN5 of M1 is the output of the sensor.
PIN6 of M1 is the GND input of the sensor.

Two temperature thresholds can be set. Once a threshold is exceeded, the corresponding relay deactivates its normally open contact. That allows to control the temperature of an industrial machine.

Path: Main menu / Settings / Main-up / Thermo.

This photo represents how the main screen of the app looks like.
With no threshold exceeded, the thermometer symbol is empty. In addition, the outputs are both active and visible on the display **O1** and **O2**.

With first threshold exceeded, the thermometer symbol is half full. In addition, one of the outputs is active and visible on the display **O2**.

Second threshold exceeded.
With second threshold exceeded, the thermometer symbol is full. No one of the outputs is active and visible on the display.

SET-UP:

Path: Main menu / Settings / Set-up.
Set the first threshold desired. The default value is 40°. Confirm for hold the actual threshold and continue whit the set-up.

Set the second threshold desired. The default value is 65°. It must be higher than the first. Confirm for hold the actual threshold and finish the set-up.

NOTES:

REFERENCES:

Reference directive: 2004/22/CE

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