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Mitsubishi Electric Adds New Functions to "MELFA Smart Plus Card"

Predictive maintenance and improved usability of force sensors realized with "Maisart" AI technology

TOKYO, April 23, 2019 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it will release the "MELFA Smart Plus Card Pack" and the "MELFA Smart Plus Card" with upgraded predictive-maintenance and enhanced force-sensor functions for upgraded functionality in MELFA-FR series industrial robots on April 26, 2019. The new functions incorporate Mitsubishi Electric's original compact AI technology, Maisart®,[1] to realize 60% reductions in both takt time and system startup time to contribute to increased productivity at manufacturing sites.

[1] Mitsubishi Electric's AI creates the State-of-the-ART in technology Maisart

MELFA Smart Plus

MELFA Smart Plus Card

Insertion into MELFA-FR series

Product Features

1) Reduces downtime by detecting abnormalities in advance (predictive maintenance)

- The predictive-maintenance function uses Maisart to detect and provide early warnings of abnormalities in drive-system products[2] incorporated in robots, helping to reduce downtime.
- Highly accurate predictive maintenance is realized simply by inserting the card into the robot controller, without having to add any other device or sensor.

[2] Gearboxes, motor encoders, and batteries to maintain position-information memory

2) Shortened cycle time with automatic parameter adjustment (enhanced force sensor)

- Maisart automatically adjusts the parameters of systems that utilize force sensors[3].
- Takt time is reduced by 60%[4] compared to a conventional method by controlling pressure exerted on target items, thereby helping to achieve higher-speed operations similar to those performed by skilled human hands.

[3] Gearboxes, motor encoders, and batteries to maintain position-information memory

[4] Compared to reference value for connector-insertion operation based on conditions set by Mitsubishi Electric

3) Shorter startup time though automatic program generation (enhanced force sensor)

- Operation start and end points need only be entered to automatically generate a program for the shortest-possible operation time.
- Shortens system startup time by 60%[4] compared to a conventional method.

Release Schedule

Product Name	Model Name	Main Specification	Price	Release Date	FY2019 Sales Target
MELFA Smart Plus Card Pack	2F-DQ520	Equipped with all seven functions[5], including predictive maintenance and force-sensor expansion functions	Open price	April, 26	200 units
MELFA Smart Plus Card	2F-DQ521	Any one of MELFA Smart Plus Card Pack functions[5], such as predictive maintenance or force-sensor expansion.	Open price		

[5] See Function of MELFA Smart Plus table below

Background

The demand for industrial robots at manufacturing facilities has been increasing due to labor shortages and rising labor costs. In addition, for improved productivity, industrial robots are being required to offer more stable operation and simpler startup procedures. In response, Mitsubishi Electric is adding two new MELFA Smart Plus optional function enhancements for its MELFA-FR series of industrial robots. The two new functions are predictive maintenance, which helps to reduce down time, and force-sensor expansion, which improves the usability of force sensors. Going forward, Mitsubishi Electric will continue adding functions and enhanced performance to improve the productivity and usability of its industrial robots and thereby further automating manufacturing sites.

Functions of MELFA Smart Plus

Group	Name	Description	Model name	
			2F-DQ520	2F-DQ521
AI Functions Maisart	Predictive maintenance (released this time)	Detects abnormalities in drive-system components of robot and issue warning before failure occurs.	○	Select 1 function
	Force sensor expansion function (released this time)	Automates and optimizes adjustment of force-sensor parameters.	○	
	MELFA-3D Vision expansion function	Improves the automatic adjustment of parameters and the recognition performance of 3D vision sensors.	○	
Intelligence Functions	Calibration assistance function	Improves positioning accuracy by correcting coordinates in accordance to surrounding devices through the use of 2D vision sensors.	○	–
	Coordinated control for additional axis	Allows synchronized operation when a robot is installed on an additional axis (linear axis).	○	–
	Robot mechanism temperature compensation function	Improves positioning accuracy by compensating for thermal expansion of the robot arm.	○	–
	Preventive maintenance	Manages the maintenance and replacement timing of robot parts according to their operational status.	○	–

Contribution to the Environment

The products announced in this release will contribute to the environment by helping to reduce energy consumption through optimized manufacturing.

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About Mitsubishi Electric Corporation

With nearly 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,444.4 billion yen (in accordance with IFRS; US$ 41.9 billion*) in the fiscal year ended March 31, 2018. For more information visit:
www.MitsubishiElectric.com

*At an exchange rate of 106 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2018