

MMI-320/C through MMI-640/T quick start guide (Orion controller)

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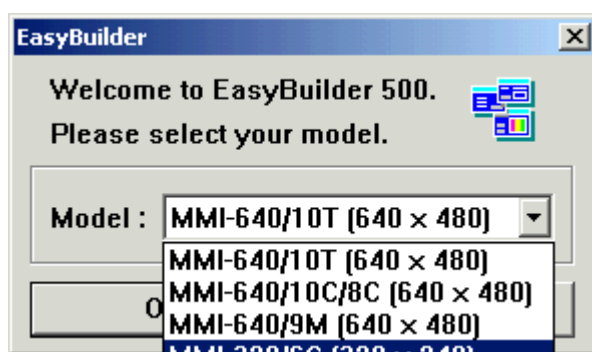
Version 1.0 – December, 16 2003

1 Setting Up

Reference the HMI-320/640 TouchPanels Installation and Operation manual for additional information.

1.1 Starting a new project:

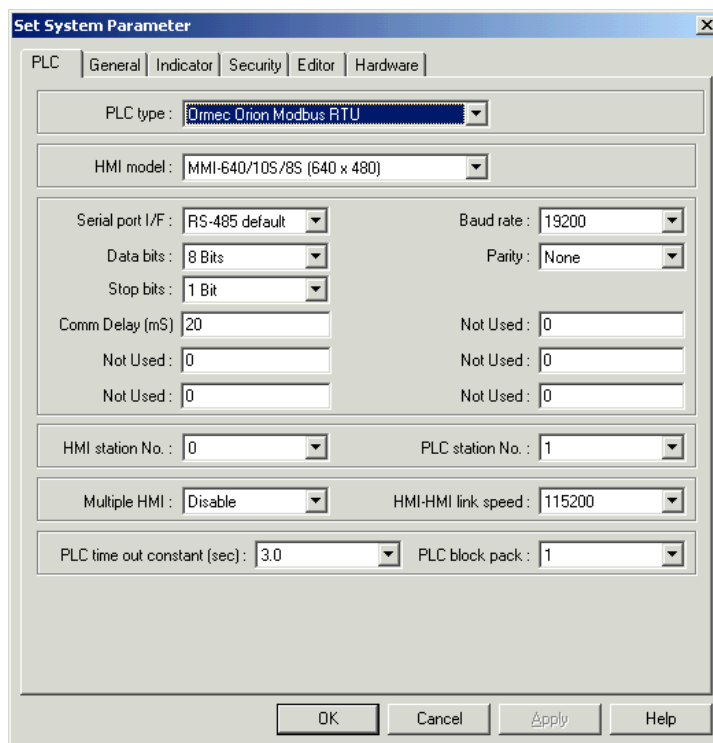
Open EasyBuilder, then File | new.



Select the correct model. Click OK.

1.2 Setting up system parameters:

Click on Edit | System parameters:



Set PLC type to Ormec Orion Modbus RTU.

Set Serial port I/F to RS-485 default. Orion serial ports (J2, J3) , SMLC serial port (J1) .

Set Data bits to 8, Stop bits to 1, Parity to None, and Baud rate to 19200 (**necessary for use with MBX-QP**)

Set PLC station No. to 1 (Orion ID)

Set **PLC block pack**: to 1. This will allow gaps in the MotionBasic (Orion) map references and CodeSys (SMLC) variable references.

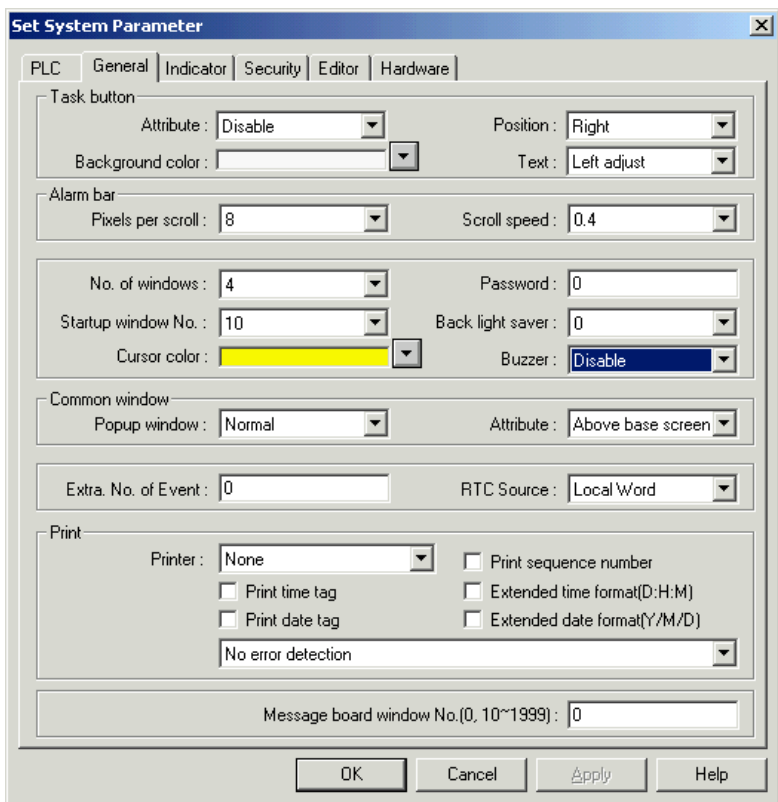
If only one HMI is used:

Set HMI station No. to 0

Set Multiple HMI: to Disable

Use **Parameter 1**: to set the communications delay (in milliseconds) between the controller and the HMI. Range: 10 to 50. Default: 20.

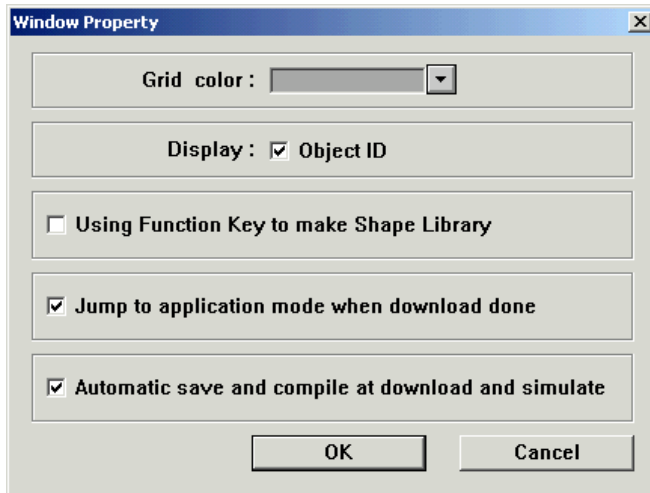
1.2.1 System parameters (General tab):



Set Task button frame, Attribute: to Disable. This disables screen menu's on the HMI. Reference the Installation manual for information on the remaining settings.

1.2.2 Set environment defaults:

Click Option | Window property



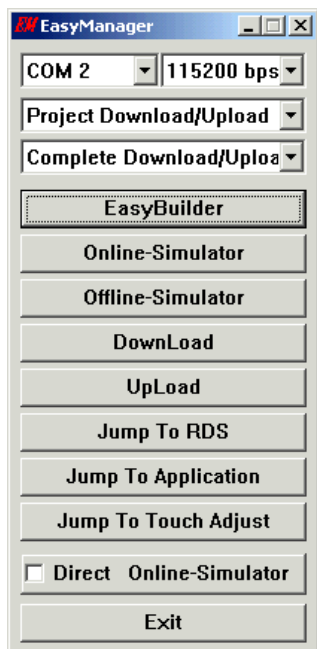
Check the boxes indicated above. When checked the project will save, compile and download when the **Download icon** is clicked.

2 Uploading an existing project from the HMI

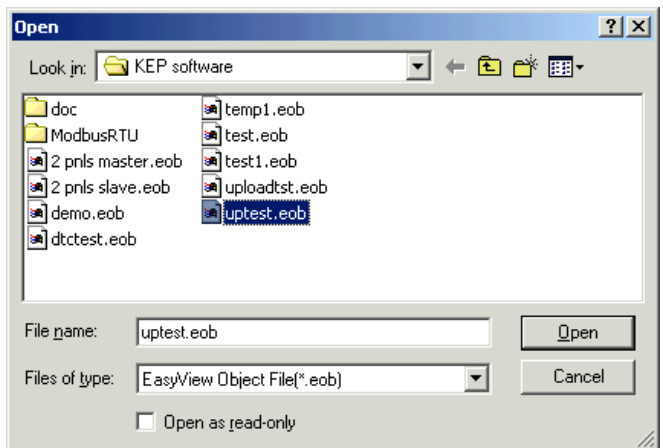
Connect Ormec communications cable: CBL-ORN-MMI/nn or CBL-SMLC-MMI/nn (depending on controller) between the controller serial port and the HMI RS485 connections.

To retrieve an existing project from the HMI, open EasyManager.
Start | Programs | EB500 | EasyManager

Click on **UpLoad**.



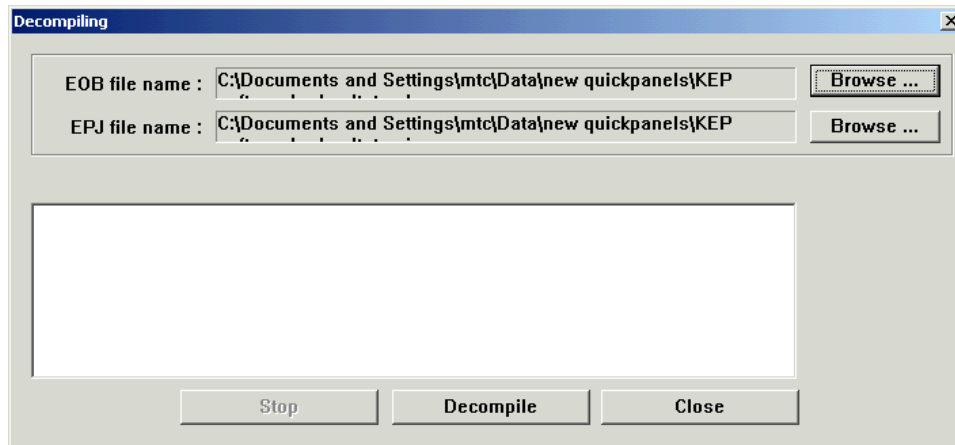
Give the project a File name then select Open.



When the upload is complete you will see:

Before the uploaded project can be edited it must be decompiled. To do this, open EasyBuilder.
Close any open projects (File | Close).

From the Tools menu select Decompile. You will see:



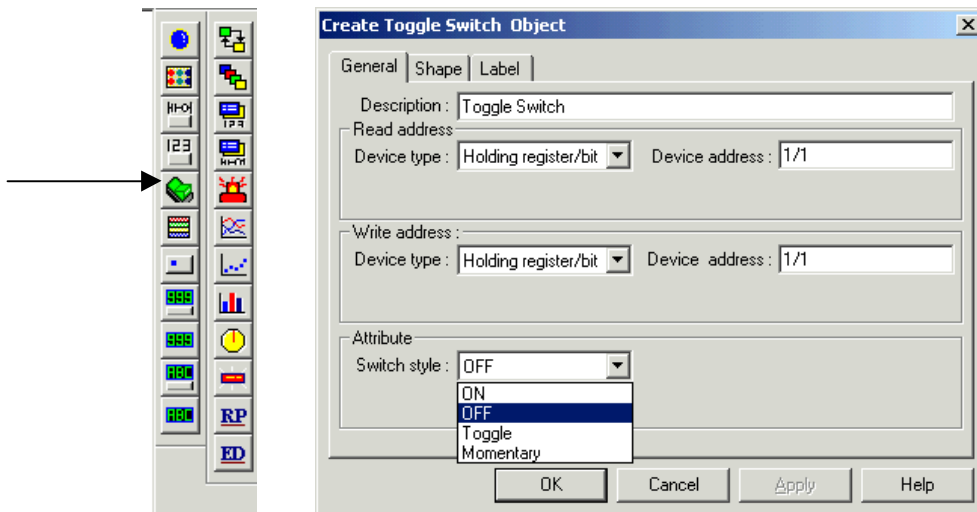
Browse for the EOB file name that was uploaded.

Select Demcompile. The .epj (project file) will be created.

3 Adding objects to the screen(s):

Use either the **Parts** menu or the Objects toolbar to add objects to the screen(s).

Add a toggle switch.



Enter a description.

TOGGLE SWITCH ATTRIBUTES ONLY....

The **Device type** must be set as **4x_Bit** (4x=holding register_Bit) to be recognized by the controller.

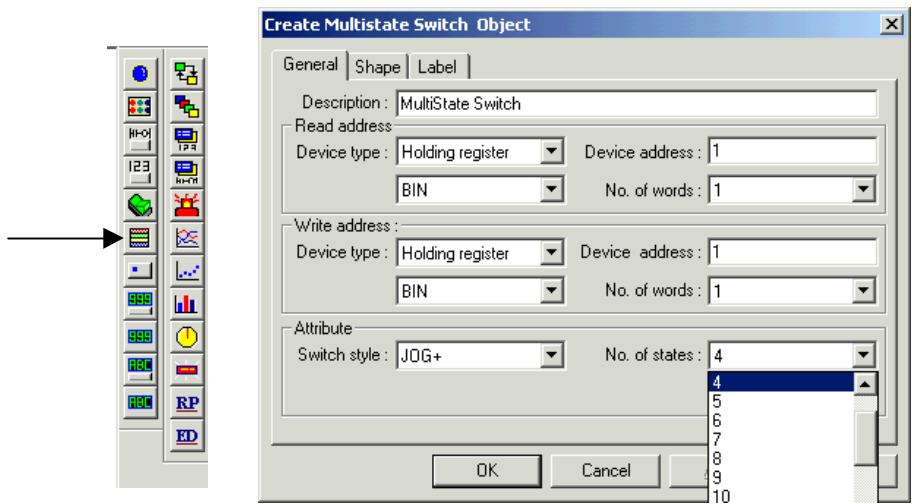
The **Device address** must be in the form **X\Y** where X is the holding register value and Y is the Bit.

The Read address and Write address are the same.

Select the **Switch style** (e.g. Momentary, Toggle, etc).

Select the **Shape, Label, and Profile** tabs to further configure the appearance of the object.

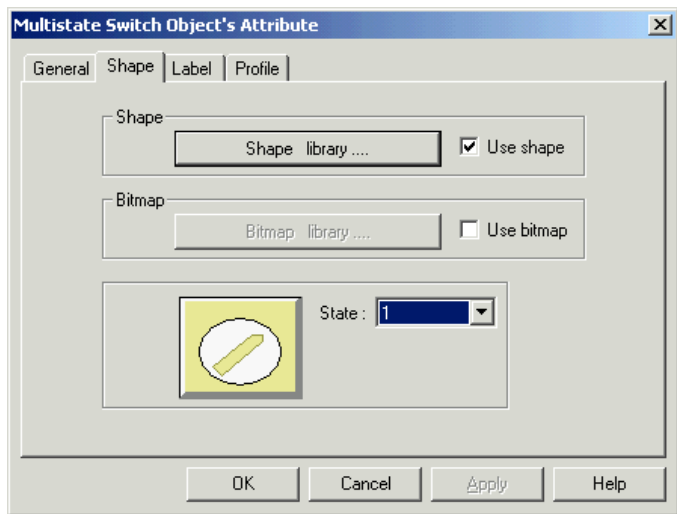
Add a MultiState switch



Note that the device address is configured as holding register.

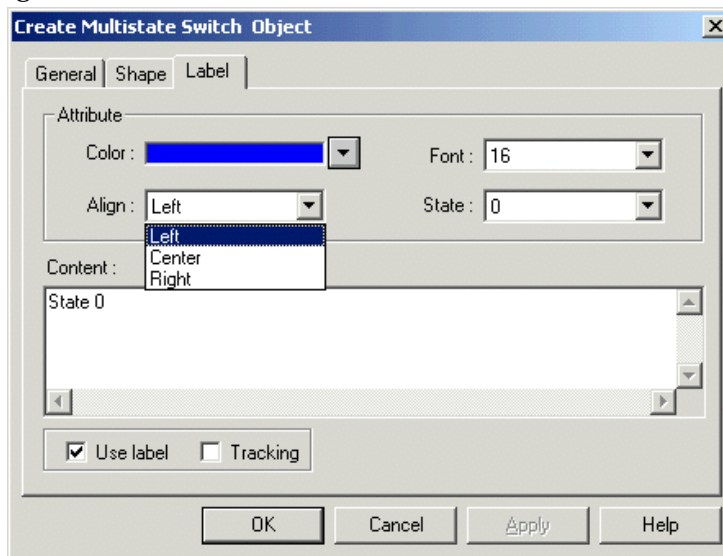
Select the number of states.

Click on the **Shape** tab to select the object shape



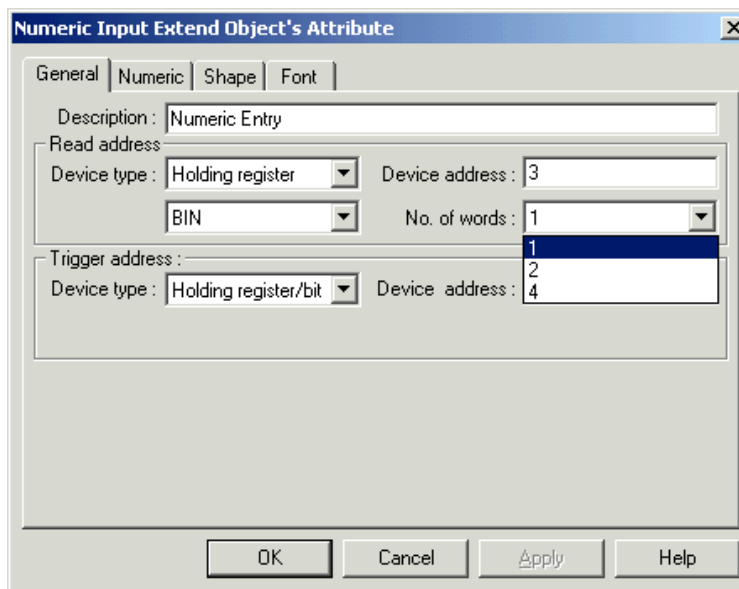
Click on the Shape library to select the objects shape.

Click on the **Label** tab to configure labels for the different states.



Check the **Use label** check box to enable labels.

Add a Numeric Entry object



Device type is 4x (holding register)

This object requires that a **Trigger address** be used. Enter a **Device address** in the Trigger address frame. When “touched” the numeric keypad will NOT be displayed unless this device address bit has been turned ON in MotionBasic/CodeSys.

Example:

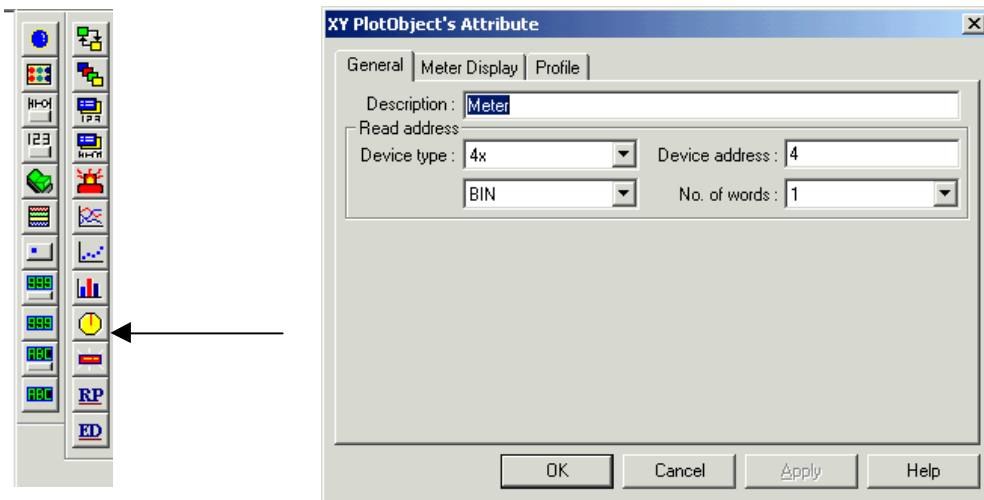
map 3 to NumericEntry

map 90 to EntryEnable

if EntryEnable=0 (motionbasic) the Numeric entry button on the touch panel screen will be disabled. Setting EntryEnable=1 (motionbasic) will allow the keypad to be displayed.

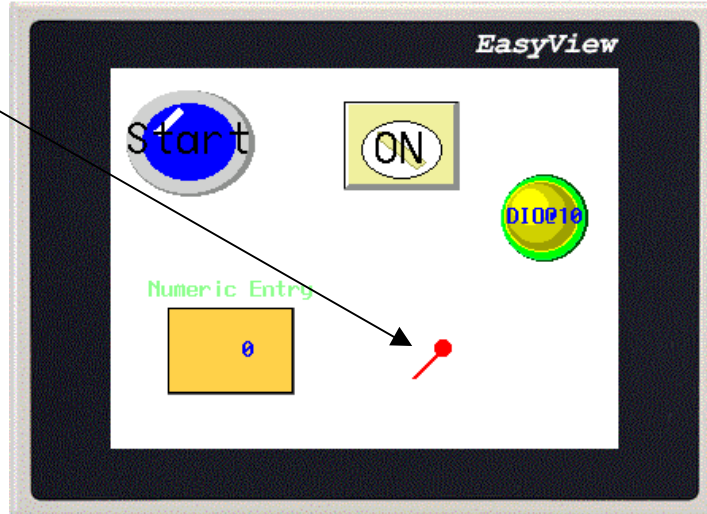
NOTE: If the Trigger address (Device address) is set to 9000 the keypad will always display when the object is touched.

Add a meter display:



Set the device type (4x) and device address.

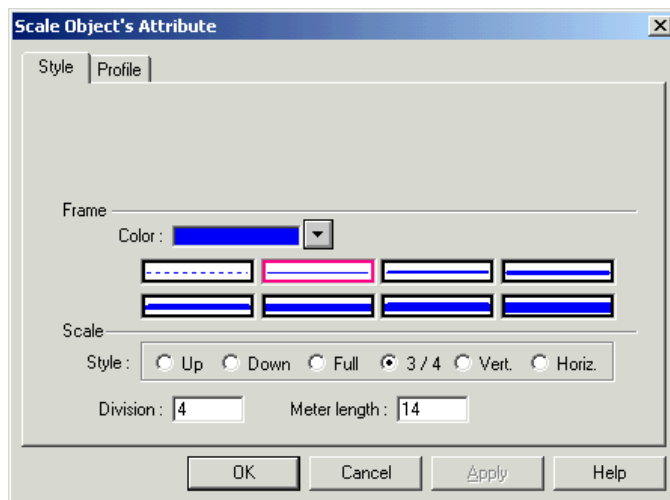
When the meter is viewed on the panel (off-line simulation, on-line simulation, or during communications with the controller you will note that when the panel is running the **Meter Scale** is not displayed:



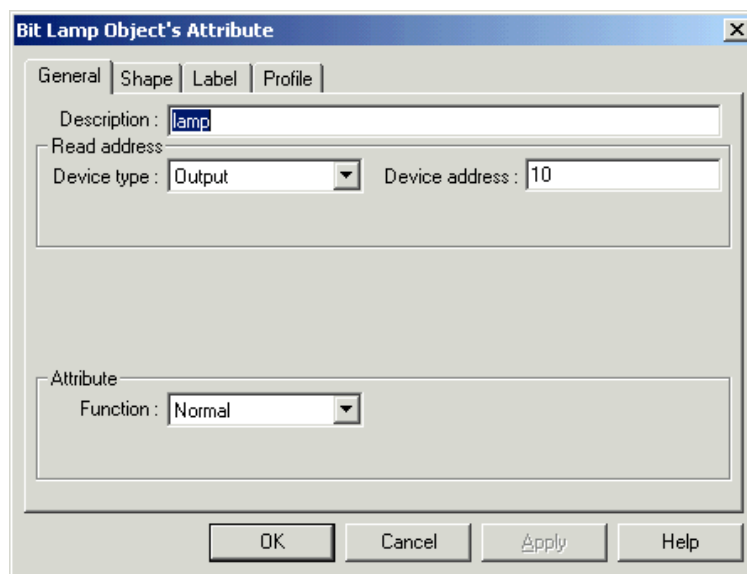
If a meter scale is desired it must be placed on the screen separately by clicking the **Scale icon** on the toolbar or from the **Draw** pull down list.



After selecting the **Scale icon**, place the scale over the meter object then click on the **pointer icon**. Double click on the **scale object** (on the screen) to set the properties.



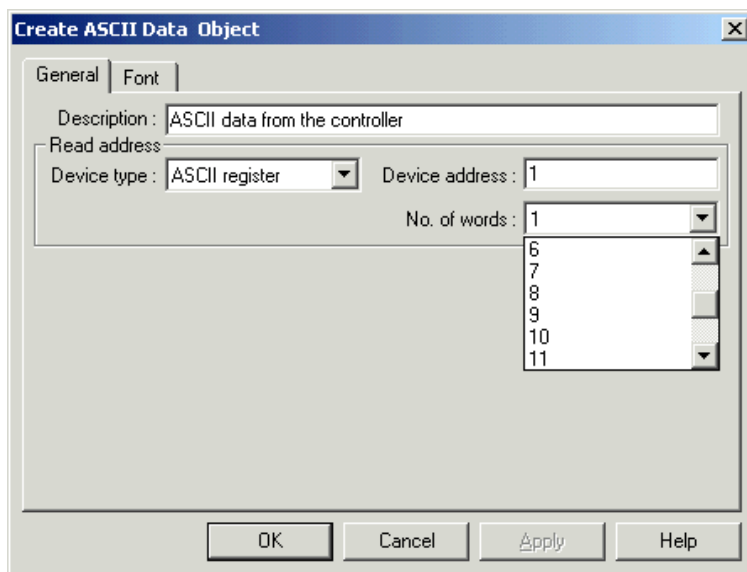
Add a lamp (Orion DIO output) display



Set the Device type as Output(0x)

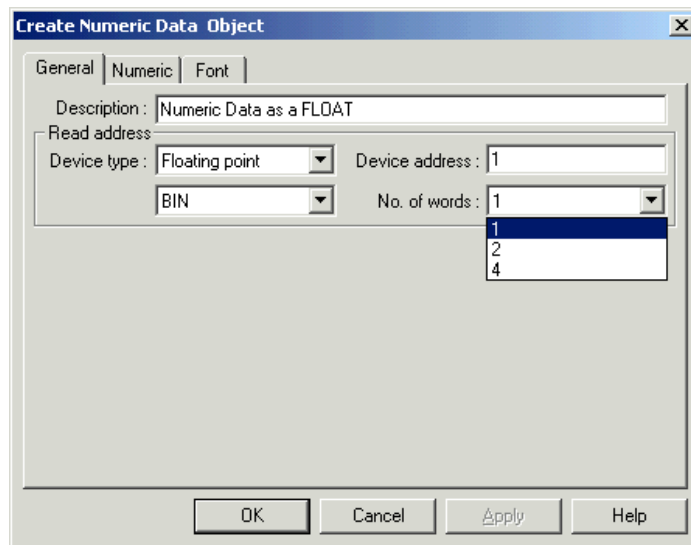
Set the Device address (0-16) to the Orion output that is to be displayed.

Creating an ASCII data display



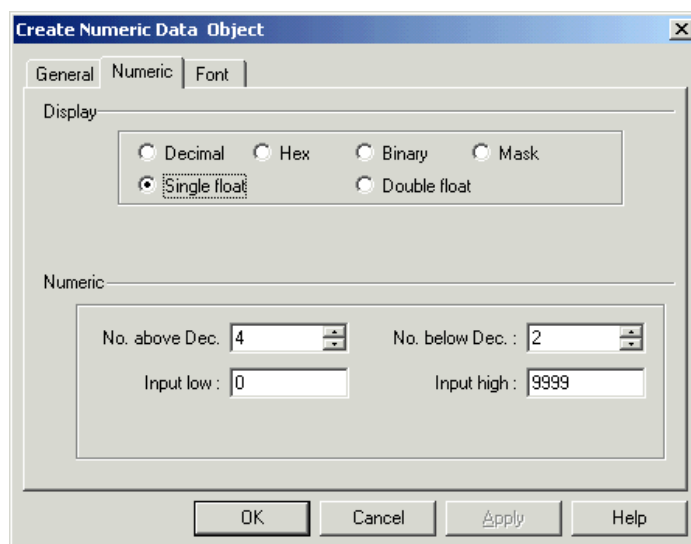
The Device type: **ASCII register** must be used for the HMI to display data in the correct order.

Configuring a **Numeric Data Object** as a **float**:

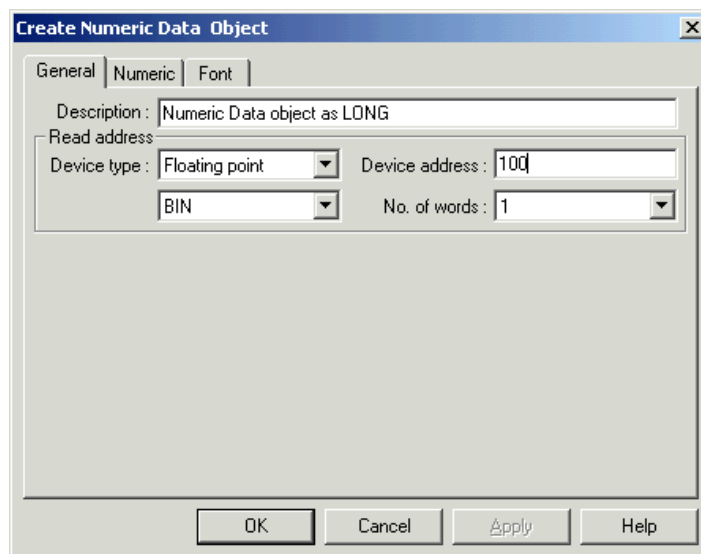


The Device type must be set as Floating point(5x). This reverses words 1 and 2.
MotionBasic reference: map 12..13 to float!

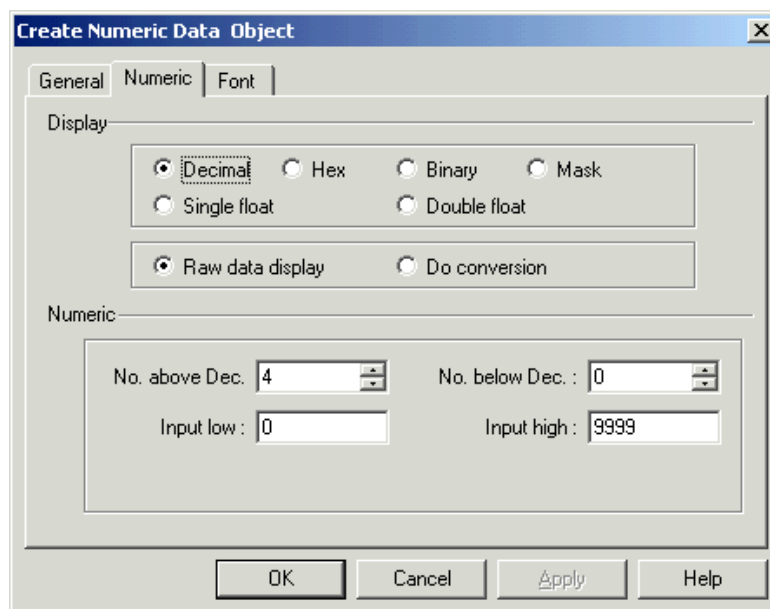
Floating point object parameters:



Configuring a **Numeric Data Object** as a **long**:



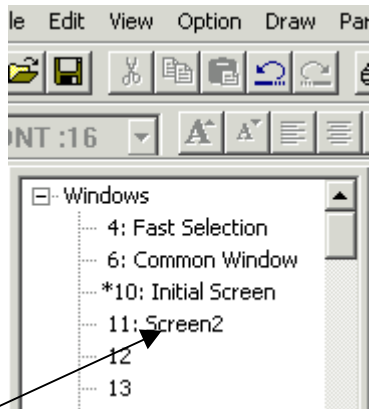
Set the numeric properties as **decimal**:



The Device type must be set as Floating point(5x). This reverses words 1 and 2.
MotionBasic reference: map 12..13 to long&

4 Adding multiple screens

To add additional screens to a project:

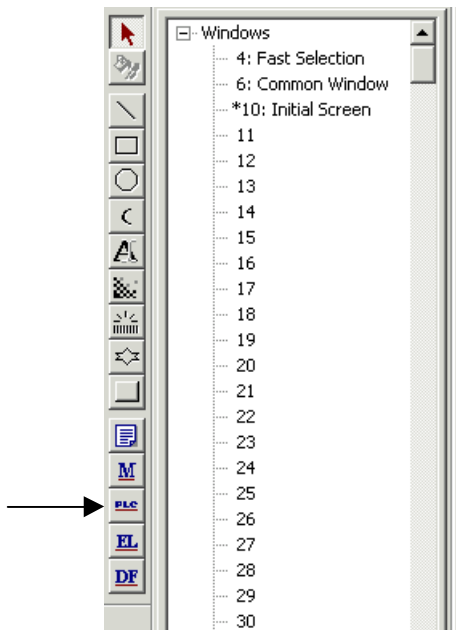


Right click on the screen number you want to add. Select Create.

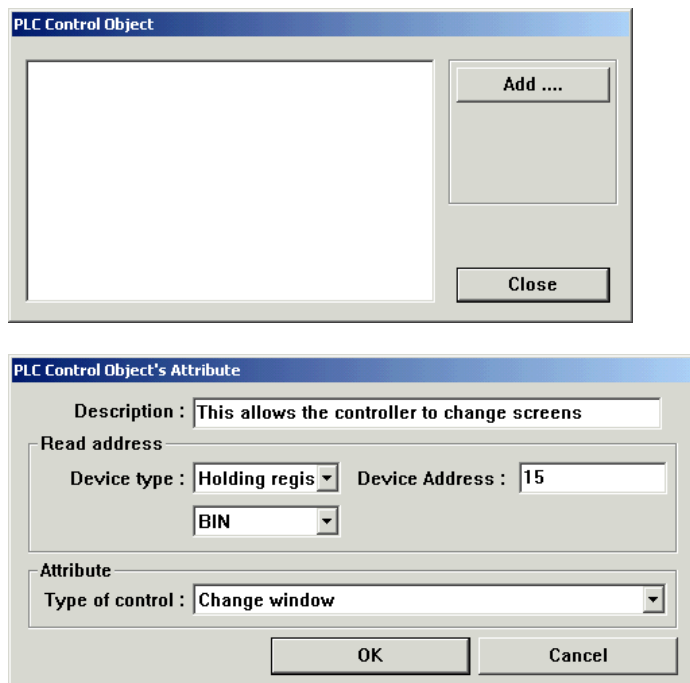
Give it a name. Edit the remaining fields as required.

A PLC Control object must be added to the project to allow the controller to recognize the different screens.

Click on the **PLC** icon on the left side of the screen.



Select Add....



The **PLC Control Object's Attribute** screen will be displayed.

Enter a description

Select the Device type (use Holding register(4x). The explanation of the various device types are indicated at the end of this document.

Enter a Device Address (note that the 4000xx Modbus prefix is not required with this tool).

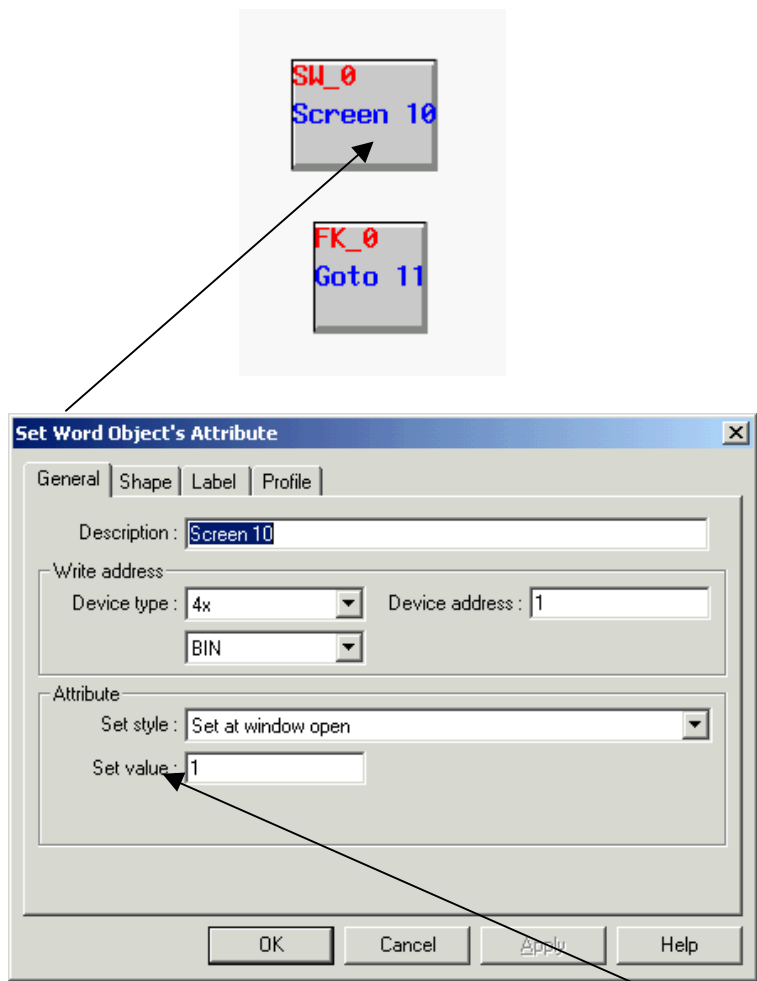
Select Change window as the Attribute | Type of control.

Note that the MotionBasic MAP list must have two registers mapped to this PLC Control Object

map 15 to screen switch

map 16 to screen switchh

Very important: If, during project development a **function key** is used to switch screens the controller **will not** know what screen is displayed when the above procedure is followed. In order for the controller to know which screen is currently displayed a **Set Word Object** must be placed on each screen the function key is referencing.



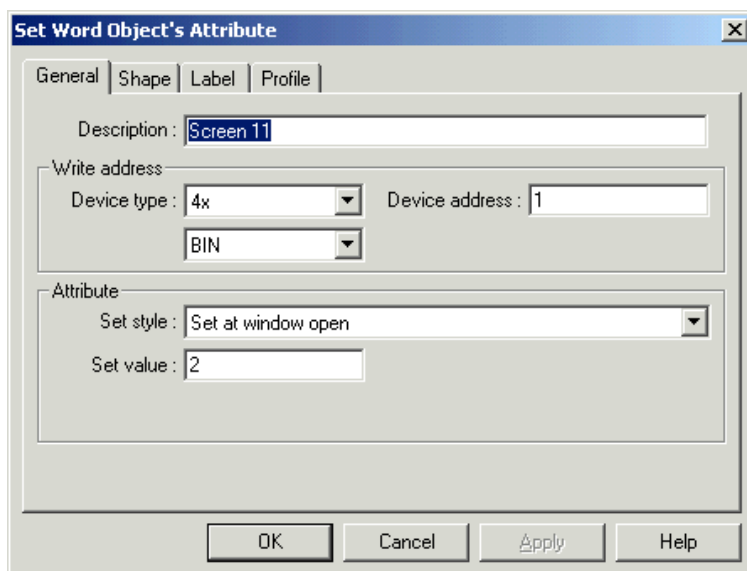
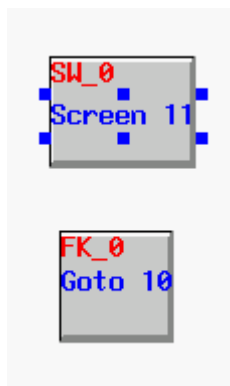
A **Set Word Object** is placed on ScreenX (10 in this case).

Map a MotionBasic variable: Map 1 to Screen

When Screen10 is displayed, the MotionBasic variable **Screen** will be set to **1** as defined by **Set value** attribute.

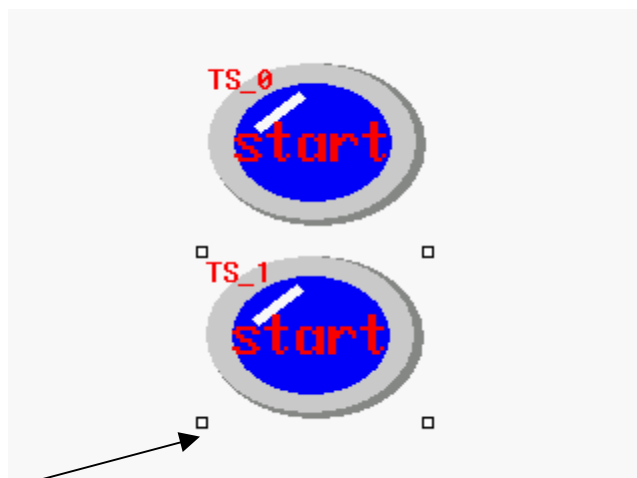
Continued on next page.

When the function key (indicated as Goto 11) is pressed, Screen11 will appear and the MotionBasic variable **Screen** will be set to **2** as defined by the same **Set Word Objects, Set value** attribute.



5 Copying and pasting panel objects

Copying and pasting a panel object in affect “groups” the objects together. This is indicated by the color of the “handles” surrounding the object when it is clicked on.



White handles indicate the pasted object as part of a group. To “ungroup” the object (and edit its properties) click off the object. Double clicking the pasted object again will reveal black handles. The object can now be edited as its own object.

6 Using multiple HMI's with a single controller

Adding additional HMI's to the project:

When using multiple HMI's the unit that communicates directly with the Orion/SMLC is configured as the **master**. The remaining unit(s) are configured as **slave**. Only the **master unit** communicates with the Orion/SMLC. The **master** unit maintains a database that the **slave(s)** units communicate to. Communications to the **slave** units slows as units are added. Communication speed to the **master** is not affected when **slave** units are added. **Master** and **slave** programs do not have to be the same. Motionbasic maps or CodeSys variables have to be in place for all panel objects.

The screenshot shows the 'Set System Parameter' dialog box with the following settings:

- PLC type: Ormec Orion Modbus RTU
- HMI model: MMI-640/10S/8S (640 x 480)
- Serial port I/F: RS-485 default
- Baud rate: 19200
- Data bits: 8 Bits
- Parity: None
- Stop bits: 1 Bit
- Comm Delay (mS): 20
- Not Used: 0
- Not Used: 0
- Not Used: 0
- HMI station No.: 0
- PLC station No.: 1
- Multiple HMI: Disable
- HMI-HMI link speed: 115200
- PLC time out constant (sec): 3.0
- PLC block pack: 1

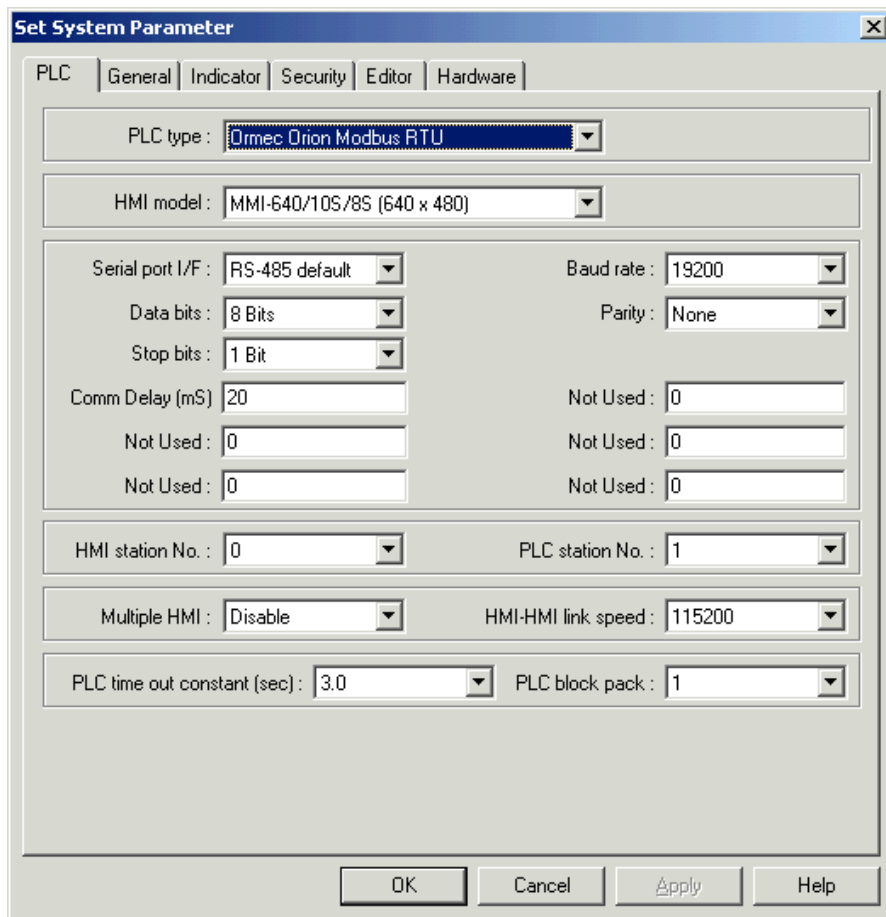
Buttons at the bottom: OK, Cancel, Apply, Help.

Multiple HMI's can be used on a single controller serial port. The HMI directly connected to the Orion must be configured as the Master.

Set the Multiple HMI: parameter to Master.

Take note of the HMI station No.

Compile and download to the master (connected directly to the Orion serial port) unit.



Slave unit configuration:

The HMI station No. is different than the Master HMI station No.

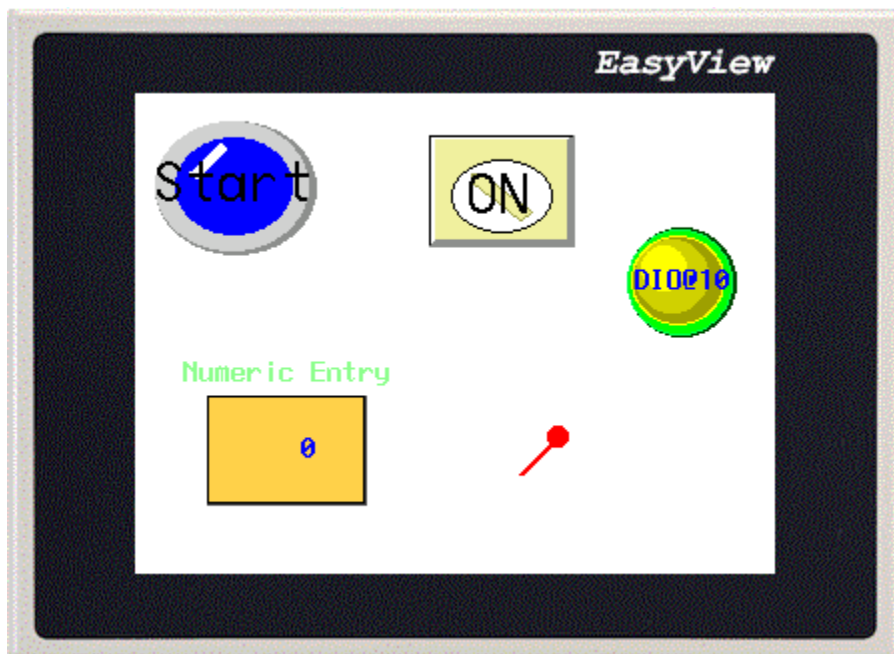
The Multiple HMI: parameter is set as Slave.

Use Ormec cable: CBL-MMI-MMI/nn (where nn is the length) to connect the master HMI to the slave HMI.

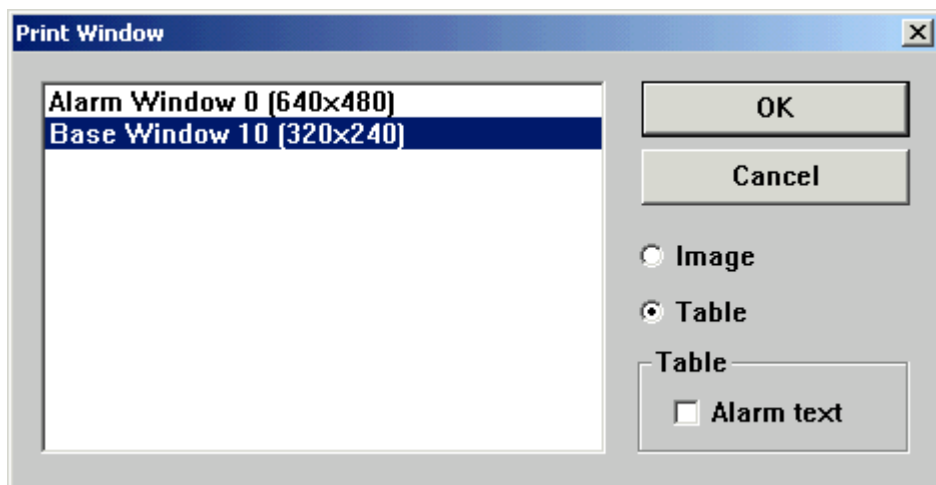
7 Printing application information

To printout the PLC address' (TAGS) used on a screen:

Click on Tools | Offline simulation. You will see:



Right click anywhere on this screen. Select **Print Window**.



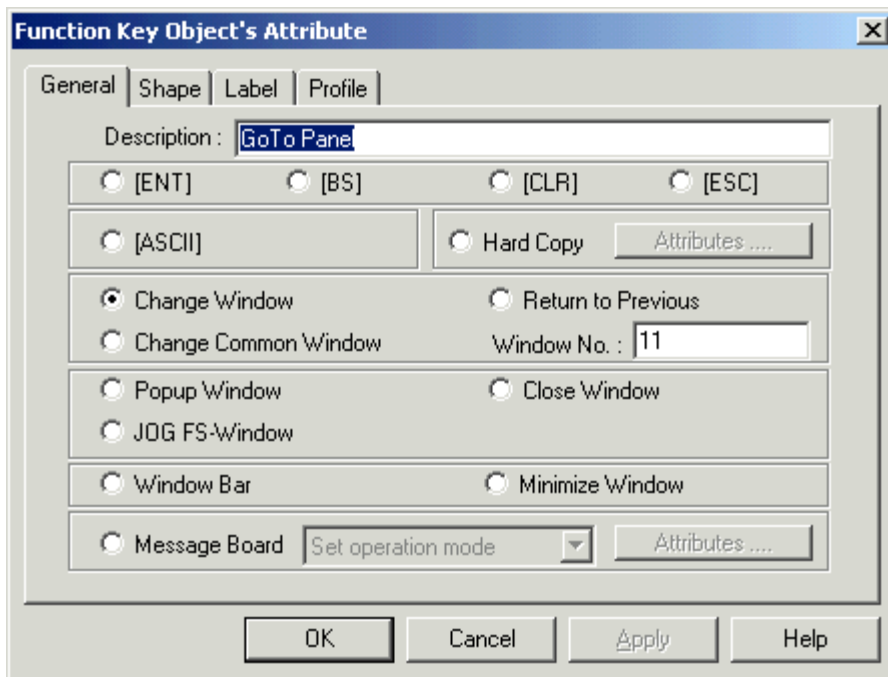
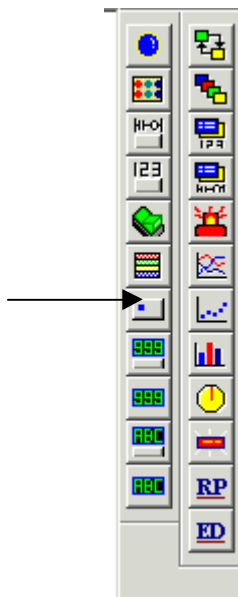
Select Base Window 10 (xxx xxx).

Select Table.

Click OK

If you have multiple screens that you want to print out:

A function key has to be placed on each window that will allow screen switching while in Off-Line simulation mode.



Enter a description

Check the Change Window radial button

Enter the Window number you want to switch to.

Click on Tools | Off-Line simulation.

Click on the function key and the chosen screen will be display. The PLC address' (TAGS) can be printed.

8 Miscellaneous

PLC address references:

Device type summary: (OrmecModbus RTU) driver

“Output(0x)”, Orion DIO@ output (coil)

“Input(1x)”, Orion DIO@ input (input)

“Input reg(3x)”, Modbus input register

“Hold reg(4x)”, Modbus holding register (used most often)

“Hold reg/bit(4x_b)”, Used to select each bit in a given word

“Float(5x)”, Used for floating point variables

“Internal word(LW)”, HMI internal word

“Internal bit(LB)”, HMI internal bit

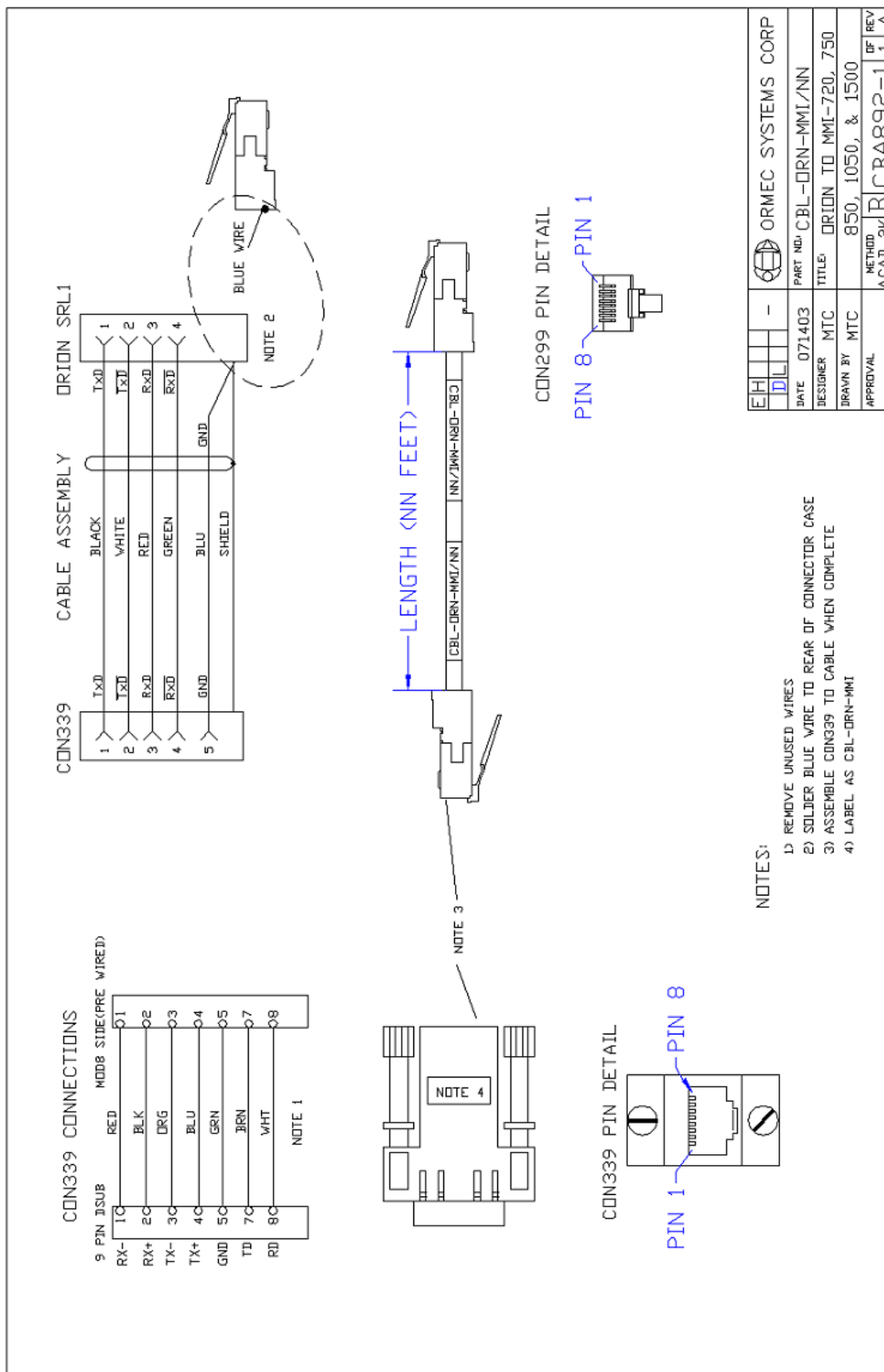
“Retentive bit(RB)”, If used, the HMI will retain variables through power cycles.

“Retentive word(RW)”, If used, the HMI will retain variables through power cycles.

Hardware:

- There are three 9 pin D-Sub connections on the back of the unit (PC/PLC 232/485, PLC232, & AUX). The AUX connection isn't used. The PC/PLC 232/485 port is used for PC to panel downloads and for Orion 422 communications.

Orion to HMI communications cable:



HMI to HMI communications cable:

