

MELFA SW

Software for Industrial Robots

Intuitive project creation
Programming and simulation



**SIMPLER
OPERATION**

Simulation and checking of created programs in the integral CAD environment



**INTELLIGENT
DESIGN**

Short installation and commissioning times thanks to syntax quick-tips and grouped function parameter settings



**ALL
INCLUDED**

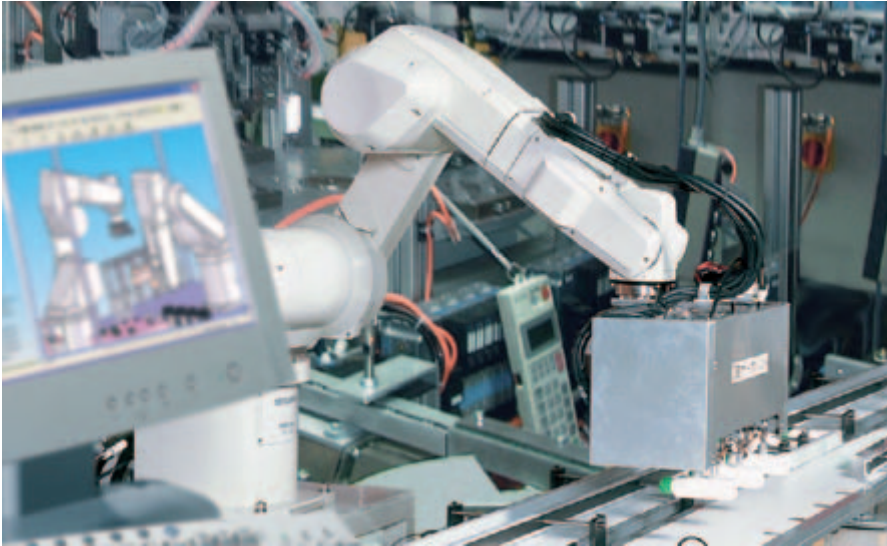
Complete robot simulation capability allows system design verification before purchasing hardware



**MORE
FLEXIBILITY**

Project import and export simplifies the reproduction of projects as well as maintenance and documentation.

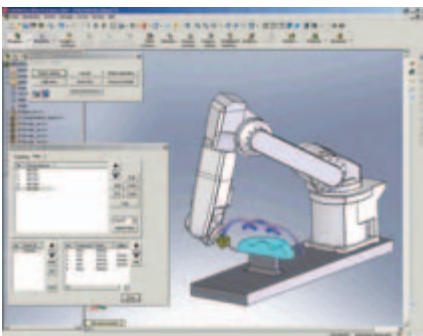
Reduce project times and costs



Simulation of a Mitsubishi Electric industrial robot directly in an application



RT ToolBox2 program example



Following workpiece contours in MELFA-Works

Do you prefer to plan before investing? If so, you have a full range of options with Mitsubishi Electric, as we know from experience that even established manufacturing processes need to be critically analysed on an ongoing basis. Robot technology has made a significant contribution to increased productivity and quality. It must therefore also be possible to optimise the commissioning of a robot application from the point of view of time and cost.

Just get going

RT ToolBox2 will guide you comfortably through all the steps for building up your application quickly and easily. You will be led through the software step-by-step from the selection of the robot system to the communication settings.

The new syntax quick-tips will assist you with programming, and the syntax highlighting feature will make program creation more convenient. Finished programs can be easily exchanged between systems, the simulation or the PC using Drag & Drop.

Do you want to simulate and program several robots in your system simultaneously? Then RT ToolBox2 will enable you to connect up to eight robot systems in parallel using Ethernet and display them in the integral CAD system in real time.

In addition, the supervision and monitoring functions will help to easily optimise and adapt the system to suit your application. Even parameter settings are carried out within a few minutes using the function-related grouping, and the backup and restore function undertakes all the vital steps for project backup on your behalf.

Virtual engineering

MELFA-Works from Mitsubishi Electric is an add-on tool for the widely popular SolidWorks® 3D CAD software package.

This powerful combination of software allows users to create and develop teaching position data and robotic programming sequences in a virtual world, i.e. without the need of hardware.

Together, MELFA-Works and the SolidWorks® platform can extend an existing robot simulation system with new capabilities and supplementary functions.

MELFA-Works provides extensive help and support. It also facilitates offline development and testing of robot programs that will be used later in real applications.

MELFA Works has the right solution, particularly when it comes to collisions with system parts or the optimisation of travel paths. This takes the form of a virtual development platform which enables production conditions to be tested and confirmed from existing CAD data. In this way, every design detail can be established and quickly clarified before ordering any hardware.

Test in real time

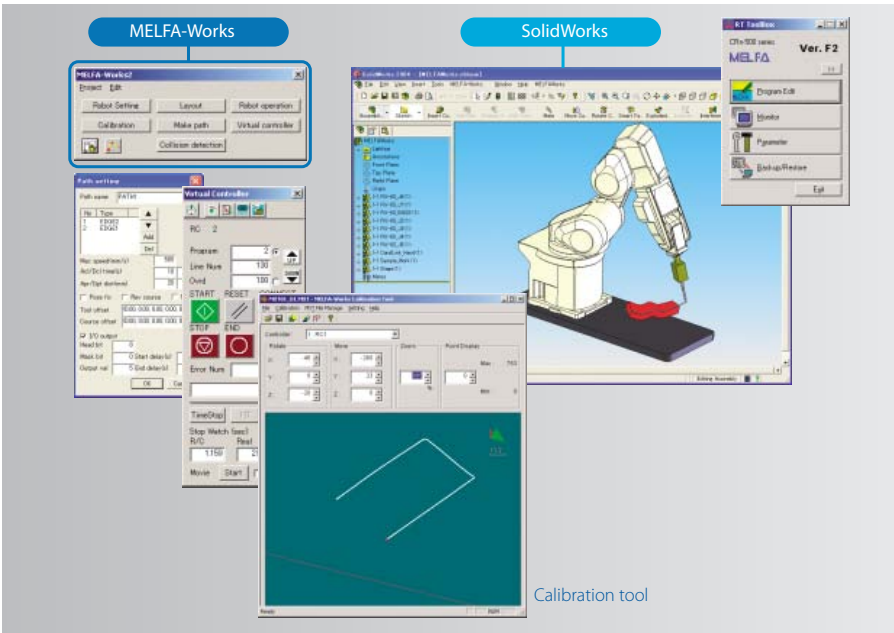
Does your core expertise also include quantities and low cycle times? Then MELFA Works provides the ideal tool for determining cycle times in advance by simulation. This enables you to test all parts of your program under real-time conditions and therefore optimise the system quickly and easily.

A powerful software toolbox

Of course programs generated during simulation can be used directly or edited for deployment on robots with similar tasks, even multitasking modes can be simulated in the software's „task slot manager“.

In addition, programs can be tested step-by-step or by direct execution, including observance of user defined breakpoints. Robot simulations can even be used in Jog mode.

A complete development environment also means the ability to simulate additional axes together with I/O signals. In addition, you can make a visual record of everything for reference (including the travel paths) in the form of a video file in AVI-format.



The interaction of MELFA-Works and SolidWorks®

Easy and efficient: MELFA-Vision

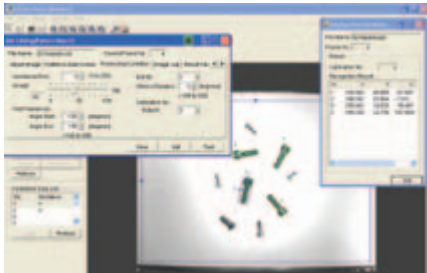
Together with extended standard commands in the robot program, the efficient MELFA Vision software makes setting up and programming easy. Standard programs are available for a large number of tasks and applications. This enables even beginners and newcomers to image processing to build up and commission a system.

Functions such as assisted calibration, logging of recordings for quality assurance and the ability to network up to three robots on one camera system will also assist you with complex applications.

The MELFA-Vision software is the only tool needed to easily and quickly customize vision applications.



Screen shot of reference point setting



Screen shot of job editing

System requirements

System requirements	Required	Recommended
CPU	Intel Pentium 4 or compatible processor of 2.0 GHz or higher	Intel® Pentium™, Intel Xeon™, AMD® Athlon, AMD Opteron or other processor of equivalent performance class
Main memory	512 MB or more	1024 MB or more
Graphic display	XGA (1024x768) or higher	SXGA (1280x1204) or higher, with graphic board installed
Hard disk	Available disk space of 1GB or more	
Disk drive	CD-ROM drive	
Pointing device	Any device that operates in the Microsoft Windows® environment, with wheel button	
Keyboard	PC/AT compatible keyboard	
Operating system	Microsoft Windows® 2000 Professional SP4, Microsoft Windows® XP Professional (32-bit) SP2<P7>, Microsoft Windows 7 32- or 64-Bit	
MELFA Works requirements	SolidWorks® 2004 SP4.1 or more, SolidWorks® version 2005	
External application	GX Simulator Version 7	

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Programming example

1	'Robot demo program Ver. A1/1st January 2013
2	'
3	'### Program part 1 ###
4	Mov PStart 'Move to position "PStart"
5	Mov PEnd 'Move to position "PEnd"
6	'### End of program part 1 ###
7	'
8	'### Program part Pick&Place ###
9	For MPALETTE=1 To 5 '# Loop start # Move five times
10	Mov Pick, 50 'Move 50 mm to above the gripper point "Pick"
11	Mvs Pick 'Move in a straight line to gripper point
12	HClose 1 'Close gripper hand No. 1
13	Mvs Pick, 50 'Move 50 mm in a straight line to above the gripper point "Pick"
14	M_Out(12)=1 'Set output No. 12 to "1"
15	Mov Place, 50 'Move 50 mm to above the set-down point "Place"
16	Mvs Place 'Move in a straight line to gripper point
17	HOpen 1 'Open gripper hand No. 1
18	Mvs Place, 50 'Move 50 mm in a straight line to above the set-down point "Place"
19	Dly 0.5 'Wait for 0.5 seconds
20	M_Out(12)=0 'Set output No. 12 to "0"
21	Next MPALETTE '# Loop end # and increment counter MPALETTE by "1"
22	'### End Pick&Place subroutine ###
23	End 'Program end

European Branches

Mitsubishi Electric Europe B.V. Gothaer Straße 8 D-40880 Ratingen Phone: +49 (0)2102 / 486-0	Germany
Mitsubishi Electric Europe BV-orgs.l Radická 714/113a CZ-158 00 Praha 5 Phone: +420 - 251 551 470	Czech Rep.
Mitsubishi Electric Europe B.V. 25, Boulevard des Bouvets F-92741 Nanterre Cedex Phone: +33 (0)1 / 55 68 55 68	France
Mitsubishi Electric Europe B.V. Viale Colonna 7 I-20041 Agrate Brianza (MB) Phone: +39 039 / 60 53 1	Italy
Mitsubishi Electric Europe B.V. Krakowska 50 PL-32-083 Balice Phone: +48 (0)12 / 630 47 00	Poland
Mitsubishi Electric Europe B.V. 52, bld. 3 Kosmodamienskaya nab 8 floor RU-115054 Moscow Phone: +7 495 721-2070	Russia
Mitsubishi Electric Europe B.V. Carretera de Rubí 76-80 E-08190 Sant Cugat del Valles (Barcelona) Phone: 902 131121 // +34 935653131	Spain
Mitsubishi Electric Europe B.V. Travellers Lane UK-Hatfield, Herts. AL10 8XB Phone: +44 (0)1707 / 27 61 00	UK

Representatives

GEVA Wiener Straße 89 AT-2500 Baden Phone: +43 (0)2252 / 85 55 20	Austria	UTECO S, Mavrogenous Str. GR-18542 Piraeus Phone: +30 211 / 1206 900	Greece	Fonseca S.A. R. João Francisco do Casal 87/89 PT - 3801-997 Aveiro, Esqueira Phone: +351 (0)234 / 303 900	Portugal	PROCONT, spol. s r.o. Prešov Köpeľná 1/A SK-080 01 Prešov Phone: +421 (0)51 7580 611	Slovakia	Robotronic AG Schlachthofstrasse 8 CH-8406 Winterthur Phone: +41 (0)52 / 267 02 00	Switzerland	I.C. SYSTEMS LTD. 23 Al-Saad-Al-Alee St. EG - Sarayat, Maadi, Cairo Phone: +20 (0) 2 / 235 98 548	Egypt
Koning & Hartman b.v. Woluwelaan 31 BE-1800 Vilvoorde Phone: +32 (0)2 / 257 02 40	Belgium	AXICONT AUTOMATIKA Kft. (ROBOT CENTER) Reitter F.U. 132 HU-1131 Budapest Phone: +36 1 / 412-0882	Hungary	SIRIUS T & S SRL Aleea Lacul Morii Nr. 3 RO-060841 Bucuresti, Sector 6 Phone: +40 (0)21 / 430 40 06	Romania	INEA RBT d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513 8116	Slovenia	GTS Bayraktar Bulvari Nutuk Sok. No:5 TR-34775 Yukarı İSTANBUL Phone: +90 (0)216 526 39 90	Turkey	ILAN & GAVISH Ltd. 24 Shenkar St., Kiryat Anie IL-49001 Petah-Tiqva Phone: +972 (0)3 / 922 18 24	Israel
INEA RBT d.o.o. Aleja Lipa 56 BA-71000 Sarajevo Phone: +387 (0)33 / 921 164	Bosnia and Herzeg.	ALFATRADE Ltd. 99, Paola Hill Malta-Paola PLA 1702 Phone: +356 (0)21 / 697 816	Malta	INEA RBT d.o.o. Izletnicka 10 SER-113000 Smederevo Phone: +381 (0)26 / 615 401	Serbia	Bejeer Electronics AB Box 426 SE-20124 Malmö Phone: +46 (0)40 / 35 86 00	Sweden	CSC Automation Ltd. 4-B, M. Raskovoyi St. UA-02660 Kiev Phone: +380 (0)44 / 494 33 55	Ukraine	CBI Ltd. Private Bag 2016 ZA-1600 Isando Phone: 27 (0)11 / 977 0770	South Africa
AKHNATON 4, Andrei Lipachev Blvd., PO Box 21 BG-1756 Sofia Phone: +359 (0)2 / 817 6000	Bulgaria	HIFLEX AUTOM. B.V. Wolweverstraat 22 NL-2984 CD Ridderkerk Phone: +31 (0)180 - 46 60 04	Netherlands	SIMAP s.r.o. Jána Derku 1671 SK-911 01 Trenčín Phone: +421 (0)32 743 04 72	Slovakia						
AutoCont C.S. s.r.o. Technologická 374/6 CZ-708 00 Ostrava-Pustkovec Phone: +420 595 691 150	Czech Republic	Koning & Hartman b.v. Haarlerbergweg 21-23 NL-1101 CH Amsterdam Phone: +31 (0)20 / 587 76 00	Netherlands								
Bejeer Electronics A/S Lykkegårdsvej 17 DK-4000 Roskilde Phone: +45 (0)46 / 75 76 66	Denmark	Bejeer Electronics AS Postboks 487 NO-3002 Drammen Phone: +47 (0)32 / 24 30 00	Norway								
Bejeer Electronics OY Peltola 37 FIN-28400 Ulvila Phone: +358 (0)207 / 463 540	Finland										



Mitsubishi Electric Europe B.V. / FA - European Business Group / Gothaer Straße 8 / D-40880 Ratingen / Germany / Tel.: +49(0)2102-4860 / Fax: +49(0)2102-4861120 / info@mitsubishi-automation.com / www.mitsubishi-automation.com

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