FANUC
ROBOTICS

SOFTWARE OPTIONS

WELCOME TO THE YELLOW WORLD!

FANUC SOFTWARE OPTIONS – ADVANCED INTELLIGENCE

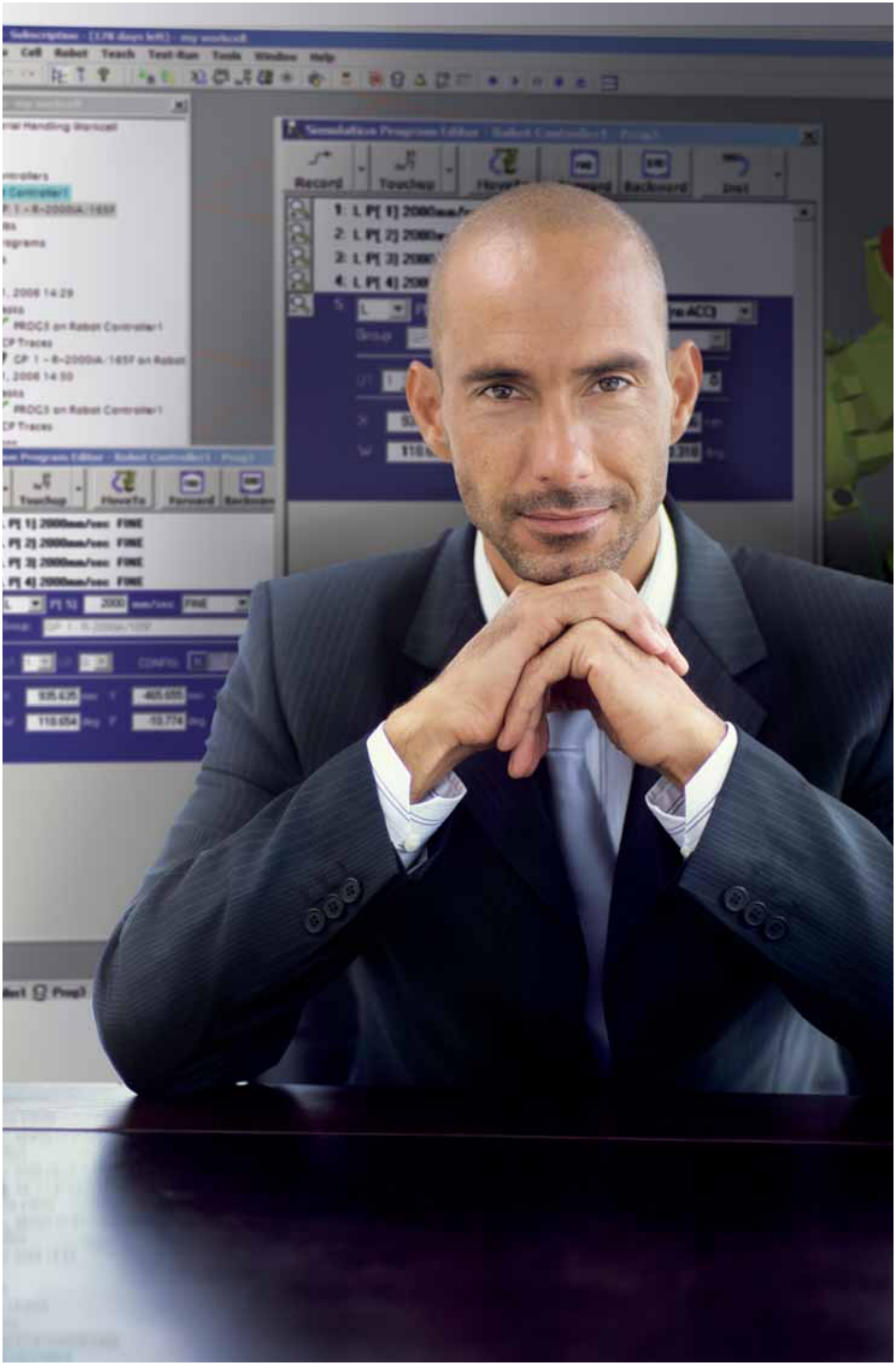
As standard, FANUC robots and controllers are equipped with powerful handling software suitable for most requirements. But even the best robots can get even better – just like you need them. That is why we offer a wide range of software options that can provide increased performance, improved security and enhanced features for the mechanical unit.

Specific FANUC Software Options are available for the areas:

- Physical Protection
- Data Security
- Information Analysis
- Performance Check-Up
- System Integration

SOFTWARE OPTIONS	CONTROLLER MODELS			
	R-J2	R-J3	R-J3iB	R-30iA
Collision Guard	X	X	X	X
Approach Deterrence	X	X	X	X
Operation Logbook	N/A	N/A	X	X
Automatic Backup	N/A	X	•	•
Error Code Output	X	X	X	X
Cycle Time Priority	X	X	X	•
Integrated PMC	X	X	X	X
Password	X	X	•	•

X = Optional • = Standard


Cell Robot Teach Test-Run Tools Window Help
Record
Touchup
Backward
Inst
Forward
FINE

PHYSICAL PROTECTION

THESE TWO FANUC SOFTWARE SOLUTIONS PROTECT PEOPLE, GOODS AND MACHINES IN THE VICINITY OF FAST MOVING ROBOTS AGAINST COLLISIONS AND THEREBY ALSO PROTECT THE ROBOTS. THAT IS YOUR ADDITIONAL PROTECTION AGAINST PRODUCTION DOWNTIME AND HIGH REPAIR COSTS – AN IMPORTANT PLUS POINT IN SAFETY THAT YOU SHOULD NOT BE WITHOUT!

1. FANUC COLLISION GUARD

FANUC Collision Guard provides a highly sensitive method to detect whether a robot has collided with any object from any direction, and to stop the robot immediately in any incident. This is done by automatically decreasing the pressure on the object which it has collided with, thus greatly minimizing possible damage to the tool, to the robot itself and also reducing downtime after collision.

Your advantages with FANUC Collision Guard:

- Can be used in all directions, which is not the case with conventional hardware solutions
- Protects the robot, the gripper and its surroundings, whereas hardware solutions only protect the gripper – not the robot and not the surrounding areas
- Protects also auxiliary axes included in your installation, thus strongly increasing the security
- Can be enabled or disabled – and it is also possible to define the level of sensitivity of the collision detection function
- Can be used within a production programme such as checking the exact position of a product in a palletizing programme

So even if you are currently using a hardware solution, you should think about installing FANUC Collision Guard, as this may reduce hardware failures which can be expensive and cause loss of production. At the same time you reduce the possibility of damage to your robot and/or peripheral objects.

THE EXTRA ADVANTAGE:
Integrated Payload Identification

Robots running on FANUC Robotics R-J3iB or R-30iA controllers also receive the practical Payload Identification software along with the FANUC Collision Guard-package:
It identifies the payload and sets the payload parameters automatically.

2. FANUC APPROACH DETERRENCE FUNCTION

The FANUC Approach Deterrence Function prevents collision risks in detecting a near miss between one robot and another or a fixed object by using fast Ethernet links to continually monitor the distance between robots, end-effectors and tooling: When the distance becomes less than a preset value, the robots decelerate to a stop, thereby preventing a crash from occurring. FANUC Approach Deterrence Function is permanently active during system set-up and in production. So it guards effectively against collisions when operators fine-tune robot trajectories.

DATA SECURITY

OPERATING ERRORS CAN HAPPEN. THAT IS WHY IT IS EVEN MORE IMPORTANT THAT YOUR PROCESS DATA IS RELIABLY PROTECTED AGAINST LOSS, SO THAT THERE ARE NO EXPENSIVE CONSEQUENCES – FOR EXAMPLE IF A CORRECTLY RUNNING PROGRAMME IS OVERLAID BY AN INCORRECT ONE.

IN ORDER TO EFFECTIVELY PREVENT SUCH CASES WE OFFER STRONG PROTECTION AND ENHANCEMENT FEATURES WITH OUR SOFTWARE OPTIONS – FOR THE MECHANICAL UNIT AS WELL AS FOR YOUR PROGRAMMES.

1. FANUC AUTOMATIC BACK-UP

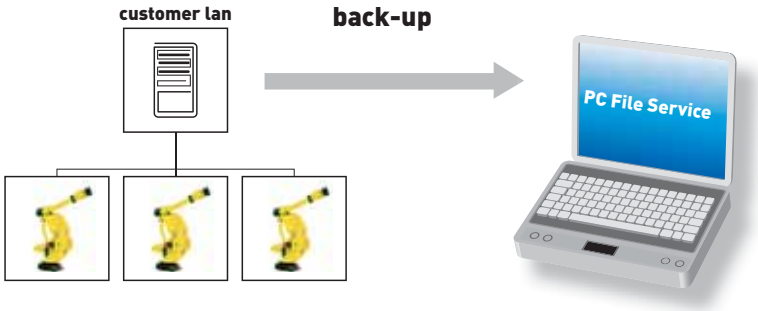
The risk of not performing a back-up can be very costly in terms of security, time and production losses. The FANUC Automatic Back-up function enables you to back up and restore an older programme if necessary.

If you changed the robot programme, and the new one doesn't work as expected, the Automatic Back-up function allows you to restore the old programme to get the application running again.

Just like a PC, taking a regular back-up allows you to recover your data (system variables and teach pendant programmes) quickly and efficiently. With this the back-up can be scheduled at any specific time that best suits your needs – e.g. every night at 23.00.

Your FANUC AUTOMATIC BACK-UP possibilities

- **Robot internal memory**
  Automatic back-ups to be saved directly to the robot internal memory (FRA).
- **PCMCIA Memory Card**
  Using external devices offers higher security, therefore you can perform automatic back-ups on simple PCMCIA memory card to save all data.
- **LAN**
  This is the solution we recommend, mainly because there are no limits on file size. You can perform the back-ups and have them stored on your network to allow fast and easy access.
- **Multiple back-up option**
  If you have a large number of robot installations, you can programme the automatic back-up via FANUC PC File Service enabling users to back up and restore robot application files from many robots to a single PC via Ethernet.



2. FANUC PASSWORD FUNCTION

This software protects the robot data from unauthorized access with additional benefits such as login history, multiple accounts and system data protection.

The password is a combination of up to 12 letters, numbers and symbols used to allow access to various operations and screens.

Four password levels provide access to specific operations and menus:

- Installation level with open access to all functions
- Setup level with full access to setup and programming functions
- Programme level with access to programming functions and read-only access to setup
- Operator's level which is limited to selection and running of programmes

Your advantages with the FANUC PASSWORD FUNCTION:

- Login history to the review of all logins/logouts to the robot. This makes it possible to see what changes have been made and identify the person who made the changes.
- Multiple accounts, so that each user can have his/her own user name and password with personalised access level.
- System data protection, to ensure that the access to the controller is defined according to the skill level of various users. The controller is thus protected against any intrusion or unskilled operation.

INFORMATION ANALYSIS

IN THE EVENT OF A PROBLEM, THIS LOG FILE ENABLES OUR SERVICE TECHNICIANS TO DIAGNOSE THE PROBLEM MUCH QUICKER, ESPECIALLY WHEN YOU USE FANUC REMOTE DIAGNOSTICS AND FANUC DATA MONITORING.

WRITE

```
MC:\LOGBOOK.LS Robot Name ROBOT 16-NOV-05 10:13
Operation
=========================================
F3(OVERWRIT) is pressed
16-NOV-05 10:13
--Screen image--------------------------
FILE-053 MC Inserted              FBD
TEST            LINE 0    \T2\ ABORTED
FILE\\\\\\\\\\\\\\\\\\\\\\\\\JOINT\\10\%
MC:\*.*                        1/25
\\1\*\\\\\\\\*\\\(all\files)\\\\\\\\\\\\
  2 *       KL  (all KAREL source)
  3 *       CF  (all command files)
  4 *       TX  (all text files)
  5 *       LS  (all KAREL listings)
  6 *       DT  (all KAREL data files)
  7 *       PC  (all KAREL p-code)
  8 *       TP  (all TP programs)
  9 *       MN  (all MN programs)
 10 *       VR  (all variable files)
MC:\LOGBOOK.LS already exists
            OVERWRITE  SKIP  CANCEL
==================================
```

FANUC OPERATION LOGBOOK

The FANUC Operation Logbook not only automatically records any action – e.g. programme modification – a user has taken with a teach pendant: With this FANUC software option you can determine causes for operating mistakes.

Basically, the FANUC Operation Logbook is an audit file of teach pendant actions – it improves the tracking of robot usage as well as the security. Operations of Teach Pendant and alarms are recorded automatically, the records are displayed in a log book menu within the teach pendant and can be saved as text files for back-up for future reference.

By using the FANUC Operating Logbook, you can determine causes for operation mistakes such as:

- Change in System Variables
- Change in Override
- Change in I/O status
- Teach Pendant programme modifications

PERFORMANCE CHECK-UP

GUARANTEED MAXIMUM SPEED: IF YOU WANT TO KNOW IF YOUR ROBOTS ARE WORKING AT MINIMIUM CYCLE TIME, YOU NEED THIS FANUC SOFTWARE OPTION. TO SPEED UP YOUR PRODUCTION AND IMPROVE EFFICIENCY: CYCLE TIME PRIORITY FOR MAXIMUM PERFORMANCE.

FANUC CYCLE TIME PRIORITY

With the FANUC Cycle Time Priority, we offer a service in which we determine if you are actually achieving the minimum cycle time possible. For this we take a back-up of your robot and perform an analysis to determine the possibility of improving cycle time with a ± 2% accuracy.

SYSTEM INTEGRATION

FANUC INTEGRATED PMC

The FANUC Integrated PMC is a method of executing Ladder Logic on the robot controller. It can potentially eliminate the need for an external Programmable Logic Controller (PLC) or Soft Programmable Logic Controller in small systems.

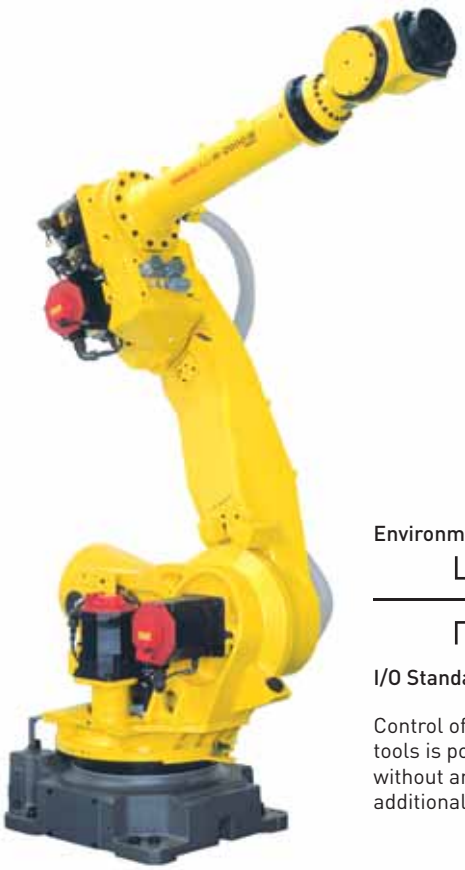
Integrated PMC is executed by the dedicated communication processor in the controller, and is completely independent from any robot motion and programme.

It can access and control all available I/O. Some of the advantages include:

- Increased interconnection speed
- No requirement for an additional PLC saving cost
- Programmed as a normal PLC with ladder logic
- Reduced cabling cost and floor space requirement

FANUC ERROR CODE OUTPUT

The FANUC Error Code Output function provides an alarm as a digital output to a PLC in binary format. It offers better error management, in particular for larger installations, where multiple robots are able to send error messages to a system PLC.



Environment

I/O Standards

Control of external tools is possible without any additional PLC

External PLC

Programme-Stop
Programme-Start
Programme-Pause (HOLD)
Adaptation towards master PLC is possible

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