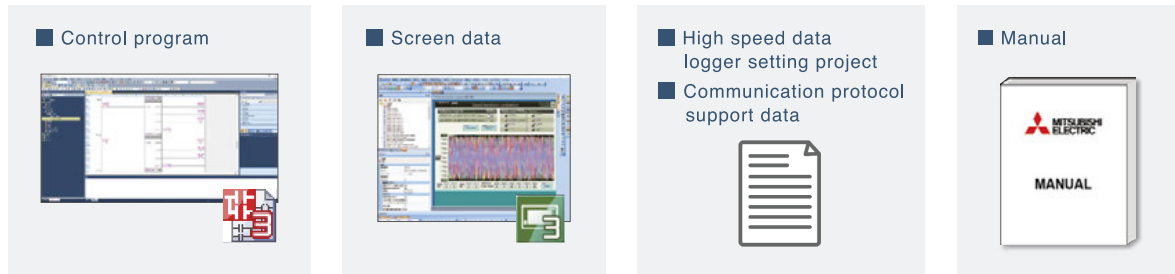


Contents of Package

iQ Monozukuri Tool Wear Diagnosis for Machine Tools Package includes the below contents.



※Advanced Data Science Tool is optional.

Software

Product Name		Model	Quantity	Software Version
Engineering Tool	MELSOFT GX Works3	SW1DND-GXW3-□	1	1.066U onwards
	MESOFT GT Designer3 (GOT2000)	SW1DND-GTWK3-□	1	1.240A onwards
	MELSEC iQ-R Series High Speed Data Logger Module Setting Tool	SW1DNN-RDLUTL-□	1	1.03D onwards

※Software used for startup.

Major Device

The required quantity depends on configurations.

Product Name	Model	Quantity	Remarks
GOT	GT2512-STBA	1	—
Main base unit	R35B	1	—
Power supply module	R61P	1	—
PLC CPU	R16CPU, R32CPU, R120CPU	1	Firmware version "40" onwards
Extended SRAM cassette	NZ2MC-16MBS	1	For PLC CPU
High speed data logger module	RD81DL96	1	—
SD memory card	NZ1MEM-4GBSD	2	·For high speed data logger module ·For GOT ·For PLC CPU
CC-Link IE Field Network master/local module	RJ71GF11-T2	1	—
Protocol converter	*1	*2	—
CC-Link IE Field Network analog-digital converter module	NZ2GF2BN-60AD4	*2	—
CC-Link IE Field Network extension analog-digital converter module	NZ2EX2B-60AD4	*2	—
CC-Link IE Field Network remote I/O module	NZ2GF2B1-32DT	*3	Option/input type: DC input (plus common type), output type: Transistor output (sink type)
	NZ2GF2B1-32D	*3	Option/input type: DC input (plus/minus shared common type)
Analog output cable	*1		—
RS-232C communication cable	*1		—
24V power supply	*4		·For CC-Link IE Field Network remote I/O module ·For other devices
HUB	—	1	—
Hub for CC-Link IE Field Network	—	1	—

*1: Project setting change is required

*2: Please contact a Mitsubishi Electric branch.

*3: As optional, when connecting with external I/O devices, please select unit type and quantity for I/O points to be used.

*4: Please select module type and quantity for I/O points to be used.

FA Application Package

iQ Monozukuri Tool Wear Diagnosis for Machine Tools

* These are the successors of the AP10-MTD001AA-M□ models.

(Depending on the number of licenses, "□" may contain the letters A to E.)

Product Name	Model	Number of licenses
FA Application Package iQ Monozukuri Tool Wear Diagnosis for Machine Tools	AP10-MTD001AB-MA	1
	AP10-MTD001AB-MB	5
	AP10-MTD001AB-MC	10
	AP10-MTD001AB-MD	15
	AP10-MTD001AB-ME	20

iQ Monozukuri Tool Wear Diagnosis for Machine Tools Upgraded Version

* To apply for a license key for the upgraded version, it is necessary to complete a license key application for your previously purchased "AP10-MTD001AA-M□" model.

If you have yet to apply for a license for your "AP10-MTD001AA-M□" model, please apply a license key for that model first.
(Depending on the number of licenses, "□" may contain the letters A to E.)

Product Name	Model	Number of licenses
FA Application Package iQ Monozukuri Tool Wear Diagnosis for Machine Tools Upgraded Version	AP10-MTD001AB-MAV	1
	AP10-MTD001AB-MBV	5
	AP10-MTD001AB-MCV	10
	AP10-MTD001AB-MDV	15
	AP10-MTD001AB-MEV	20

**iQ Monozukuri Tool Wear Diagnosis for Machine Tools
Advanced Data Science Tool**

Product Name	Model	Number of licenses
FA Application Package iQ Monozukuri Tool Wear Diagnosis for Machine Tools Advanced Data Science Tool	AP10-MTD001AB-MAV	1

List of CNC Equipment That Has Been Verified to Connect

Manufacturer	Connected CNC model
Mitsubishi Electric Corporation	M600~, C70~ etc.
FANUC Corporation	Series ** i etc.
Okuma Corporation	OSP etc.

We shall introduce connection methods and cables that are compatible with each model of CNC.
Please contact us for more information regarding the CNC you would like to connect to.

Partner Products (protocol converter for CNC connection)

	Product name	CONPROSYS M2M controller, compact type (FANUC MT-Link compatible product)
	Model	CPS-MC341-ADSC1-931
	Weight	250g
	Size	188.0 (W) x78.0 (D) x30.5 (H) mm (excludes protrusions)
	Input power supply specifications	12~24VDC
	Environment specifications	-20 to 60°C (ambient operating temperature); Supports VCCI class A, FCC class A, CE marking (EMC directive class A, RoHS directive), KC, UL
	I/O interface	2xLAN/4xDI/2xDO/2xAI/2xCNT/1xRS-232C/1xRS-485/1xUSB/1xSD card slot
	Data input communication protocol	CNC communication, MTConnect, signal I/O
	Data output communication protocol	OPC UA server, Modbus slave, signal I/O
	Data for collection	Program No., Sub-program No., Tool No., S Code, Product Serial No. etc.
Manufacturer/Dealer: Contec Co., Ltd., 3-9-31 Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan TEL: 06-6472-7130 INTL TEL: +81-6-6472-7130 www.contec.com		

	Product name	Marimba M3 FOCAS-SLMP version (FANUC compatible)
	Model	MarimbaM-5FS02
	Weight	0.15g
	Size	7(W)x10(D)x4.2(H)mm
	Input power supply specifications	DC9-36V
	Environment specifications	0 to 60°C (ambient operating temperature)
	I/O interface	LAN (10/100/1000 BASE-T) x 1, RS232C
	Data input communication protocol	FOCAS 2
	Data output communication protocol	SLMP (MC protocol)
	Data for collection	Program No., Sub-program No., Tool No., S Code, Product Serial No. etc., Error Code etc.
Manufacturer/Dealer: Cimx Initiative, Inc. 5F YSK Building, 1-3-11 Shiba Daimon, Minato-ku, Tokyo, Japan TEL: 03-6402-2640 INTL TEL: +81-3-6402-2640 https://www.cimx-initiative.com		

	FANUC CNC compatible gateway for overseas	Mitsubishi Electric CNC compatible gateway
Product name	IoT Data Connector (compatible with FANUC for overseas)	IoT Data Connector (Mitsubishi Electric compatible)
Model	EMR120CL-FM1、EMR120CL-FM3	EMR120AW-MM1、EMR120AW-MM3
Weight	250g	950g
Size	188.0 (W) x78.0 (D) x30.5 (H) mm (excludes protrusions)	140(W)x110(D)x58.5(H)mm (excludes protrusions)
Input power supply specifications	12VDC (0.8Amax) -24VDC (0.4Amax)	6V ~36VDC max40W
Environment specifications	-20~60°C (ambient operating temperature)	0~+50°C (ambient operating temperature)
I/O interface	LAN (100Base-T) x2	LAN (100Base-T) x2, RS232C x2
Data input communication protocol	FOCAS2	EZ-SocketNC
Data output communication protocol	SLMP (MC protocol)	SLMP (MC protocol)
Data for collection	Program No., Sub-program No., Tool No., S Code, Product Serial No. etc., Error Code etc.	Program No., Sub-program No., Tool No., S Code, Product Serial No. etc., Error Code etc.
Dealer: Business Unit No. 7, Solutions Business Headquarters, Ryoyo Electro Corporation, Konwa Bldg., 1-12-22 Tsukiji, Chuo-ku, Tokyo 104-8408, Japan TEL (main line): 03-3546-6180 INTL TEL: 81-3-3546-6180 Contact:EMAIL empres_sales@ryoyo.co.jp		Manufacturer: EMPRESS SOFTWARE JAPAN, Inc., 6F Nihon Shashin Kaikan, 1-7-12 Yotsuya, Shinjuku-ku, Tokyo 160-0004, Japan TEL (main line): 03-6457-8327 INTL TEL: +81-3-6457-8327 Contact:EMAIL esj-info@empressjapan.co.jp

Current Sensor



Product name	Effective value calculation type current transducer	
Model	HCS-24-20-ASR	HCS-24-50-ASR
Size/Weight	45.0(W)x34.0(D)x74.5(H)mm (excludes protrusions), Approx. 145g	
Measurable wire size	AWG 20 to AWG 26, Wire passage holeφ24 max.	
Applicable current waveform	DC to AC 500Hz (including phase control/PWM waveform)	
Measurement current/Output voltage	0 to 20Arms/1 to 5V output	0 to 50Arms/1 to 5V output
Environment specifications	0°C to +50°C, 85%RH or less, No condensation	

Manufacturer/Dealer: U.R.D. Co., Ltd., 1-1-52 Suehirocho, Tsurumi-ku, Yokohama City, Kanagawa 230-0045

TEL: 045-502-3111 INTL TEL: +81-45-502-3111

www.u-rd.com

Flow until the start of operation

1 Preliminary Survey



- Select the device, machining type, tool for diagnosis
- Determine system configuration, secure installation environment

2 Equipment Installation



- Install, wire up equipment
- Set device parameters (communication means, data collection conditions, etc.), register diagnosis model
- Conduct trial operation check for data collection preparation
- Data collection to determine diagnosis threshold
(data collection including 5 to 10 tool exchanges: Approx. 1 month)

3 Diagnosis Threshold Setting



- Confirm adequacy of settings from collection data
- Calculate diagnosis threshold from trend data
- Set calculation threshold

4 Operation

- Commence operation (check machine condition)
- Tool wear diagnosis, machining abnormality diagnosis, measured value prediction
- Tool change in line with diagnosis results/alarms
- Revise thresholds
- Optimization of machining programs using a Cycle time improvement support function