

# YASKAWA

# MOTOMAN FS100

## Industrial robot controller

The latest YASKAWA FS100 controller generation has been specially developed for the Picking and Packing sectors and for further handling applications. The development goal was "Fast, safe, open, small".



Real-time processing of sensor signals, reactions to camera information and other high-speed applications are thus made possible. All in all, the FS100 thus exploits its superlative performance capabilities to the full in applications where high flexibility is required.

Another modern feature is the open concept of the controller which enables users to access robot interfaces and motions externally via a PC or PLC and also to develop their own applications. Interfaces such as MOTOMANSync and MotoPlus allow the controller to function as a slave of the higher-level controller in a line; this means that it is programmed in your customary PLC language.

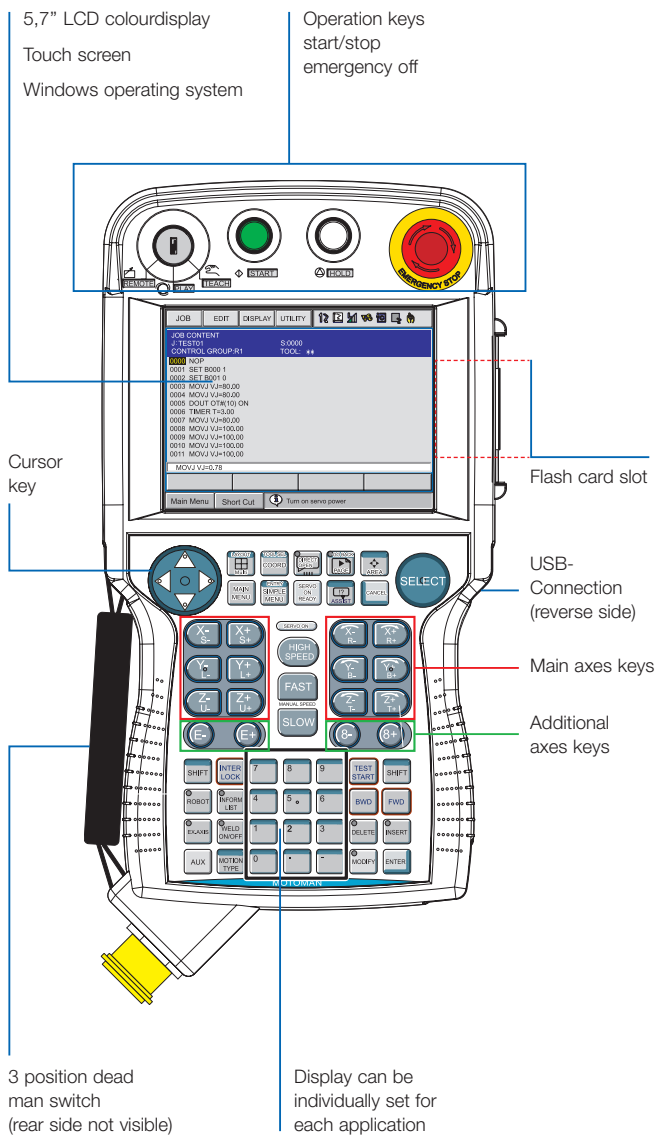
The streamlined and compact design requires little space for installation, thereby saving valuable production space. The FS100 thus offers particular advantages for line builders.

### KEY BENEFITS

- Designed as an open controller
- Development of customized user applications
- High flexibility for variable packaging solutions
- Safe and fast
- Space-saving, streamlined and compact
- Energy-saving

## High performance controller FS100 for MOTOMAN-Robots

### Programming pendant (PHG) ergonomical, light and easy



- Easy and fast programming
- Several user levels – from operation to maintenance
- Help function

### Open Controller

Connection of FS100 to the existing overall system with the YASKAWA software solutions

- MOTOMAN*Sync*
- MOTOP*lus*
- MOTO*GS*I
- Windows operating system

### Advanced Robot Motion Function (ARM)

Dynamic calculation of torque and loads on the robot axes

- Extremely high path accuracy
- Optimal robot motion and velocity
- Vibration control
- Highly sensitive collision detection

### Communication

Ethernet, Web (ftp, opc) Server options and all common fieldbus systems

- Easy integration into existing networks
- Remote monitoring and diagnosis of robot systems

### Additional benefits

- Multitasking (free of extra charge)
- Integrated PLC
- Highest performance due to industrial PC
- Boot time: max. 50 sec.
- MTTR (Mean Time To Repair): < 5 min.
- Automatic robot calibration

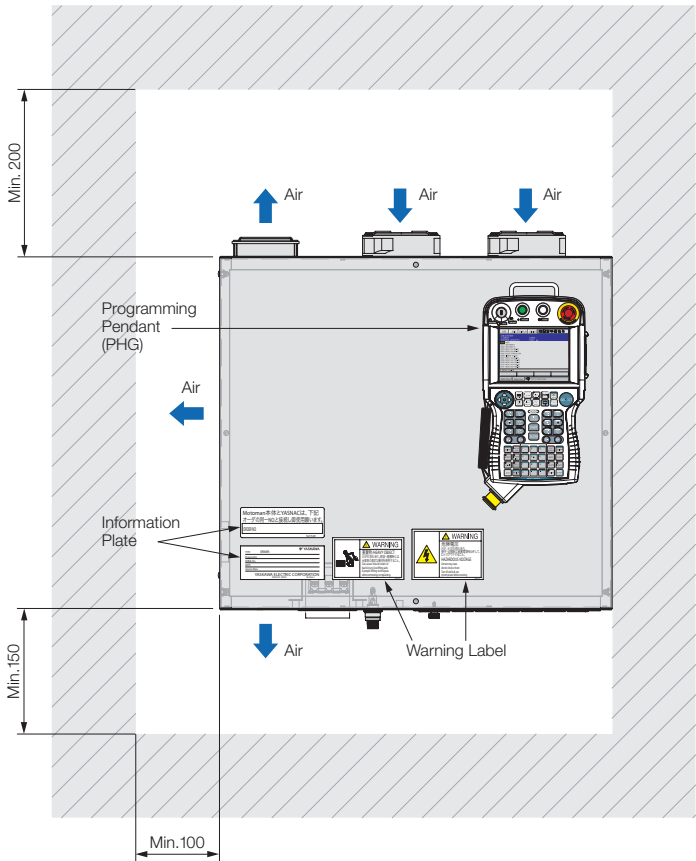
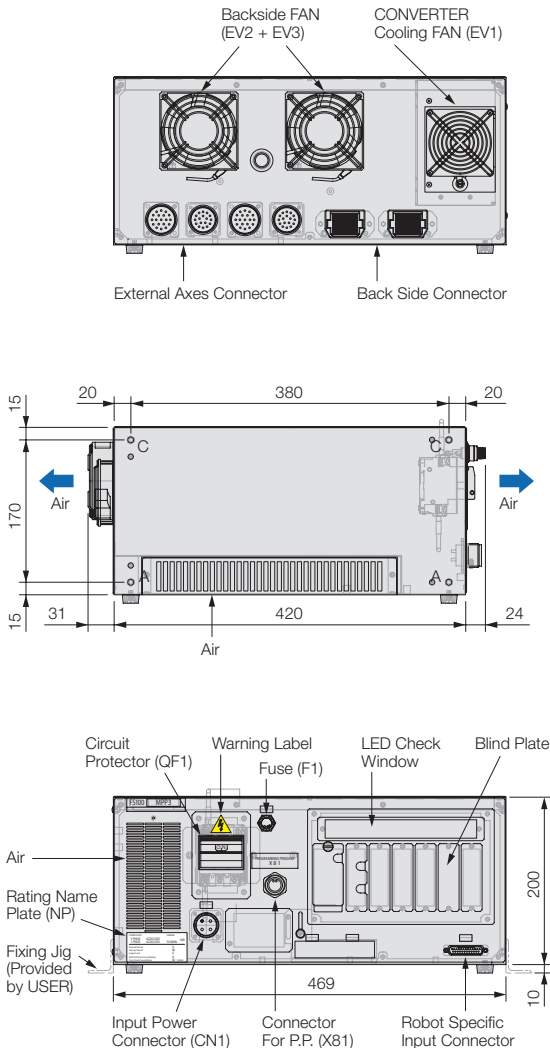
| Control cabinet     |                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions          | 470 (W) x 200 (H) x 420 (D)                                                                                                                    |
| Weight              | Approx. 20 kg                                                                                                                                  |
| Protection class    | IP20                                                                                                                                           |
| Cooling system      | Indirect cooling                                                                                                                               |
| Ambient temperature | 0° to +45°C (operation)<br>-10° to +60°C (transport and storage)                                                                               |
| Relative humidity   | Max. 90 % non-condensating                                                                                                                     |
| Power supply        | 3-phase 200/220 VAC at 50/60 Hz or<br>1-phase 200/230 VAC at 50/60 Hz                                                                          |
| Digital I/O         | Card 1: 28 inputs/28 outputs<br>(16 standard/12 system)<br>(Expandable to 1024 inputs/1024 outputs)<br>Card 2: 28 inputs/28 outputs (standard) |
| Positioning system  | Absolute encoder / serial interface                                                                                                            |
| Program memory      | 10.000 steps, 1.000 instructions<br>and 1.500 PLC steps                                                                                        |
| Interface           | Profibus (Slave), Ethernet IP (Master/Slave),<br>DeviceNet (Master/Slave), CC-Link (Slave), Profinet<br>(Master/Slave)                         |
| Color               | Analog RAL 7032                                                                                                                                |

| Maintenance        |                                                                        |
|--------------------|------------------------------------------------------------------------|
| Functions          | System monitor, internal maintenance clocks (e.g. Servo power-on time) |
| Self-diagnosis     | Classifies errors and major/minor alarms and displays the data         |
| User alarm display | Alarm messages for peripheral devices                                  |
| Alarm display      | Alarm messages and alarm history                                       |
| I/O diagnosis      | Simulated enable/disable outputs                                       |
| TCP calibration    | Automatic calibration of TCP (Tool Center Point)                       |

| Safety features     |                                                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Specifications      | Dual-channel safety system (Emergency stop, safety interlock), 3-position Dead-man's switch, European safety standard (ISO10218) |
| Collision avoidance | Collision avoidance zones and radial interference zones                                                                          |
| Collision detection | Monitors robot axes' torque levels                                                                                               |
| Machine lock        | Test-run peripheral device without robot motion possible                                                                         |

| Programming pendant |                                                             |
|---------------------|-------------------------------------------------------------|
| Dimensions          | 169 (W) x 314.5 (H) x 50 (D)                                |
| Touchscreen display | 5.7" colour LCD (640 x 480 pixels)                          |
| Weight              | 0.986 kg                                                    |
| Coordinate system   | Joint, Rectangular/cylindrical, Tool, User-coordinates      |
| Speed adjustment    | Fine adjustment possible during operation or teach mode     |
| Shortcuts           | Direct access keys and user selectable screen keys possible |
| Language            | Mostly spoken languages available (worldwide)               |
| Interface           | Compact Flash card slot, USB port                           |
| Operating system    | Windows CE                                                  |

| Programming          |                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------|
| Programming language | INFORM III                                                                                          |
| Robot motion control | Joint motion, linear, circular, spline interpolation                                                |
| Speed adjustment     | Joint motion (% of maximum)<br>Interpolation (mm/sec; cm/min; inch/min)<br>Angular velocity (°/sec) |



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