



**iRVISION IS ENTIRELY INTEGRATED WITHIN THE FANUC R-30iA CONTROLLER.**

## » DESCRIPTION

### No special hardware is necessary for iRVision.

- No PC
- No additional side-cabinet for PC
- No additional hardware on the controller
- Only the camera needs to be plugged to the controller.

**Your benefit: strong money saving due to less hardware, higher reliability due to less parts, no interface problem, 100% FANUC technology**

### THE iRVISION SOFTWARE IS COMPLETELY EMBEDDED IN THE ROBOT SOFTWARE

- image processing on robot CPU
- 100% FANUC Product, 2D, 2½D, 3D, 2D visual line tracking possible
- grey level based GPM method (Geometric Image Pattern Matching) for part detection
- 255 grey levels / resolution 512x480 or 640x480 pixels
- High resolution camera support / resolution 1280x960 pixels
- colored camera support / resolution 512x480 or 640x480 pixels
- Data storage on robot CPU (app. 150 parts, could be enlarged to app. 3000)
- max. 32 standard progressive cameras connectable
- offset information could be shared via robot ring to several robots (Ethernet)

### iRVISION 2D - DIFFERENT 2D PROCESS TYPES POSSIBLE

- 2D Single-View Vision process delivering X,Y,R robot coordinates for non moving parts
- Depalletising 2½D Vision process delivering X,Y,(Z),R robot coordinates for non moving parts
- 2D Multi-View Vision process delivering X,Y,R robot coordinates for non moving parts, increased accuracy for huge parts based on camera multiview.
- 2D Bin-Picking Search Vision process delivering X,Y,Z,R robot coordinates as well as the approach direction in respect to the camera view line
- 2D Floating Frame Vision process delivering X,Y,R in robot coordinates for non moving parts, robot mounted camera could be used in different positions and orientations, motion compensation will be done in 2D with respect to the camera pose.
- Error Proofing Vision process delivering NO position information, Boolean information will be delivered (0=FALSE / 1=TRUE), this Process evaluates whether the test result is acceptable or not.

### iRVISION 3DL - DIFFERENT 3DL PROCESS TYPES POSSIBLE

- 3DL Single-View Vision process delivering X,Y,Z,W,P,R robot coordinates for non moving parts
- 3DL Multi-View Vision process delivering X,Y,Z,W,P,R robot coordinates for non moving parts, increased accuracy for huge parts based on camera multiview.
- 3DL Cross Section Vision process delivering X,Y,Z robot coordinates (linked to tool- or user-frame), laser slit beam projection generates a black and white image of the contour of the part.



### DIFFERENT SUB TOOL TYPES, SUPPORTED BY THE MOST VISION PROCESS TYPES

#### SINGLE VIEW INSPECTION VISION PORCESS

- Inspection Vision Process provide special Sub Tool Types for Part Inspection

#### MULTI-LOCATOR TOOL

- Multi-Locator Tool allows to select a different Locator Tools.

#### MULTI-WINDOW TOOL

- Multi-Window Tool allows to select a predefined Search Windows.

#### GPM LOCATOR TOOL

- GPM Locator Tool detects a previous trained image pattern

#### BLOB LOCATOR TOOL

- Blob locator tool supports the detection of part with irregularity, shape which could not be detected by a trained image (such as cookies, food, etc )etc}

#### CSM LOCATOR TOOL (curved surface matching locator tool)

- CSM Locator Tool allows searching cylindrical Parts (pipes, cylinders, ectc, ...).

#### EDGE PAIR LOCATION TOOL

- Measures the length of a defined area

#### HISTOGRAM TOOL

- Measures the grey level of a defined area

#### DIFFERENT EXPOSURE MODES

- Multi-/automatic exposure mode compensating light fluctuation

### iRVISION 2D VISUAL LINE TRACKING

It consists two different 2D Visual Tracking process types, delivering X,Y,R robot coordinates to pickup moving parts "on the fly" from a conveyor. The option contains the whole part queue management.

### iRVISION 2D VISUAL LINE TRACKING SUPPORT

- 2D Single-View Vision process (part detection with one snap and find operation)
- 2D Multi-View Vision process (part detection with two snap and find operations)
- Multiple robots connectable to one vision system (no. of robot is theoretically not restricted)
- Load balancing for pickup on conveyor (incoming parts evenly distributed to all involved robots)
- Tray function supported (outgoing blister completeness check with conveyor stop function)
- Different system variations
- Various no. of robots
- Several conveyors ( In feed and/or Out feed conveyor possible)
- Sorting function supported
- Variable system layout possible
- Complete part queue management integrated
- could be used without vision detection
- Ready for PickPro Support

### iRCALIBRATION SUITE

#### iRCALIBRATION VISION SHIFT

- modifies and shifts the taught positions of a program after moving or reinstalling a system and shifts offline generated programs (ROBOGUIDE) to match to the real application

#### iRCALIBRATION TCP SET

- set or checks automatically a robot TCP

#### iRCALIBRATION VISION MULTICAL

- calibrate relative relationship between two arms controlled by a controller (typically Dual-, Triple- and Quadarm Arc Welding Application)

#### iRCALIBRATION VISION MASTERING

- execute vision mastering function to master or remaster FANUC robot axis J2 to J5 with identifying gravity compensation data at the same time (i.e. after motor/gearbox changing, etc... )

#### iRCALIBRATION VISION FRAME SET

- set User frame by measuring target with a camera, temporarily attached to robot hand.

# DESCRIPTION

