



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000035
Revision No:
8

This is to certify:

That the Programmable Electronic System

with type designation(s)
Programmable Logic Controller FC6A and FC6B Series

Issued to
IDEC Corporation
Osaka City, Osaka Pref., Japan

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules to be provided upon installation onbaord

Issued at **Busan** on **2022-04-29**

for **DNV**

This Certificate is valid until **2027-02-24**.

DNV local station: **Kobe**

Approval Engineer: **Eun Sook Kim**

Hanwee Low
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Programmable controllers FC6A and FC6B Series, including:

Description	Type	Specification
CPU Modules	FC6A-M16R1	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6A-M16R4	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6A-M16R1E	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6A-M16R4E	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6A-M16P1	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6A-M16P4	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6A-M16P1E	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6A-M16P4E	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6A-M32P3	DC Power Supply, 16-DC Input, 16-Transistor Source Output
	FC6A-M32P3E	DC Power Supply, 16-DC Input, 16-Transistor Source Output
	FC6A-C16R1A	AC Power Supply, 9-DC Input, 7-Relay Output
	FC6A-C16R1AE FC6A-C16R4AE*	AC Power Supply, 9-DC Input, 7-Relay Output
	FC6A-C24R1A	AC Power Supply, 14-DC Input, 10-Relay Output
	FC6A-C24R1AE FC6A-C24R4AE*	AC Power Supply, 14-DC Input, 10-Relay Output
	FC6A-C40R1A	AC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C40R1AE FC6A-C40R4AE*	AC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C16P1C	DC Power Supply, 9-DC Input, 7- Transistor Source Output
	FC6A-C16P1CE FC6A-C16P4CE*	DC Power Supply, 9-DC Input, 7- Transistor Source Output
	FC6A-C24P1C	DC Power Supply, 14-DC Input, 10-Transistor Source Output
	FC6A-C24P1CE FC6A-C24P4CE*	DC Power Supply, 14-DC Input, 10-Transistor Source Output
	FC6A-C40P1C	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6A-C40P1CE FC6A-C40P4CE*	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6A-C16K1C	DC Power Supply, 9-DC Input, 7-Transistor Sink Output
	FC6A-C16K1CE FC6A-C16K4CE*	DC Power Supply, 9-DC Input, 7-Transistor Sink Output
	FC6A-C24K1C	DC Power Supply, 14-DC Input, 10-Transistor Sink Output
	FC6A-C24K1CE FC6A-C24K4CE*	DC Power Supply, 14-DC Input, 10-Transistor Sink Output
	FC6A-C40K1C	DC Power Supply, 24-DC Input, 16-Transistor Sink Output
	FC6A-C40K1CE FC6A-C40K4CE*	DC Power Supply, 24-DC Input, 16-Transistor Sink Output
	FC6A-C16R1CE	DC Power Supply, 9-DC Input, 7-Relay Output
	FC6A-C24R1CE FC6A-C24R4CE*	DC Power Supply, 14-DC Input, 10-Relay Output
	FC6A-C40R1CE FC6A-C40R4CE*	DC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C40R1DE FC6A-C40R4DE*	DC Power Supply, 24-DC Input, 16-Relay Output

Description	Type	Specification
	FC6A-C40P1DE FC6A-C40P4DE*	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6A-C40K1DE FC6A-C40K4DE*	DC Power Supply, 24-DC Input, 16-Transistor Sink Output
	FC6A-C40R1AEJ FC6A-C40R4AEJ*	AC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C40R1CEJ FC6A-C40R4CEJ*	DC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C40R1DEJ FC6A-C40R4DEJ*	DC Power Supply, 24-DC Input, 16-Relay Output
	FC6A-C40P1CEJ FC6A-C40P4CEJ*	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6A-C40P1DEJ FC6A-C40P4DEJ*	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6A-C40K1CEJ FC6A-C40K4CEJ*	DC Power Supply, 24-DC Input, 16-Transistor Sink Output
	FC6A-C40K1DEJ FC6A-C40K4DEJ*	DC Power Supply, 24-DC Input, 16-Transistor Sink Output
	FC6A-D16R1CEE FC6A-D16R4CEE*	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6A-D16P1CEE FC6A-D16P4CEE*	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6A-D16K1CEE FC6A-D16K4CEE*	DC Power Supply, 8-DC Input, 8-Transistor Sink Output
	FC6A-D32P3CEE FC6A-D32P4CEE*	DC Power Supply, 16-DC Input, 16-Transistor Source Output
	FC6A-D32K3CEE FC6A-D32K4CEE*	DC Power Supply, 16-DC Input, 16-Transistor Sink Output
	FC6B-C16R1A FC6B-C16R4A*	AC Power Supply, 9-DC Input, 7-Relay Output
	FC6B-C16R1C FC6B-C16R4C*	DC Power Supply, 9-DC Input, 7-Relay Output
	FC6B-C24R1A	AC Power Supply, 14-DC Input, 10-Relay Output
	FC6B-C24R1C	DC Power Supply, 14-DC Input, 10-Relay Output
	FC6B-C40R1A FC6B-C40R4A*	AC Power Supply, 24-DC Input, 16-Relay Output
	FC6B-C40R1C FC6B-C40R4C*	DC Power Supply, 24-DC Input, 16-Relay Output
	FC6B-C16P1C FC6B-C16P4C*	DC Power Supply, 9-DC Input, 7-Transistor Source Output
	FC6B-C24P1C	DC Power Supply, 14-DC Input, 10-Transistor Source Output
	FC6B-C40P1C FC6B-C40P4C*	DC Power Supply, 24-DC Input, 16-Transistor Source Output
	FC6B-C16K1C FC6B-C16K4C*	DC Power Supply, 9-DC Input, 7-Transistor Sink Output
	FC6B-C24K1C	DC Power Supply, 14-DC Input, 10-Transistor Sink Output
	FC6B-C40K1C FC6B-C40K4C*	DC Power Supply, 24-DC Input, 16-Transistor Sink Output

Description	Type	Specification
	FC6B-D16R1C FC6B-D16R4C*	DC Power Supply, 8-DC Input, 8-Relay Output
	FC6B-D16P1C FC6B-D16P4C*	DC Power Supply, 8-DC Input, 8-Transistor Source Output
	FC6B-D16K1C FC6B-D16K4C*	DC Power Supply, 8-DC Input, 8-Transistor Sink Output
	FC6B-D32P3C FC6B-D32P4C*	DC Power Supply, 16-DC Input, 16-Transistor Source Output
	FC6B-D32K3C FC6B-D32K4C*	DC Power Supply, 16-DC Input, 16-Transistor Sink Output
Input Modules	FC6A-N08B1 FC6A-N08B4*	DC Power Supply(Intenal), 8-DC Input
	FC6A-N16B1 FC6A-N16B4*	DC Power Supply(Intenal), 16-DC Input
	FC6A-N16B3	DC Power Supply(Intenal), 16-DC Input
	FC6A-N32B3	DC Power Supply(Intenal), 32-DC Input
	FC6A-N08A11 FC6A-N08A14*	DC Power Supply(Intenal), 8-AC Input
Output Modules	FC6A-R081 FC6A-R084*	DC Power Supply(Intenal), 8-Relay Output
	FC6A-R161 FC6A-R164*	DC Power Supply(Intenal), 16-Relay Output
	FC6A-T08P1 FC6A-T08P4*	DC Power Supply(Intenal), 8-Transistor Source Output
	FC6A-T16P1 FC6A-T16P4*	DC Power Supply(Intenal), 16-Transistor Source Output
	FC6A-T16P3	DC Power Supply(Intenal), 16-Transistor Source Output
	FC6A-T32P3	DC Power Supply(Intenal), 32-Transistor Source Output
	FC6A-T08K1 FC6A-T08K4*	DC Power Supply(Intenal), 8-Transistor Sink Output
	FC6A-T16K1 FC6A-T16K4*	DC Power Supply(Intenal), 16-Transistor Sink Output
	FC6A-T16K3	DC Power Supply(Intenal), 16-Transistor Sink Output
	FC6A-T32K3	DC Power Supply(Intenal), 32-Transistor Sink Output
I/O Mixture Modules	FC6A-M08BR1 FC6A-M08BR4*	DC Power Supply(Intenal), 4-DC Input, 4-Relay Output
	FC6A-M24BR1 FC6A-M24BR4*	DC Power Supply(Intenal), 16-DC Input, 8-Relay Output
	FC6A-TYS4	DC Power Supply(Intenal), 12-DC Input, 8-Transistor Source Output
Analog Modules	FC6A-J2C1 FC6A-J2C4*	2-Analog Input
	FC6A-J4A1 FC6A-J4A4*	4-Analog Input
	FC6A-J8A1 FC6A-J8A4*	8-Analog Input

Description	Type	Specification
	FC6A-K2A1 FC6A-K2A4*	2-Analog Output
	FC6A-K4A1 FC6A-K4A4*	4-Analog Output
	FC6A-L06A1 FC6A-L06A4*	4-Analog Input, 2-Analog Output
	FC6A-L03CN1 FC6A-L03CN4*	2-Analog Input, 1-Analog Output
	FC6A-J4CH1Y FC6A-J4CH4Y*	4-Analog Input
	FC6A-J4CN1 FC6A-J4CN4*	4-Analog Input
	FC6A-J8CU1 FC6A-J8CU4*	8-Analog Input
	FC6A-F2MR1 FC6A-F2MR4*	2-Analog Input, 2-Relay Output
	FC6A-F2M1 FC6A-F2M4*	2-Analog Input, 2-Analog Output or 2-Transistor Output
Option Modules	FC6A-PJ2A	2-Analog Input
	FC6A-PK2AV	2-Analog Output
	FC6A-PK2AW	2-Analog Output
	FC6A-PJ2CP	2-Analog Input
	FC6A-PC1	Serial Communication RS232C
	FC6A-PC2	Serial Communication RS232C/RS485
	FC6A-PC3	Serial Communication RS485
	FC6A-PC4	Bluetooth Communication
	FC6A-PTS4	Cartridge Module, DC Power Supply(Internal), 4-Transistor Source Output
	FC6A-PTK4	Cartridge Module, DC Power Supply(Internal), 4-Transistor Sink Output
	FC6A-PN4	Cartridge Module, DC Power Supply(Internal), 4-DC Input
FC6A-PC99	Cartridge Module, 1-Serial Communication(RS485)	
Cartridge Base Module	FC6A-HPH	Cartridge Base Module
Communication Modules	FC6A-SIF52 FC6A-SIF524*	DC Power Supply(Internal)
	Expansion Interface Modules	FC6A-EXM1M
FC6A-EXM1S FC6A-EXM1S4*		DC Power Supply
FC6A-EXM2 FC6A-EXM24*		DC Power Supply(Internal)
HMI Modules		FC6A-PH1

*: Push-in type terminal block

Factories for production;
 Shinko Technos Co., Ltd. Sanda Factory
 501-19 Fukushima, Sanda-City, Hyogo-Ken, 669-1313, Japan

IDEC IZUMI Taiwan Corporation
 No.87, Swi Kuan Road, Chu Hou Village, Jen Wu Country, Kaohsiung Hsien 814, Taiwan, R.O.C.

KAYBRIGHT ELECTRICTY (HUIZHOU) CO., LTD
 (FACTORY BUILDING) Shunju Village,
 Chayuan Village, Qiuchang Road,
 Huiyang District, Huizhou City, Guangdong
 516221 China

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

Technical documents for type approval comprising;
 FC6A test specifications Rev. 1 dated 2014-12-17
 Test sample selection
 Materials index
 Schematic diagram list together with 58 drawings
 PWB(Printed Wiring Board) drawing list together with 83 drawings
 Electrical components list together with 73 part list
 Equipment list of FC6A
 Asbestos free declaration dated 2015-06-08

List of drawings and documents	16-306-019	2016-03-08
Product covered and ratings	16-306-020	2016-03-01
External configuration	16-306-033	2016-03-07
General construction & plastic material list	16-306-034	2016-03-07
FC6A product catalog	EP1575-1	Feb. 2016
Product design specification_CPU	X0090-0L01N	2015-12-16
Product design specification_DIO input	Y1513-0L02H	2015-12-07
Product design specification_DIO Ry Output	Y1513-0L03H	2015-12-07
Product design specification_DIO Tr Output	Y1513-0L04H	2015-12-07
Product design specification_DIO P-Tr Output	Y1513-0L05H	2015-12-07
Product design specification_DIO Mix	Y1513-0L06H	2015-12-07
Product design specification_AIO	Y1513-0L07L	2015-06-26
Product design specification_AIO Cartridge	Y1513-0L08J	2015-01-15
Product design specification_DIO AC120V input	Y1513-0L13G	2015-12-07
Product design specification_SIF cartridge	Y1513-0L18C	2015-09-04
Product design specification_Web-HMI	Y1513-0L19C	2015-10-19
Product design specification_Booster	Y1513-0L21C	2015-10-19
Product design specification_Serial cartridge	16-RD219-128	2017-02-23
Instruction manual_HMI	B-1778(0)	Dec. 2015
Instruction manual_SIF	B-1797(0)	Dec. 2015
Instruction manual_DIO	B-1810(0)	Dec. 2015
Instruction manual_Booster	B-1814(0)	Dec. 2015
Instruction manual_CPU	B-1816(1)	Feb. 2016
Instruction manual_CAN	B-1818(1)	Feb. 2016

Instruction manual_AIO	B-1845(0)	Dec. 2015
Instruction manual_CPU	B-1877(0)	Feb. 2016
User's manual	FC9Y-B1722	Feb. 2016
Block diagram for CPU modules	16-306-038	2016-03-09
Block diagram for others	16-306-048	2016-03-09
Test sample selection	16-306-039	2016-03-08
Test specifications	16-306-040	2016-03-08
Performance confirmation and criteria	16-306-041	2016-03-07
Test configuration	16-306-042	2016-02-29

Test Reports;

Test report dated 2015-02-18
 Type approval assessment report for Japan factory dated 2015-06-05
 Type approval assessment report for Taiwan factory dated 2015-07-01

IDEC Test report dated 2016-08-25 includes:

- JQA test report KL80160235 2016-07-15
- Labotech test report 2016-07-08

Type approval retention survey report for Japan factory dated 2016-06-15
 Type approval retention survey report for Taiwan factory dated 2016-08-10
 Type approval retention survey report for China factory dated 2016-10-14

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Circuit diagram_FC6A-J2C1/4	Y1513-5C01C	2017-01-05
	Y1513-5C01-1C	2015-07-17
	Y1513-5C01-2C	2016-12-09
Circuit diagram_FC6A-J4A1/4	Y1513-5C06C	2017-01-30
	Y1513-5C06-1C	2015-07-17
	Y1513-5C06-2C	2016-12-09
Circuit diagram_FC6A-J8A1/4	Y1513-5C11C	2017-02-17
	Y1513-5C11-1C	2015-07-17
	Y1513-5C11-2C	2016-09-06
	Y1513-5C11-3C	2016-10-26
Circuit diagram_FC6A-K2A1/4	Y1513-5C16C	2016-12-27
	Y1513-5C16-1C	2017-01-31
	Y1513-5C16-2C	2016-09-14
	Y1513-5C16-3C	2016-09-14
Circuit diagram_FC6A-K4A1/4	Y1513-5C21C	2016-12-27
	Y1513-5C21-1C	2015-07-31
	Y1513-5C21-2C	2016-09-14
	Y1513-5C21-3C	2016-09-14
Circuit diagram_FC6A-L06A1/4	Y1513-5C26C	2017-01-30
	Y1513-5C26-1C	2015-09-11
	Y1513-5C26-2C	2016-12-08
	Y1513-5C26-3C	2015-09-11
Circuit diagram_FC6A-L03CN1/4	Y1513-5C31C	2017-01-31
	Y1513-5C31-1C	2015-07-17
	Y1513-5C31-2C	2017-03-09
	Y1513-5C31-3C	2016-07-27
Circuit diagram_FC6A-J4CN1/4	Y1513-5C36C	2017-01-31
	Y1513-5C36-1C	2015-07-17
	Y1513-5C36-2C	2017-03-09
	Y1513-5C36-3C	2017-01-30
Circuit diagram_FC6A-J8CU1/4	Y1513-5C41C	2016-12-27
	Y1513-5C41-1C	2015-07-17
	Y1513-5C41-2C	2015-07-22
Circuit diagram_FC6A-F2MR1/4	Y1513-5C46C	2017-02-02
	Y1513-5C46-1C	2015-07-22
	Y1513-5C46-2C	2015-07-22
	Y1513-5C46-3C	2015-07-22
	Y1513-5C46-4C	2015-08-04
	Y1513-5C46-5C	2015-08-04
Circuit diagram_FC6A-F2M1/4	Y1513-5C51C	2017-02-02
	Y1513-5C51-1C	2015-07-22

	Y1513-5C51-2C	2015-07-22
	Y1513-5C51-3C	2015-07-22
	Y1513-5C51-4C	2015-07-22
	Y1513-5C51-5C	2015-08-04
Test specification	17-306-303	2017-05-08
EMC test report for DNVGL_ FC6A Series Analog Modules	JQA File No.: KL8017011	2017-06-15

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Part List and Schematic diagram for additional models as below:

- FC6B-D16K1C_D16P1C_D16R1C_D32K3C_D32P3C
- FC6A-D16K1CEE_D16P1CEE_D16R1CEE_D32K3CEE_D32P3CEE
- FC6A-SIF52
- FC6A-PN4_PTS4_PTK4_PC4_PC99
- FC6A-J4CH1Y_J4CH4Y
- FC6A-HPH1
- FC6A-EXM1S_EXM1M

Test specifications for FC6A & FC6B Series additional Models	17-306-029N	2017-11-15
Test report for FC6A & FC6B Series additional Models	18-306-011N	2018-03-19

Type approval retention survey report for Japan factory dated 2018-02-23

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Comparison List Index

Schematic Diagram Index

Part List Index

Part Layout/Pattern Layout Dwg Index

Test Specifications	18-306-037N	2018-09-03
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EMC Test Report by JQA	KL80180398	2018-10-10
Environmental Test Report by IDEC	18-306-039N	2018-10-10

Type approval retention survey report for Taiwan factory		2018-11-26
Application for DNVGL Type Approval (change of the production site)		2018-12-19

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Test report for EMC (including KL80200166 dated 2020-07-02 by JQA)	20-306-014N	2020-07-13
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List of drawings and documents	21-306-020	2021-12-06
Product covered and ratings	21-306-021	2021-11-16
External configuration of Push-in type models	21-306-023	2021-12-03
General construction & plastic material list	21-306-024	2021-12-03
FC6A product catalog	EP1624-13-FC6A	2021-04
FC6B product catalog	EP1771-0-FC6B	2021-09
Product design specification_CPU	Y1513-0L57D	2021-09-16
Product design specification_CPU	Y1513-0L51H	2021-09-16
Product design specification_AIO	Y1513-0L07Q	2021-09-07
Product design specification_AIO Cartridge	Y1513-0L08L	2021-09-07
Product design specification_Twido2 PID	Y1513-0L15J	2021-09-17
Product design specification_SIF cartridge	Y1513-0L18E	2021-09-16
Product design specification_CPU	Y1513-0L20J	2021-09-16
Product design specification_Booster	Y1513-0L21G	2021-09-16
Product design specification_IO expandar	Y1513-0L52F	2021-09-16
Product design specification_Serial com	Y1513-0L55E	2021-09-16
Product design specification_DIO cartridge	Y1513-0L56C	2021-09-16
Instruction manual_Expansion I/O	B-1810(3)	2019-07
Instruction manual_Expansion interface	B-1814(4)	2019-12

Instruction manual_Expansion communication	B-1947(4)	2019-12
Instruction manual_Expansion interface remote	B-1989(4)	2019-12
Instruction manual_AIO/PIO	B-1845(5)	2020-02
Instruction manual_CPU	B-1816(6)	2020-02
Instruction manual_Plus CPU	B-1996(4)	2020-02
Instruction manual_Plus CPU	B-1994(4)	2020-02
Instruction manual_DIO cartridge	B-1940(5)	2019-07
Instruction manual_CAN	B-1818(6)	2020-02
User's manual	B-1722(18)	2021-11
Block diagram for Push-in type	21-306-025	2021-12-03

Tests carried out

Applicable tests according to DNV class guideline, DNV-CG-0339, August 2021

Marking of product

- Manufacturer name
- Model name
- Serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE