

Vea Srl ⊠ Via F.lli Rosselli, 43 ☎ +39 (0331) 40.27.51 www.vea.it

20010 Canegrate (MI) Italy Fax +39 (0331) 40.13.27 E-mail: vea@vea.it



rif.: ma-sbs-rot-robot ver. 9.4.6

### Step by step user manual

## ROBOT

## HIGH PRECISION ROTATION WITH REFERENCE INSIDE THE CIRCUMFERENCE

This user manual explains the necessary steps to achieve the goal above, using the HQV / VEDO software series. Pay attention that the features here described might not exist or might be different from the ones you have bought: this is due to the modular configuration of HQV and VEDO systems. If you do not have these modules, please contact VEA service to obtain the correct modules.

In every picture that follows, the functions to use are highlighted in green.



#### 1. Grabbing the image.

Once the hardware has been installed, cameras included, the first step is to take a picture that will be used to define a scene. Please refer to the installation manual for any phase prior to this point.

From main menu:

*menu*: SCENE  $\rightarrow$  SCENE 1

button CAMERA

button FULL DIMENSION



*menu:* OPTIONS  $\rightarrow$  CROSS

center the object or the camera using the red cross as reference

menu: CLOSE WINDOW

button AUTO SETTING

button OK



![](_page_2_Picture_0.jpeg)

#### 2. Creating the mask.

In the *scene* window you can create the scene's mask. *button* CREATE MASK

![](_page_2_Picture_3.jpeg)

Delimit the region to be masked using the drawing tools provided.

USE THE LEFT MOUSE BUTTON TO MASK.

USE THE RIGHT MOUSE BUTTON TO CLEAR A PART OF THE MASK.

To undo: *button* UNDO (backward arrow).

![](_page_2_Picture_8.jpeg)

![](_page_3_Picture_0.jpeg)

To mask a whole region, use the *filler* tool.

![](_page_3_Figure_2.jpeg)

#### 3. Sample acquisition.

In the *scene* window you can create new samples.

button NEW

![](_page_3_Picture_6.jpeg)

![](_page_4_Picture_0.jpeg)

In the sample window you can define the samples that will be used to find the center of the object.

As the example beside has a circular shape, we prefer to define 4 samples on the boundary.

*Insert* the sample's name in the corresponding text field.

Sample type: MORPHOLOGIC

button MASK

button SAMPLE

![](_page_4_Picture_7.jpeg)

Use the left mouse button to select the sample.

Use the right mouse button to move the selection.

Use the middle mouse button (or click on the wheel) to resize the selection.

*button* CLOSE WINDOW to submit changes.

![](_page_4_Picture_12.jpeg)

![](_page_5_Picture_0.jpeg)

*menu*: OPTIONS  $\rightarrow$  SAVE X / SAVE Y Select output variables.

🔕 HQY Sample - scene (1) Scena1 × Opzioni Analisi Rotazione Morfologico • Delta limits Maschera Materiali Reference rotation check Aumenta dim campione Offset X = ZEROAumenta Offset Y = ZEROPixels 0 dim salva X = X NIENTE salva Y = Y Salva negativo А C Relativo a Salva relativo в Ŧ С Immagine locale Zona - auto D Apri immagine X 32 Zona - auto Е Salva immagine Y 32 🔽 Dim uguali F Copia imm. dalla scena G Copy zone from • Disabilita campione н Disabilita analisi morfologica K L М 1 Occorrenze multiple Ν Prendi Posizic Π Zona Altezza ΟK 0 Annulla del cer campion ricerca Р Q R S Т U <u>C</u>rea maschera W Elimina w 1/0 Gruppo Elimina maschera Scena Х 🖌 Y

In order to create a search area for the sample, set X and Y deltas in the text fields highlighted in the picture and then click on ZONE-AUTO.

button OK to submit changes.

In this case, you must create 4 samples: left, right, up and down side.

![](_page_5_Picture_6.jpeg)

![](_page_6_Picture_0.jpeg)

At this point you must create a fifth sample that will determine the object's rotation.

*insert* sample's name

button mask

Select the sample, then select the search area in the same way:

button SEARCH AREA button CLOSE WINDOW

button OK to submit changes

![](_page_6_Picture_7.jpeg)

Here you can define the rotation values for the sample slected. *menu*: OPTIONS  $\rightarrow$  ROTATION

![](_page_6_Figure_9.jpeg)

![](_page_7_Picture_0.jpeg)

Once you close the *scene* window, then the *mask* window appears.

Mask the whole area.

![](_page_7_Picture_3.jpeg)

Clear the mask on the boundary, but KEEP the mask over the rotation sample area.

USE THE RIGHT MOUSE BUTTON TO CLEAR A PART OF THE MASK.

Finally you should obtain a mask similar to the one showed in the picture.

![](_page_7_Picture_7.jpeg)

![](_page_8_Picture_0.jpeg)

Close the *scene* window once you have inserted all the samples.

button CLOSE to submit changes.

![](_page_8_Picture_3.jpeg)

#### 3. Impostazioni di progetto.

From main menu

*menu*: OPTIONS  $\rightarrow$  PROJECT SETTINGS

Define variables to use and enable the rotation *flag*.

🕃 HQY Project Setup	×
Porta seriale I/O sistema Sincroniccucione Salvataggio immagini   Output su disco Robot fiduci il Rotazione robot I pzioni Tcp/Ip   Notazione robot I pzioni Centro X X Image: Centro Y Image: Centro Y Image: Centro Y Image: Centro Y Image: Centro X Image: Centro X Image: Centro X Image: Centro Y Image: Centro X Image	
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Annu	la

![](_page_9_Figure_0.jpeg)

# E.g. Communication protocol configuration.

😨 HQV Project Setup	×
Output su disco Robot fiducial Rotazione robot Opzioni Tcp/lp   Porta seriale I/O sistema Sincronizzazione Salvataggio immagini   Impostazioni porta seriale Separatori Separatori Sep. campione Term. CrLf Sep.   Parità Sep. valore. > Forza il punto Impostazione Sep. <td></td>	
C 1 C 2 0 360 ▼ Stringa di prova 12,34	OK
	Annulla

# *Select* the *device/protocol* where the communication will start.

🔕 HQY Project So	etup	×
Output su disco   Porta seriale 1/0	Robot fiducial   Rotazione robot   Opzioni   Tcp/lp   sistema   Sincronizzazione   Salvataggio immagini	
- I/O sistema	Comunicazione 1/0	
Running OUT		
Close window IN	off 🔳 🗖 🗖	
Delayed sht. IN	off 🔽 🗖 🗖	
Exit IN	off 🔽 🗖 🗖	
Shutdown IN	off 🗖 🗖 🗖	
End Scene OUT		
Mess/Plc IN	off 🔽 mmi 🔽	
Variable IN	off 🔽 Nbit:	
Load project IN	off 🔽	OK
Grab IN	off 🔽	
		Annulla

![](_page_10_Picture_0.jpeg)

From main menu

*menu*: OPTIONS  $\rightarrow$  VARIABLES

Variables configuration: select the corresponding *flag* and click OK.

								-	Index
	HQV Variable	D 10 4							×
		Bool/Int	Long	Double	Min	Max	String		tat 1
	ALALA								
	BIBIB		0						-
			0						
	DIDID		0						0
	ELELE		E0		0 1	0 5			E
	FFFFF	F 0	F 0			0 1			F
Г		FG 0	G 0	G	0 6	0 6	0 6		G
	НГ НГ Н	FH 0	H O	H	0 H	0 H	0 H	_	Н
			0	1	0 1	0 1	0		1
Г	JLJLJ		1 0	1	0 1	0 1	0 1		J
Г	KEKEK	FK 0	K 0	ĸ	0 K	0 K	0 K		K
Г	LELEL	L D	L 0	L	0 L	0 L	0 L		L
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Г	NENEN		N 0	N	0 N	0 N	0 N		N
Г	0 0 0 0 0		0 0	0	0 0	0 0	0 0		0
F	PEPEP	F P 0	P 0	P	0 P	0 P	0 P		P
F			Q 0	Q			n q		Q
		E B D	B	B	0 B	0 B	0 B		B
	SESES		S O	s	n s	n s	n s		S
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From main menu

*menu*: OPTIONS → PROJECT SETTINGS

TCP/IP configuration and test: To verify the communication, you can use the Windows' program HYPER TERMINAL, then open a TCP/IP channel on the port defined in the project.

Councilia <u>? ×</u>	S HQY Project Setup
🥳 kopivea	Porte senale   I/U sistema   Sincronizzazione   Salvataggio immagini   Output su disco   Robot liducial   Rotazione robot   Opzioni   Tcp/lp
	Impostazioni Top/Ip
Institute deviaga per mon che si desidea chiamate	Porta Top Nome Host/tp
Numero Politica Index 1001.122	- Modelikh Tron
Plumero pona.	Gerver Modalità alta velocità
Connett (TCP/P M/mark)	Client TEST
OK. Annulla	
	Ar

![](_page_11_Picture_0.jpeg)

#### 4. Avvio del progetto.

From main menu

*menu*: OPTIONS → START

In order to verify the communication via TCP/IP, you should start the connection from the Windows' HYPER TERMINAL too.

![](_page_11_Picture_5.jpeg)

Use the buttons in the main menu in order to select the scene to view. The selected sample will be shown on the first line, inside the output window.

Select SINGLE SAMPLE and choose a sample to edit its thresholds in the window below the image.

![](_page_11_Picture_8.jpeg)

![](_page_12_Picture_0.jpeg)

You can change the way samples and coordinates are shown just by clicking on the *buttons* in the main *menu*.

![](_page_12_Figure_2.jpeg)