Detection: Template
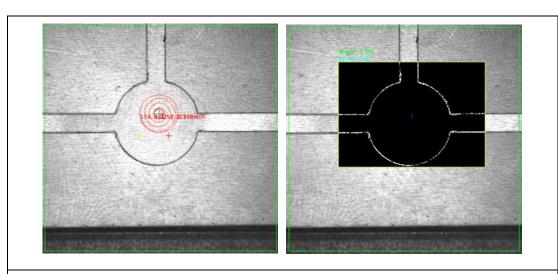
■ **Changelog**

Date	Version	Autor	Tested on	Description
2023-03-03	A	Wre	5.19.13	New documentation

■ **Description**

Detects a geometry using a Template matching algorithm. Also outputs the Angle to receive information about the part orientation. Has a built-in plausibility check. Loads the welding figure and displays it on the center of the detected geometry.

- **Parameter**

G00 ROI from Seam Details

NAME	DEFAULT VALUE	Description	UserLevel
00 Dynamic ROI → Green channel	**255**	Green color of ROI Box	Operator
00 Dynamic ROI → Red channel	**0**	Red color of ROI Box	Operator
00 Dynamic ROI → Blue channel	**0**	Blue color of ROI Box	Operator
00 Dynamic ROI → Verbosity	**Low**	Visibility of ROI Box	Operator
00 Dynamic ROI → Alpha Channel	**255**	Transparency of ROI Box	Operator

G01 AdjustContrast

NAME	DEFAULT VALUE	Description	UserLevel
01 AdjustContrast Min. → Number	**1**	Minimum contrast	Admin
02 AdjustContrast Max. → Number	**255**	Maximum contrast	Admin
03 AdjustContrast → Verbosity level	**None**	.bmp which will be used as Template	Admin
03 AdjustContrast → Operation	**ApplyLUT**	Operation performed by the Contrast adjuster.	Admin

G02 Template Matching

NAME	DEFAULT VALUE	Description	UserLevel
00 TemplateMatching → Verbosity	**Low**	Visibility of Position	Admin
00 TemplateMatching → Template File Name	**.bmp File on System**	.bmp which will be used as Template	Admin

00 TemplateMatching → Angle Start	0	Start Angle in degree, by which the template will be rotated	Admin
00 TemplateMatching → Count Step	1	Number of steps the template will be rotated	Admin
00 TemplateMatching → Angle Step	1	Amount of angle in degree the template will be rotated each step	Admin
00 TemplateMatching → Pyramid Levels	0	Downsampling to improve Algorithm process time	Admin
01 Offset x (mm) → Number	0	Offset in X direction in mm	Operator
02 Offset y (mm) → Number	0	Offset in Y direction in mm	Operator

G03 Offsets

NAME	DEFAULT VALUE	Description	UserLevel
01 Offset X [mm]	0	Offsets the detected position by the amount of the input in mm in X-direction.	Operator
02 Offset Y [mm]	0	Offsets the detected position by the amount of the input in mm in Y-direction.	Operator
03 Offset Angle	0	Contour will be automatically rotated depending on the detected angle. This rotation angle can be offset here.	Operator
04 Stretch factor X	1	Stretches the welding figure by the factor in X-direction.	Operator
05 Stretch factor Y	1	Stretches the welding figure by the factor in Y-direction.	Operator

G04 Plausibility

NAME	DEFAULT VALUE	Description	UserLevel
00 minimal Matching Score	0.5	If the Matching Score Output of the Template Matching (value between 0 and 1) is above this value, the detection is plausible. If it is below this value, the detection is not plausible.	GroupLeader

G05 Load Figure from File dynamic			
NAME	**DEFAULT VALUE**	Description	UserLevel
00 ContourFromFile → WeldingFigure name	**0**	Number of Welding figure to weld.	Operator
04 SeamWeldingResult → Verbositiy	**Maximal**	Visibility of the Preview	Operator

G06 Buffer			
NAME	**DEFAULT VALUE**	Description	UserLevel
01 X Buffer → Slot number	**1**	Writes the detected X-Pos [mm] into the Buffer.	GroupLeader
02 Y Buffer → Slot number	**2**	Writes the detected Y-Pos [mm] into the Buffer.	GroupLeader
04 Contour Buffer → Slot number	**4**	Writes the Contour into the Buffer.	GroupLeader
09 Plausibility → Slot number	**9**	Writes the Plausibility into the Buffer.	GroupLeader

G08 Send end of seam marker after xx images			
NAME	**DEFAULT VALUE**	Description	UserLevel
00 Image number xx → Number	**0**	Image number on which the seam shall end (first image number = 0)	Operator

- **Output Buffers**

Value	Slot Number
X Pos [mm]	1
Y Pos [mm]	2
Contour	4
Plausibility 0 = good Plausibility 1 = bad Plausibility	9

- **Results**

Value	Result Enum	Result Name
X Pos [mm]	28	CoordPositionX
Y Pos [mm]	29	CoordPositionY
Matching Score – Value between 0 and 1	1009	Surveillance 1
Plausibility 0 = good Plausibility 1 = bad Plausibility	555	Plausibility error