

# Series CSSP

OMRON TMflow Version: 1.0





# Contents

Chapte	r 1 CSSP - TMflow component	2
1.1	Cobot requirement	2
1.2	CSSP - Control Box connection	2
1.3	Install the TMflow Components	3
1.4	Uninstall the TMflow Components	8
1.5	Use of the TMflow Components	8
	1.5.1 Project Tab	8
Chaste		1 7
unapte		12

### Chapter 2 Contacts

# **CSSP - TMflow component**

This manual explains the how to use the TMflow component to manage the CSSP gripper.

Wrist mechanical interface: EN ISO-9409-1-50-4-M6.

Wrist electrical interface: M8 | M8 8-pin (female).

For any information regarding the gripper performance and setup, please look at the manual of the gripper.

## 1.1 Cobot requirement

Import the component **TMflow 1.x** if you have one these cobot:

- TM20
- TM16;
- TM14;
- TM12.
- TM 5 900
- TM 5 700

While import **TMflow 2.x** if you have :

- TM14S
- TM12S
- TM7S
- TM5S

## **1.2 CSSP - Control Box connection**

For the correctly use of the CSSP components and referring to the following images:

Pin number	Function	Cable colour
1	Not connected	White
2	Not connected	Brown
3	Close end stroke sensor (DO PNP +24V)	Green
4	Open end stroke sensor (DO PNP +24V)	Yellow
5	Power supply +24 V DC ± 10 %	Gray
6	Closing command (DI 0 V   +24V)	Pink
7	Opening command (DI 0 V   +24V)	Blue
8	Power supply reference 0 V DC	Red

Figure 1.1: Cable connection assignment





Figure 1.2: CSSP Gripper M8 8-pin female connector



Figure 1.3: Robot S Series control Box

The signal must be connected in following way (Fig.1.3):

- D0 0 for the closing command;
- D0 1 for the opening command;
- DI 0 for the close end stroke sensor;
- DI 1 for the open end stroke sensor;

### 1.3 Install the TMflow Components

The following instructions are to be referred to TMFlow 2.x. To install the TMflow component, it is needed to download the file from the official website of Camozzi. Once the file has been downloaded, it is needed a flash drive to transfer the TMflow component to the robot, by plugging the flash drive into the USB port of the controller.

#### **1.3 Install the TMflow Components**



The flash drive must be:

- formatted in NTFS;
- labeled in "TMROBOT".

The following steps are needed to be performed:

- (1) Go into the menu;
- (2) Select system.

<u>/!</u>\

• (3) Select Import/Export ;

TMflow								0 mm/s 10	0 % 84BE • 🤇	•AUTO • <b>T1</b>		×
*	Logout						Sy	stem Se	tings			
\$ <sub>8</sub>	Connect	A	Ż	<b>*</b> **	¢			23	7			Ę
Ē	View	Lang	juage	User & Permission	Ne	twork	3 Import/Expo	t Date and Tim	e Network Service	Remote Control Settings	Hard Disk Space	Data 1
5	Run Setting											
뭑	Project											
\$ <mark>0</mark>	Configuration											
t+t	System 2											
Ċ												
G-	Leave											
				(M/A)	$\bigcirc$	(+)	R	$\bigcirc \bigcirc \bigcirc$				

Figure 1.4: Install the TMflow components - Step 1

Then:

- (1) Click on the Import button at the top left;
- (2) Select the robot of the data source in the flash drive from the robot list;
- (3) Click select button;

TMflow							-	٥	×
$\equiv \leftarrow$			0 mm/s	100 % 8	4BE • S • AU	10 • <b>T1</b>			
		Import/Export							
9		Import							
Import Export	Select files	Robot List							
Project 🗸 🗸		TM - CSSP 2							
Configuration 🗸									
System 🗸									
			_						
	Import from 0 \USB\TMRO	Cancel Select 3	e Space:	67 MB		29271 MB			
		(M/A) (-) (+) (R) ((							

Figure 1.5: Install the TMflow components - Step 2

At that point you need to:

- (1) Click on Configuration;
- (2) Click on Component;
- (3) Select the components "Gripper\_CamozziAutomation\_CSSP\_Close\_V100.zip" and "Gripper\_CamozziAutomation\_CSSP\_Open\_V100.zip";
- (4) Click on Import.

**M** .....

$=$ $\leftarrow$					0 mm/s	100 % 84BE	] •\$ •AUTO •T1	
			Impor	t/Export				
				nport				
Import Export	Select files	TMS - Camozzi	Se	lected files				
Project 🗸	Gripper_Car	mozziAutomation_CSSP_Close_V1	00.zip					
Configuration 1 🗸	Cripper_Car	mozziAutomation_CSSP_Open_V1	00.zip					
ТСР								
Component 2								
Operation Scene								
Text Files								
IODD Files								
Ethernet Slave								
Safety Configuration File	Import from	0 \USB\TMROBOT		$\sim$	Device Space:			
System 🗸						71 MB	29267 N	1B
								4 Import
								-
		) 🕕 🔳 🕅		(+)				

Figure 1.6: Install the TMflow components - Step 3

MO7



At that moment you need to:

- (1) Go into the menu;
- (2) Click on Configuration;

M TMflow			_						- ø ×
0						0 mm/s 100 % 84	BE • S • AUTO • T	1	
*	Logout				Import/Exp	port			
\$	Connect	Import	Export	Select files	TMS - Camozzi	Selected files			
Ē	View	Project Configuration	~	<ul><li>Gripper_Car</li><li>Gripper_Car</li></ul>	nozziAutomation_CSSP_Close_V100.zip				
5	Run Setting	TCP Component							
몷	Project	Operation Sc	ene						
ø,	Configuration <b>2</b>	Text Files							
tŧt	System	Ethernet Slav Safety Config	re guration File	lessest from			Device Space:		
Ċ	Shutdown	System	$\sim$	import nom		¥		71 MB	
G-	Leave								
1									

Figure 1.7: Install the TMflow components - Step 4

#### Thus:





Finally:

- (1) (2) Activate the components;
- (3) Click on Save;

	0 mm/s	100 % 84BE •\$ •A	- □ × uto •t1
Component List			
Component Name	Status	Action	
Gripper_CamozziAutomation_CSSP_Close_V100.component			
Gripper_CamozziAutomation_CSSP_Open_V100.component	0		
			Save 3
	<u>)</u>		
Figure 1. Or Install the TMflow compo	nonto	Stop 7	

Figure 1.9: Install the TMflow components - Step 7



### 1.4 Uninstall the TMflow Components

In the same panel as the previous chapter (Fig.1.9), to uninstall the TMflow components:

- (1) Select on the bin icon;
- (2) Click on "OK";

	0 mm/s	100 % 84BE	] •\$ •Auto • <b>t1</b>	× ×
Component	List			
Component Name	Status	Action		
Gripper_CamozziAutomation_CSSP_Close_V100.component		<b>(</b> 1		
Gripper_CamozziAutomation_CSS Warning				
Deleting these components will make using them failed to open, edit, and ru Please make sure you really want to d Cancel	those projects in. elete them. DK 2			
				Save

Figure 1.10: Uninstall the TMflow components

### 1.5 Use of the TMflow Components

This section is dedicated to explain how to use the various section of the CSSP TMflow Components.

#### 1.5.1 Project Tab

When the robot is in the project tab, in the section "Components" will be available the TMflow components program node for CSSP gripper. This nodes manage all the functions of the gripper:

- Actuation open / close;
- Sensing wait until the jaws are fully open / close;

To access the program line, go to:

- (1) Menu;
- (2) Project;
- (3) Components;
- (4) Click, drag and drop the component in your project.



#### 1.5 Use of the TMflow Components

TMflow															-	σ	×
1								0 mn	n/s 100	% 84B	E •AU	TO •MA	ANUAL			×	<u>ן</u> ר
201	Locout	File 🗸 🛛 I	Manager 🗸	Projec	t function 🗸	5	~		Q B	• 💬	÷ <b>:</b>	€Ţ	<u>,</u> 0	RobotBase	~ 2	0 NOTO	DL.
	Logout	Node List		-	Example										< >	₹, `	<b>~</b>
å.	Connect	Motion		$\sim$													
- 7		Logic		$\sim$													
	View	Process		$\sim$		Start											
F3	Run Setting	Information		$\sim$		-0-											
		Communicat	ion	$\sim$		$\checkmark$											
堵	Project 2	Force-Relate	d	$\sim$	(												
ø.	Configuration	Components	CSSP 3	~													
t1+	System	The open	CSSP 4-														
Ċ																	
<u>F</u>	Leave													$\overline{}$	100%	(+	)
					) (M/A) (·		$   \rightarrow $	$\bigcirc$							•••••		>

Figure 1.11: Project tab with CSSP components

After the previous step, you can see the the component in your Project tab, Fig.1.12 shows the "Open CSSP" component.

M TMflow								- 0	×
Ξ				0 mm/s 1	00 % 84BE • A	UTO •MANUAL		Î	r 1
File 🗸 🛛 Manager 🗸	Project function 🗸		<b>\</b> 7°	•∓ •7,	💪 0 RobotBase 🔍	0 NOTOOL	~		
Node List	+ • Example						<	> ₹,	$\sim$
Motion	$\sim$								
Logic	$\sim$								
Process	~								
Information	~								
Communication	~								
Force-Related	× ()								
Components	▼	CSSP_Open_							
Close CSSP									
Open CSSP	V ObjectDetect ed	V ObjectNO1 etected	D L	V Error					
				$\bigcirc$					
							(-)	100% (-	$\overline{+}$
	<		$\bigcirc$ (						, `
			$\bigcirc \bigcirc $				•	•••	

Figure 1.12: Project tab with"Open CSSP" component

In order to set the CSSP control variable click:

- (1) On the pencil icon (Fig.1.12);
- (2) Move the cursor on the right, it will appear a pencil icon and click on it.
- (3) Click on select;



• (4) Finally the component variable are showed, you can modify them by clicking on the pencil icon.

Gripper_CamozziAutomation_	⑦ ×	Set			$\times$
Node Name CSSP_Open_V1001		Node Nam	set SETInput	VarINIT	
Provider :General User					
SETInputVarINIT		Variables	Variables	;(2)	Select
Advanced		<b>→</b>			ΟΚ
()	к				UK
Set			Variables S	etting	$\times$
Node Name SETInputVarINIT			Expression		(†
Variables Variables(2)	[	Select	Gripper_Ca mozziAuto mation_CSS P_Open_V1 001.var_Wa itForExecuti on Gripper_Ca	= True	<ul> <li>(a)</li> <li>(b)</li> <li>(c)</li> <li>(c)</li></ul>
			mozziAuto mation_CSS P_Open_V1 001.var_Ti meOut	= 1000	
	ок			ок	

Figure 1.13: Project tab with CSSP\_Open\_V100 component variables

If the variable "Gripper CamozziAutomation CSSP Open V1001.var WaitForExecution" is set to false, the component terminates without waiting for any feedback or time (both ObjectDetected and ObjectNot-Detected states are returned), so you can use it in case you want to activate the 'on-the-fly' clamp. If this variable is set to True the component waits for one of two conditions to occur:

• Receives the open clamp signal (DI1).



• The time defined by the TimeOut variable passes.

After which ObjectDetected is returned if both end-of-stroke sensors are low (the clamp has found an object and stopped in a middle position). ObjectNotDetected if the closing sensor is low and the open clamp is high (the clamp did not find an object and opened completely). Error if the closed clamp signal remained high (the clamp therefore did not move). For the CSSP\_Close\_V100 component the behavior is the opposite.

# Contacts

## Camozzi Automation spa

Single member company Via Eritrea, 20/I 25126 Brescia - Italy Tel. +39 030 37921 Fax +39 030 2400464 info@camozzi.com www.camozzi.com

## **Products specifications**

National and International Directives, Regulation and Standard productcertification@camozzi.com

# Technical service

Technical informations Product informations Special products Tel.+39 030 3792390 service@camozzi.com



A Camozzi Group Company

camozzi.com

#### Contacts

#### Camozzi Automation S.p.A.

Società Unipersonale REGISTERED OFFICE Via R. Rubattino, 81 20134 Milano Italy OPERATIONAL HEADQUARTERS Via Eritrea, 20/I 25126 Brescia Italy Tel. +39 030 37921 marketing@camozzi.com **Customer Service** Tel. +39 030 3792790 service@camozzi.com

**Export Department** Tel. +39 030 3792253 sales@camozzi.com