

R-30*i*A MATE CONTROLLER



FANUC ROBOTICS' SYSTEM R-30*i*A MATE CONTROLLER OFFERS A VERY SMALL SIZE FOR THE LR MATE 200*i*C ROBOT. THE CONTROLLER PROVIDES AN INTEGRATED 2D VISION SYSTEM TO SPEED-UP THE INSTALLATION OF VISION APPLICATIONS, THIS CAN BE EASILY UPGRADED TO PROVIDE A 3D VISION SYSTEM.

» FEATURES AND BENEFITS

COMMUNICATION FEATURES R-30*i*A Mate

Simple down- and upload of robot programs to server!

- PCMCIA interface inside the controller
- 1 serial interface connection (RS232C, RS422)
- FANUC I/O-link (slave or master)
- FANUC I/O unit model A (option)
- Ethernet (100 BaseTX)
- Fieldbus (optional)
 - PROFIBUS (Master and slave, separated)
 - DEVICENET (Master and slave, separated)
 - CCLINK

I/O FEATURES FOR R-30*i*A MATE

Input / Output (I/O) are electrical signals through which the robot can control grippers and other external tools. It is also needed for the communication with external machines (e.g. CNC machines) which the robot may load or unload.

- Available types of I/O
 - DI/DO (digital)
 - RI/RO at the robot arm (digital)
 - GI/GO (grouped digital I/O)
 - UI/UO (digital I/O for remote control by external PLC)
 - AI/AO (analog)
- I/O setup can be separately backed up and restored using PCMCIA memory card

FAST START-UP

R-30*i*A Mate controller needs less than 1 minute to start (and even less with the basic software only)

In case of power failure:

- Robot program restarts much quicker than with any PC-based program (non-Windows operating system).
- The resume hotstart function allows to restarting safely and continuing production after power failure : no need to re-do the whole movement.
- Unique resume tolerance check: in case of any program interruption, the robot automatically memorises its position before failure. When the program continues, it checks whether the robot has been moved outside of a preset tolerance. This avoids unexpected movements and collisions.
- Increased up-time (robot availability)

INTEGRATED INTELLIGENT VISION SOLUTION *i*RVISION (OPTION)

The controller provides integrated 2D vision to speed up the installation of vision applications.

(See chapter *i*RVision)

MINIMAL MAINTENANCE REQUIREMENTS

- Contoller size allows quick access to all components
- Minimal number of components
- No air-filters
- Emergency stop and I/O connections facilitate fast component change
- Special quick-change design for the 6-axes servo amplifier
 - All cables attached have connectors, thus allowing an easy change
 - Quick exchange frame for the amplifier fixed with only 2 bolts
- All components can be changed without special tools
 - Low MTTR (Mean Time To Repair)
- Remote diagnostics features

POWERFUL PROGRAMMING FUNCTIONS

The controller runs with FANUC operating system, which brings strong advantages:

- Virus-free (not PC based)
- High data security in case of power loss
- Quick start-up of basic software
- Easy to use

The controller offers various programming possibilities:

- TPE (Teach pendant editor) which is the standard way of programming
- Advanced offline programming options such as ROBOGUIDE
- Integrated PMC (optional)
- KAREL (optional)

TPE is a block style interpreter language: allows fast and cost-efficient programming.

- Possibility to record up to 11 000 positions with basic memory configuration
- One key stroke on the teach pendant records one complete operation of the robot
- Standard operations (e.g. motion, arc start, arc end, logic...) can be selected and adapted to the application very easily
- TPE motion includes:
 - Joint, linear and circular motions
 - Remote TCP, coordinated motion and other functions in option

SAFETY CLASS 4

Safety Class 4 (EN 954-1) is offered with Dual Check Safety.

DCS consists of 2 I/O security channels running on 2 independent processors which mutually check each other. Dual Check Safety is the embedded safety conformed to European safety standards. Two processors monitor real position and velocity of servo motor for safety redundantly. The embedded safety provides conformance to the safety standards without any sacrifice on machine efficiency and cost.

Dual Check Safety in the robot has the following features:

- 2 channel safety inputs for FENCE, emergency stop, servo off
- 2 channel safety output for emergency stop
- Same safety inputs and outputs as R-J3iB and R-J3
- Safely cuts the servo motor power using magnetic contactors
- Safety classification according to EN 954-1 risk assessment class 4 (highest level as needed for manual press loading)

SERVO MONITORING - OVERLOAD, OVERHEAT AND COLLISION DETECTION

Continuous monitoring of the motor current by the servo control for enhanced predictive maintenance

- Overheat monitoring: the power dissipation and capacity of each motor is continuously monitored, as well as the robot duty cycle. In case of overheat, an alarm is issued and stops the robot.
- Collision detection (disturbance torque monitoring): the difference between real and expected motor current is monitored. Collisions and electrical / mechanical problems to the robot can be detected quickly before serious damages occur. Disturbance excess alarm warns the operator while the collision alarm stops the robot. Collision events are recorded to allow further analysis.
- Overload monitoring (OVC): the commanded torque is monitored and overload detected when the value gets too big.
- Position monitoring: the following error of the servo control is constantly monitored. It triggers move error excess and stop error excess alarms.

iPENDANT AS STANDARD

The FANUC iPendant is an intelligent teach pendant and is available as standard (except for PaintTool). Touch screen is available as option.

- Access via Ethernet to web sites
 - Pendant view status of peripheral equipment and other robots' html web server pages (when available)
 - Coloured, multi-windows display
 - Customizable screen
- Easier work with the robot, enhanced productivity.

INDUSTRIAL PC-SIZE R-30iA MATE OPEN AIR CONTROLLER

Ideally suited for small and compact robot cell the FANUC robots LR Mate 200iC and M-1iA are available with the space saving R-30iA Mate Open Air Controller. The "Open Air" Controller has smallest dimensions and is cooled by outside air blown through the controller, while offering the full functionality available with R-30iA Mate controller. The "Open Air" Controller needs to be installed in a clean and dry environment. The controller dimensions are ideal for mounting inside an industrial control cabinet (which can e.g. provide IP54 protection).

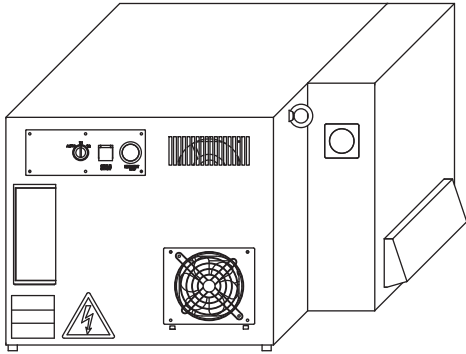
- Dimensions: only H = 200 mm x W = 370 mm x D = 450 mm
- Weight: ca. 20kg
- Energy saving: only 1.2KVA input power capacity requirement
- Requires clean and dry environment: Installation category II, pollution degree 2, IEC60664-1
- ON/OFF switch, mode selection switch, emergency stop and start button provided on the front panel
- PCMCIA slot for data storage on PCMCIA FROM card provided
- New lightweight iPendant with USB-stick slot can be connected.

FEATURES AND BENEFITS

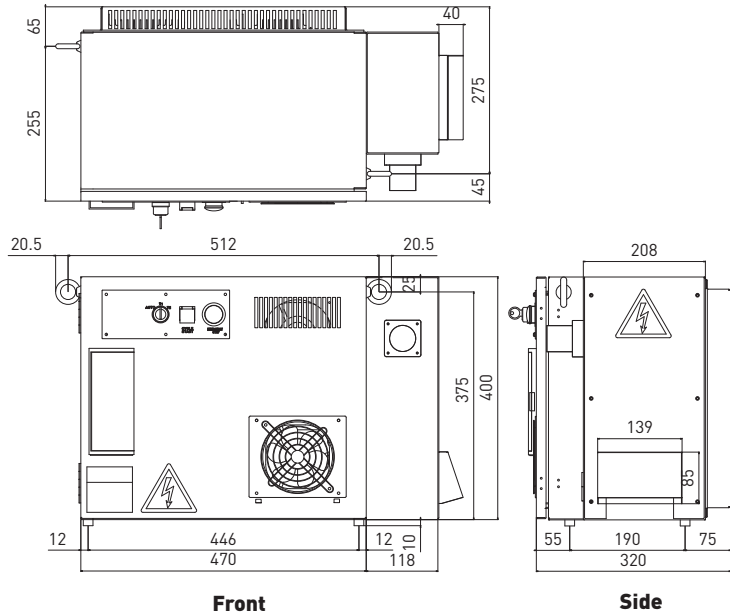
R-30iA Mate Controller

Weight approx. 55 Kg

Isometric



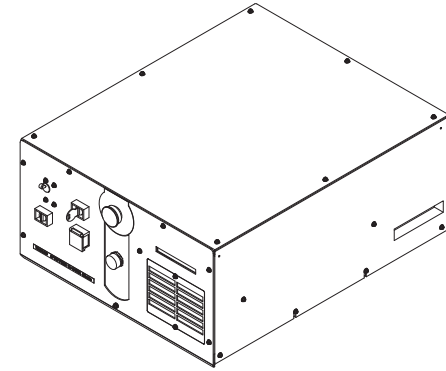
Top view



R-30iA Mate Open Air Controller

Weight approx. 20 Kg

Isometric



Top view

