Confirmation of Product Type Approval

Company Name: CREVIS

Address: 29-4, GIGOK-ROGIHEUNG-GU YONGIN Korea, Republic of

Product: Input/Output Module

Model(s): FnIO M-Series

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	21-2525733-3-PDA	28-MAY-2024	06-OCT-2026
Manufacturing Assessment (MA)	21-4982068	19-OCT-2021	18-OCT-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3 - Type Approved, unit certification not required

Intended Service
ABS Classed Vessels and Offshore Installations

Description
The subject I/O Module "M-Series" used for programmable I/O, RS485 Network Adapter, AC Input Terminal, Relay Output Terminal, RTD/Resistance Input, TC/mV Input, Differential Current Input, and RS-232/422/485 Serial Interfaces. See the attachments for the details. (Embedded software version: CODESYS V3.5)

Ratings
See the attachments for the ratings.

Service Restrictions
1. Unit Certification is not required for the product or products covered in this certificate. However, unit certification in accordance with MVR 4-9-3/Table 5, MVR 4-9-9/15.7 Table 2, MVR 4-9-14/19.1.6 is required for the system, where this equipment is part of Category II or III computer-based systems as described in MVR 4-9-3/7.1 Table 1 or part of systems that falls within the scope of MVR 4-9-13/5.

2. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments
1. This approval is limited to the hardware only. Each particular application/ installation and the used application software is to be specifically approved in conjunction with the relevant system in which the

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units are being used in accordance with MVR 4-9-3, 4-9-13 and 4-9-14 and other application specific requirements.

2. The manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

4. Dry heat was conducted for 16 hrs at 70 °C.

5. Vibration test was conducted for the severe vibration condition (2.0 to 25.0 Hz – amplitude +/- 1.6mm and 25.0 to 100.0 Hz – acceleration 4.0 m/s2).

6. Radiated emission and conducted emission tests were carried out for the general power distribution zone according to 4-9-9/Table 1 of the Marine Vessels Rules.

7. Power supply variation, vibration and inclination tests were conducted in the presence of ABS Surveyor.

Notes, Drawings and Documentation
1. Manufacturer's Type Approval Documentation:

- Drawing (document nos. CVS-NWS-237001, CVS-NWS-2107001 and CVS-NWS-2107002)

- Product Specification (document nos. CVS-NWS-236001, CVS-NWS-2106001 and CVS-NWS-216002)

2. Test Reports:

- ONETECH: OT-242-RRD-035 (issued on 23 Feb 2024)

- ONETECH: OT-241-RED-018 (issued on 04 Jan 2024)

- ONETECH: OT-221-RRD-030 (issued on 25 Jan 2022)

- ONETECH: OT-218-RRD-015 (issued on 12 Aug 2021)

- ONETECH: OT-217-RED-115 (issued on 29 July 2021)

- ONETECH: OT-209-RRD-003 (issued on 02 Sep 2020)

- ONETECH: OT-207-RED-150 (issued on 24 July 2020)

- Korea Testing & Research Institute: ECU-2020-007985 (issued on 03 Sep 2020)

3. Manufacturer performance test reports conducted in the presence of ABS Surveyor (issued on 05 Mar 2024 & 30 July 2021)

4. Test Report for power supply variation, vibration, inclination and performance test (ABS survey report (Work order: 6135162-A & 4741540-A)

Term of Validity
This Product Design Assessment (PDA) Certificate remains valid until 06/Oct/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

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2024 Marine Vessels Rules: 1-1-4/7.7, 1-1-A3 & 1-1-A4, 4-9-3/7, 4-9-3/8.3.4, 4-9-9/13 & 15, 4-9-9/Table 1 & Table 2

2024 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2 & 1-1-A3

2024 Facilities on Offshore Installations: 1-1-4/9.7, 1-1-A2 & 1-1-A3

International Standards
IACS UR E10 (Rev.8)

EU-MED Standards
NA

National Standards
NA

Government Standards
NA

Other Standards
NA





Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 28-May-2024 1:59

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

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- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

Total Product List

No.	Catalog Number	Description
1	M9371	CODESYS, Programmable IO, Economic type
	M9372	CODESYS, Programmable IO, Standard type
	M9373	CODESYS, Programmable IO, Web visualization type
2	M9273	MODBUS RS485 Network Adapter
3	M1808	Digital Input 8 Points, 120Vac, 18RTB
4	M1908	Digital Input 8 Points, 240Vac, 18RTB
5	M2738	MOS Relay Output, 8 Points, 240Vdc/ac, 0.5A, 18RTB
6	M2744	Relay Output 4 Points, 24Vdc/2A, 240Vac/2A, 18RTB
7	M2768	MOS Relay Output, 8 Points, 24Vdc/ac, 2A, 18RTB
8	M2774	Form C, Relay Output 4 Points, 24Vdc/2A, 240Vac/2A, 18RTB
9	M2788	MOS Relay Output, 8 Points, 120Vdc/ac, 1A, 18RTB
10	M3708	8 Channels, RTD / Resistance Input, 18RTB
11	M3808	8 Channels, Thermocouple / mV Input, 18RTB
12	M3918	8 Channels, Differential Current Input, 0~20mA, 4~20mA, +/-20mA, 12bit, 18RTB
13	M3928	8 Channels, Differential Voltage Input, 0~5, 0~10, +/-10Vdc, 12bit, 18RTB
14	M3938	8 Channels, Differential Current Input, 0~20mA, 4~20mA, +/-20mA, 16bit, 18RTB
15	M3948	8 Channels, Differential Voltage Input, 0~5, 0~10, +/-10Vdc, 16bit, 18RTB
16	M5212	2 Channels, RS232 Serial Interface, 18RTB
17	M5222	2 Channels, RS422 Serial Interface, 18RTB
18	M5232	2 Channels, RS485 Serial Interface, 18RTB
19	MD9289	MODBUS TCP Network Adapter(Dual Type)
20	M9289	Ethernet TCP/IP Network Adapter(Single Type)
21	M9386	EtherCAT ID Type Network Adapter(Single Type)
22	M7001	System, Field Distribution Module
23	M12DF	Digital Input 16 Point, Universal (Sink or Source), 24Vdc, 18RTB
24	M1418	Digital Input 8 Points, Sink, 24Vdc, Diagnostic, 18RTB
25	M1428	Digital Input 8 Points, Source, 24Vdc, Diagnostic, 18RTB
26	M225F	Digital Output 16 Point, Sink, 24Vdc/0.3A, 18RTB
27	M226F	Digital Output 16 Point, Source, 24Vdc/0.3A, 18RTB
28	M2418	Digital Output 8 Points, Sink, 24Vdc, Diagnostic, 18RTB
29	M2428	Digital Output 8 Points, Source, 24Vdc, Diagnostic, 18RTB
30	M2618	Digital Output 8 Point, Sink, 24Vdc/2A, 18RTB
31	M2628	Digital Output 8 Point, Source, 24Vdc/2A, 18RTB
32	M317F	16 Channels Current Input, 0~20mA/4~20mA, 12bit, 18RTB
33	M319F	16 Channels Current Input, 0~20mA/4~20mA, 16bit, 18RTB
34	M347F	16 Channels Voltage Input, 0~10Vdc/0~5Vdc/1~5Vdc, 12bit, 18RTB
35	M349F	16 Channels Voltage Input, 0~10Vdc/0~5Vdc/1~5Vdc, 16bit, 18RTB
36	M4118	8 Channels Current Output, 0~20mA, 12bit, 18RTB
37	M4158	8 Channels Current Output, 0~20mA, 16bit, 18RTB

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38	M4218	8 Channels Current Output, 4~20mA, 12bit, 18RTB
39	M4258	8 Channels Current Output, 4~20mA, 16bit, 18RTB
40	M4428	8 Channels Voltage Output, 0~10V, 12bit,18RTB
41	M4468	8 Channels Voltage Output, 0~10V, 16bit, 18RTB
42	M5914	4 Channels Current Input, 4~20mA, 16bit with Hart, 18RTB
43	ML9972	Light Version - CODESYS Programmable IO
44	ML9973	Light Version - CODESYS Programmable IO, Webvisu
45	ML9089	Light Version - MODBUS TCP/UDP, Ethernet IP, CC-Link IE Field Basic Network Adapter
46	ML9087	Light Version - PROFINET Network Adapter
47	ML9073	Light Version - MODBUS RS485 Network Adapter
48	M1238	Digital Input 8 Points, Universal (Sink or Source), 24Vdc, 18RTB
49	M1278	Digital Input 8 Points, Sink, 24Vdc, 6mA, 18RTB
50	M1C18	Combination Digital In/Out, 8pt In + 8pt Out, 5Vdc, 18RTB
51	M2368	Digital Output 8 Points, Source, 24Vdc, Multi-Com, 18RTB
52	M227F	Digital Output 16 Points, Sink, 24Vdc/2.0A, 18RTB
53	M228F	Digital Output 16 Points, Source, 24Vdc/2.0A, 18RTB
54	M3114	4 Channels, Current Input, 0~20mA, 4~20mA, 12Bits, 18RTB
55	M3154	4 Channels, Current Input, 0~20mA, 4~20mA, 16Bits, 18RTB
56	M3C28	8 Channels, Voltage Input, Voltage Output, 0~10V, 0~5V, 1~5V, 12Bits, 18RTB
57	M3C48	8 Channels, Voltage Input, Voltage Output, 0~10V, 0~5V, 1~5V, 14Bits, 18RTB
58	M3C68	8 Channels, Voltage Input, Voltage Output, 0~10V, 0~5V, 1~5V, 16Bits, 18RTB
59	M3744	4 Channels, 4-Wire RTD / Resistance Input, 18RTB
60	M4114	4 Channels, Current Output, 0~20mA, 12Bits, 18RTB
61	M4154	4 Channels, Current Output, 0~20mA, 16Bits, 18RTB
62	M4214	4 Channels, Current Output, 4~20mA, 12Bits, 18RTB
63	M4254	4 Channels, Current Outputs, 4~20mA, 16Bits, 18RTB
64	M4134	4 Channels, Current Output, 4~20mA, 550ohm, 12bit, 18RTB
65	M4334	4 Channels, Current Output, 4~20mA, 750ohm, 12bit, 18RTB
66	M4354	4 Channels, Current Output, 4~20mA, 550ohm, 16bit, 18RTB
67	M4374	4 Channels, Current Output, 4~20mA, 750ohm, 16bit, 18RTB
68	M5112	2 Cannels, High speed counter, 5/24Vdc, 18RTB
69	M5122	2 Cannels, High speed counter, 5/24Vdc, Gate Function, 18RTB
70	M5442	2 Channels, PWM Output, 0.5A/24Vdc, Source, 18RTB
71	M5444	4 Channels, PWM Output, 0.5A/24Vdc, Source, 18RTB
72	M5642	2 Channels, Pulse Output, 0.5A/24V, Push-pull, 18RTB
73	M5652	2 Channels, Differential Output, RS422, 18RTB
74	M5758	8 Channels, Digital Input, PTC, 18RTB
75	M7151	System, Field Power Filter for 24Vdc, 0Vdc(None ID Type)
76	M7241	Field Power Distribution (None ID Type)

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1. M9371/M9372/M9373 (M-SERIES PROGRAMMABLE I/O)

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 15~28.8Vdc

c) Protection: Output current limit/Reverse polarity protection

d) Power Dissipation

- Network Adapter: 80mA typical @ 24Vdc

- M7001 Module: 20mA typical @ 24Vdc

e) Current: 2.0A @ 5Vdc

f) Adapter type: Master & Slave Node (Modbus TCP, Modbus RTU)

g) Max. Expansion Module: 63 slots (Max 128Byte each slot)

h) Wiring: 0.205~1.3mm^2(24-16 AWG)

i) Weight & Size: 179g, 54x110x75mm

2. M9273 (MODBUS RS485 Network Adapter(Single Type))

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 15~28.8Vdc

c) Protection: Output current limit/Reverse polarity protection

d) Power Dissipation: 70mA typical @ 24Vdc

e) Current: 2.0A @ 5Vdc

f) Adapter type: Slave Node (Modbus serial RTU/ASCII Server)

g) Max. Expansion Module: 63 slots (Max 128Byte each slot)

h) Wiring: 0.205~1.3mm^2(24-16 AWG)

i) Weight & Size: 179g, 54x110x75mm

3. M1808 (8 Points, AC Input Terminal, 120Vac)

a) On-state voltage: 120Vac nominal

b) On-state current: 7.5mA/point @ 120Vac

c) Off-state voltage: Max. 45Vac

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d) Input delay time

- Operate time (off to on): 23ms @ 120Vac

- Release time (on to off): 123ms @ 120Vac

e) Nominal input impedance: 17.5Kohm typical

f) Frequency range: 60Hz

g) Power Dissipation: Max. 35mA @ 5Vdc

h) Wiring: 0.205~1.3mm^2(24-16 AWG)

i) Weight & Size: 72g, 12x110x75mm

4. M1908 (8 Points, AC Input Terminal, 240Vac)

a) On-state voltage: 240Vac nominal

b) On-state current: 10mA/point @ 240Vac

c) Off-state voltage: Max. 115Vac

d) Input delay time

- Operate time (off to on): 23ms @ 120Vac

- Release time (on to off): 123ms @ 120Vac

e) Nominal input impedance: 26.5Kohm typical

f) Frequency range: 60Hz

g) Power Dissipation: Max. 30mA @ 5Vdc

h) Wiring: 0.205~1.3mm^2(24-16 AWG)

i) Weight & Size: 72g, 12x110x75mm

5. M2738 (8 Points, Relay Output Terminal, 240Vdc/ac, 0.5A)

a) Output voltage range: Max. 240Vac/240Vdc @ 0.5A

b) Output current rating: Max. 0.5A per channel

c) Output delay time

- Operate time (off to on): Max. 0.5ms

- Release time (on to off): Max. 3ms

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- Model: FnIO M-Series
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d) Frequency range: 47~63Hz

e) Power Dissipation: Max. 130mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

6. M2744 (4 Points, Relay Output Terminal, 24Vdc/2A, 240Vac/2A)

a) Output voltage range: Max. 24Vac/240Vdc @ 2.0A

b) Output current rating: Max. 2.0A per channel

c) Output delay time

- Operate time (off to on): Max. 7ms @ 24Vdc/240Vac

- Release time (on to off): Max. 7ms/14ms @ 24Vdc/240Vac

d) Frequency range: 47~63Hz

e) Power Dissipation: Max. 35mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 77g, 12x110x75mm

7. M2768 (8 Points, Relay Output Terminal, 24Vdc/ac, 2A)

a) Output voltage range: Max. 24Vac/24Vdc @ 2.0A

b) Output current rating: Max. 2.0A per channel

c) Output delay time

- Operate time (off to on): Max. 1ms

- Release time (on to off): Max. 3ms

d) Frequency range: 47~63Hz

e) Power Dissipation: Max. 130mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

8. M2774 (4 Points, Relay Output Terminal, 24Vdc/2A, 240Vac/2A)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Output voltage range: Max. 24Vac/240Vdc @ 2.0A

b) Output current rating: Max. 2.0A per channel

c) Output delay time

- Operate time (off to on): Max. 8ms @ 24Vac/240Vdc

- Release time (on to off): Max. 14ms @ 240Vac

d) Frequency range: 47~63Hz

e) Power Dissipation: Max. 35mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 84g, 12x110x75mm

9. M2788 (8 Points, Relay Output Terminal, 110Vdc/ac, 1A)

a) Output voltage range: Max. 110Vac/110Vdc @ 1.0A

b) Output current rating: Max. 1.0A per channel

c) Output delay time

- Operate time (off to on): Max. 0.6ms

- Release time (on to off): Max. 3ms

d) Frequency range: 47~63Hz

e) Power Dissipation: Max. 130mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

10. M3708 (8 Channels, RTD/Resistance Input)

a) Sensor types & input range

RTD Input	Input Range
PT100, PT200, PT500, PT50	-200~850°c
PT1000	-200~350°c
JPT100, JPT200, JPT500, JPT50	-200~640°c
JPT1000	-200~350°c
NI100, NI200, NI500	-60~250°c
NI1000	-60~180°c
NI120	-80~260°c

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- Model: FnIO M-Series
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NI1000LG	-50~120°c
Resistance Input	Input Range
100mΩ/bit	0~2000Ω
10mΩ/bit	0~327Ω
20mΩ/bit	0~620Ω
50mΩ/bit	0~1200Ω

b) Excitation current: about 1mA

c) Connection method: 3-Wire

d) Conversion time: <280ms

e) Power Dissipation: Max. 120mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

11. M3808 (8 Channels, TC/mV Input)

a) Sensor types & input range

Type	Maximum Input Range	Recommended Input Range
K	-270~1372°c	-200~1200°c
J	-210~1200°c	-40-1100°c
T	-270~400°c	-200~350°c
B	30~1820°c	600~1700°c
R	-50~1768°c	0~1600°c
S	-50~1768°c	0~1600°c
E	-270~1000°c	-200~800°c
N	-270~1300°c	-200~1250°c
L	-200~900°c	-100~850°c
U	-200~600°c	-100~550°c
C	0~2310°c	100~2100°c
D	0~2490°c	100~2200°c
10uV Input	-81.0~81.0mV, 10uV/1 Count	
1uV Input	-32.7~32.7mV, 1uV/1 Count	
2uV Input	-65.5~65.5mV, 2uV/1 Count	

b) Connection method: 2-Wire

c) Conversion time: <50ms

d) Power Dissipation: Max. 150mA @ 5Vdc

e) Wiring: 0.205~1.3mm^2(24-16 AWG)

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f) Weight & Size: 72g, 12x110x75mm

12. M3918 (8 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 12bits),

a) Input range: 0~20mA, 4~20mA, -20~20mA

b) Resolution in ranges

- 12 bits: 4.88uA/bit(0~20mA)

- 12 bits: 3.91uA/bit(4~20mA)

- 12 bits: 9.77uA/bit(-20~20mA)

c) Data format: 16bits Integer (2' compliment)

d) Conversion time: 2.4ms

e) Power Dissipation: Max. 200mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

13. M3928 (8 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 12bits)

a) Input range: 0~10Vdc, 0~5Vdc, -10~10Vdc, -5~5Vdc

b) Resolution in ranges

- 12 bits : 2.44mV/Bit(0~10V)

- 12 bits : 1.22mV/Bit(0~5V)

- 12 bits : 4.88mV/Bit(-10~10V)

- 12 bits : 2.44mV/Bit(-5~5V)

c) Data format: 16bits Integer (2' compliment)

d) Conversion time: 2.2ms

e) Power Dissipation: Max. 200mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

14. M3938 (8 Channels, Differential Current Input, 0~20mA / 4~20mA / -20~20mA, 16bits)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Input range: 0~20mA, 4~20mA, -20~20mA

b) Resolution in ranges

16bit(Include Sign)

- 15 bits : 0.61uA/Bit(0~20mA)

- 15 bits : 0.49uA/Bit(4~20mA)

15bit(Include Sign)

- 15 bits : 1.22uA/Bit(-20~20mA)

c) Data format: 16bits Integer (2' compliment)

d) Conversion time: 2.4ms

e) Power Dissipation: Max. 200mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

15. M3948 (8 Channels, Differential Voltage Input, 0~10V / 0~5V / -10~10V / -5~5V, 16bits)

a) Input range: 0~10Vdc, 0~5Vdc, -10~10Vdc, -5~5Vdc

b) Resolution in ranges

16bit(Include Sign)

- 15 bits : 0.31mV/Bit(0~10V)

- 15 bits : 0.15mV/Bit(0~5V)

15bit(Include Sign)

- 15 bits : 0.61mV/Bit(-10~10V

c) Data format: 16bits Integer (2' compliment)

d) Conversion time: 2.5ms

e) Power Dissipation: Max. 200mA @ 5Vdc

f) Wiring: 0.205~1.3mm^2(24-16 AWG)

g) Weight & Size: 72g, 12x110x75mm

16. M5212 (2 Channels, RS-232 Serial Interface)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Transfer channels: TxD, RxD, Full Duplex

b) Transfer rate: 1200bps~115200bps

c) Data bit: 8bit, 9bit

d) Flow control: RTS,CTS

e) Bit distortion: <1.6%

f) Cable length: Max.15m (Shield Cable Recommended)

g) Low/High signal voltage: -18V~-3V/3V~18V

17. M5222 (2 Channels, RS-422 Serial Interface)

a) Transfer channels: TxD, RxD, Full Duplex

b) Transfer rate: 1200bps~115200bps

c) Data bit: 8bit, 9bit

d) Flow control: N/A

e) Bit distortion: N/A

f) Cable length: 1km twisted pair (Shield Cable Recommended)

g) Low/High signal voltage: N/A

18. M5232 (2 Channels, RS-485 Serial Interface)

a) Transfer channels: TxD, RxD, Half Duplex

b) Transfer rate: 1200bps~115200bps

c) Data bit: 8bit, 9bit

d) Flow control: N/A

e) Bit distortion: N/A

f) Cable length: 1km twisted pair (Shield Cable Recommended)

g) Low/High signal voltage: N/A

19. MD9289 (MODBUS TCP Network Adapter(Dual Type))

a) Adapter type: Slave node, Dual

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

b) Supply voltage: 24Vdc nominal (15~28.8Vdc)

c) Power dissipation: 150mA typical @ 24Vdc

d) Current for I/O module: 2.0A @ 5Vdc

e) Max. data size: Max 128 bytes each slot (63 slots)

20. M9289 (MODBUS TCP Network Adapter(Single Type))

a) Adapter type: Slave node, Single

b) Supply voltage: 24Vdc nominal (15~28.8Vdc)

c) Power dissipation: 90mA typical @ 24Vdc

d) Current for I/O module: 2.0A @ 5Vdc

e) Max. data size: Max 128 bytes each slot (63 slots)

21. M9386 (EtherCAT ID Type Network Adapter(Single Type))

a) Adapter type: Slave node (EtherCAT)

b) Supply voltage: 24Vdc nominal (15~28.8Vdc)

c) Power dissipation: 70mA typical @ 24Vdc

d) Current for I/O module: 2.0A @ 5Vdc

e) I/O data size: Max 128 bytes each slot (63 slots)

22. M7001 (System, Field Distribution Module)

a) Supply voltage: 24Vdc nominal (15~28.8Vdc)

b) Power dissipation: Max. 30mA @ 24Vdc

c) Current for I/O module: 2.0A @ 5Vdc

23. M12DF (Digital Input 16 Point, Universal (Sink or Source), 24Vdc, 18RTB)

a) On-state voltage: 24Vdc nominal (9~28.8Vdc)

b) Off-state voltage: 6Vdc

c) On-state current: 3.05mA max/point @ 28.8Vdc

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- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

d) Power dissipation: Max. 40mA @ 5Vdc

24. M1418 (Digital Input 8 Points, Sink, 24Vdc, Diagnostic, 18RTB)

a) On-state voltage: 24Vdc nominal (9~28.8Vdc)

b) Off-state voltage: 6Vdc

c) On-state current: 5.75mA max/point @ 28.8Vdc

d) Power dissipation: Max. 45mA @ 5Vdc

25. M1428 (Digital Input 8 Points, Source, 24Vdc, Diagnostic, 18RTB)

a) On-state voltage: 24Vdc nominal (9~28.8Vdc)

b) Off-state voltage: 6Vdc

c) On-state current: 5.75mA max/point @ 28.8Vdc

d) Power dissipation: Max. 45mA @ 5Vdc

26. M225F (Digital Output 16 Point, Sink, 24Vdc/0.3A, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

27. M226F (Digital Output 16 Point, Source, 24Vdc/0.3A, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.3Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

28. M2418 (Digital Output 8 Points, Sink, 24Vdc, Diagnostic, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

b) On-state voltage drop: Max. 0.5Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 50mA @ 5Vdc

29. M2428 (Digital Output 8 Points, Source, 24Vdc, Diagnostic, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 45mA @ 5Vdc

30. M2618 (Digital Output 8 Point, Sink, 24Vdc/2A, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 1.0Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

31. M2628 (Digital Output 8 Points, Source, 24Vdc, Diagnostic, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 1.0Vdc

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

32. M317F (16 Channels Current Input, 0~20mA/4~20mA, 12bit, 18RTB)

a) Input range: 0~20mA, 4~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 12bits [4.88uA/Bit(0.20mA), 3.91uA/Bit(4~20mA)]

d) Conversion time: Max. 3.2msec (all channel)

e) Power dissipation: Max. 200mA @ 5Vdc

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

33. M319F (16 Channels Current Input, 0~20mA/4~20mA, 16bit, 18RTB)

a) Input range: 0~20mA, 4~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 16bit, 15bits [0.61uA/Bit(0.20mA), 0.49uA/Bit(4~20mA)]

d) Conversion time: Max. 3.2msec (all channel)

e) Power dissipation: Max. 200mA @ 5Vdc

34. M347F (16 Channels Voltage Input, 0~10Vdc/0~5Vdc/1~5Vdc, 12bit, 18RTB)

a) Input range: 0~10Vdc, 0~5Vdc, 1~5Vdc

b) Data format: 16bits Integer

c) Resolution in ranges: 12bit [2.44mV/Bit(0~10V), 1.22mV/Bit(0~5V), 0.98mV/Bit(1~5V)]

d) Conversion time: Max. 1.3msec (all channel)

e) Power dissipation: Max. 200mA @ 5Vdc

35. M347F (16 Channels Voltage Input, 0~10Vdc/0~5Vdc/1~5Vdc, 16bit, 18RTB)

a) Input range: 0~10Vdc, 0~5Vdc, 1~5Vdc

b) Data format: 16bits Integer

c) Resolution in ranges: 16bit, 15bits [0.31mV/Bit(0~10V), 0.15mV/Bit(0~5V), 0.12mV/Bit(1~5V)]

d) Conversion time: Max. 1.3msec (all channel)

e) Power dissipation: Max. 200mA @ 5Vdc

36. M4118 (8 Channels Current Output, 0~20mA, 12bit, 18RTB

a) Input range: 0~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 12bit (4.88uA/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

37. M4158 (8 Channels Current Output, 0~20mA, 16bit, 18RTB)

a) Input range: 0~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 16bit, 15bit (0.61uA/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

38. M4218 (8 Channels Current Output, 4~20mA, 12bit, 18RTB)

a) Input range: 4~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 12bit (3.91uA/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

39. M4258 (8 Channels Current Output, 4~20mA, 16bit, 18RTB)

a) Input range: 4~20mA

b) Data format: 16bits Integer

c) Resolution in ranges: 16bit, 15bit (0.49uA/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

40. M4428 (8 Channels Voltage Output, 0~10V, 12bit,18RTB)

a) Input range: 0~10Vdc

b) Data format: 16bits Integer

c) Resolution in ranges: 12bit (2.44mV/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

41. M4468 (8 Channels Voltage Output, 0~10V, 16bit, 18RTB)

a) Input range: 0~10Vdc

b) Data format: 16bits Integer

c) Resolution in ranges: 16bit, 15bit (0.31mV/Bit)

d) Conversion time: Max. 250usec (all channel)

e) Power dissipation: Max. 30mA @ 5Vdc

42. M5914 (4 Channels Current Input, 4~20mA, 16bit with Hart, 18RTB)

a) Input range: 4~20mA

b) Resolution in ranges: 16bit, 15bit (0.49uA/Bit)

c) Conversion time: Max. 30msec (all channel)

d) Power dissipation: Max. 30mA @ 5Vdc

43 & 45. ML9972/ ML9973 (Light Version - CODESYS Programmable IO / Light Version - MODBUS RS485 Network Adapter)

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 18~28.8Vdc

c) Protection: Reverse polarity protection

d) Power dissipation: Max. 50mA @ 24Vdc

45. ML9089 (Light Version - MODBUS TCP/UDP, Ethernet IP, CC-Link IE Field Basic)

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 15~28.8Vdc

c) Protection: Reverse polarity protection

d) Power dissipation: Max. 60mA @ 24Vdc

46. ML9087 (Light Version - PROFINET Network Adapter)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 15~28.8Vdc

c) Protection: Reverse polarity protection

d) Power dissipation: Max. 60mA @ 24Vdc

47. ML9073 (Light Version - MODBUS RS485 Network Adapter)

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 15~28.8Vdc

c) Protection: Reverse polarity protection

d) Power dissipation: Max. 20mA @ 24Vdc

48. M1238 (Digital Input 8 Points, Universal (Sink or Source), 24Vdc, 18RTB)

a) ON–state voltage: 24Vdc nominal (18~28.8Vdc)

b) ON-state current: About 6mA @ 18~28.8Vdc

c) OFF-state voltage: 9Vdc @ 25℃

c) Power dissipation: Max. 30mA @ 5Vdc

49. M1278 (Digital Input 8 Points, Sink, 24Vdc, 6mA, 18RTB)

a) ON–state voltage: 24Vdc nominal (18~28.8Vdc)

b) ON-state current: About 6mA @ 18~28.8Vdc

c) OFF-state voltage: 9Vdc @ 25℃

c) Power dissipation: Max. 30mA @ 5Vdc

50. M1C18 (Combination I/O, Digital Input Sink 8 points and Digital Output Source 8 points, 5Vdc, 18RTB)

a) ON–state voltage: 5Vdc nominal (>3.5Vdc)

b) ON-state current: 5uA @ 5Vdc, 0.1mA @ 6Vdc

c) OFF-state voltage: 2.6Vdc @ 25℃ (1.5V)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

c) Power dissipation: Max. 50mA @ 5Vdc

51. M2368 (Digital Output 8 Points, Source, 24Vdc, Multi -COM, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: 0.5Vdc @ 25ºC ~ 60ºC

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

52. M227F (Digital Output 16 Points, Sink, 24Vdc/2.0A, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc @ 0.3A / 3.00Vdc@ 2A

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

53. M228F (Digital Output 16 Points, Source, 24Vdc/2.0A, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc @ 0.3A / 3.00Vdc@ 2A

c) On-state current: 1mA per channel

d) Power dissipation: Max. 40mA @ 5Vdc

54. M3114 (Analog Input, 4 Channels, 0~20, 4~20mA, 12Bits, 18RTB)

a) Input range: 0~20mA, 4~20mA

b) Resolution in ranges: 12 bits: 4.88uA/Bit(0~20mA), 3.91uA/Bit(4~20mA)

c) Conversion time: Max. 3.2msec (All channel)

d) Power dissipation: Max. 200mA @ 5Vdc

55. M3154 (Analog Input, 4 Channels, 0~20, 4~20mA, 16Bits, 18RTB)

a) Input range: 0~20mA, 4~20mA

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- Model: FnIO M-Series
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b) Resolution in ranges: 16 bit (Include Sign) 15 bits: 0.61uA/Bit(0~20mA), 0.49uA/Bit(4~20mA)

c) Conversion time: Max. 3.2msec (All channel)

d) Power dissipation: Max. 200mA @ 5Vdc

56, 57 & 58. M3C28/48/68 (Analog Input 8 Channels, Analog Output 8 Channels, 0~10V, 0~5V, 1~5V, 12Bits/14bits/16bits, 18RTB)

a) Supply voltage: 24Vdc nominal

b) Supply voltage range: 18~28.8Vdc

c) Power dissipation: Max. 30mA @ 5Vdc (for M3C28), Max. 50mA @ 5Vdc (for M3C48/68)

59. M3744 (Analog Input, 4 Channels, 4-Wire RTD / Resistance Input, 18RTB)

a) Power dissipation: Max. 120mA @ 5Vdc

b) Excitation Current: About 0.5mA

c) Conversion time: Max. 60msec, All Channel (All channel)

60. M4114 (Analog Output, 4 Channels, 0~20mA, 12Bits, 18RTB)

a) Output range: 0~20mA

b) Conversion time: Max. 250usec / All channel

c) Power dissipation: Max. 30mA @ 5Vdc

61. M4154 (Analog Output, 4 Channels, 0~20mA, 16Bits, 18RTB)

a) Output range: 0~20mA

b) Conversion time: Max. 250usec / All channel

c) Power dissipation: Max. 30mA @ 5Vdc

62. M4214 (Analog Output, 4 Channels, 4~20mA, 12Bits, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 250usec / All channel

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

c) Power dissipation: Max. 30mA @ 5Vdc

63. M4254 (Analog Output, 4 Channels, 4~20mA, 16Bits, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 250usec / All channel

c) Power dissipation: Max. 30mA @ 5Vdc

64. M4134 (Analog Output, 4 Channels , 4~20mA, 550ohm, 12bit, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 250usec / All channel

c) Power dissipation: Max. 30mA @ 5Vdc

65. M4334 (Analog Output, 4 Channels , 4~20mA, 750ohm, 12bit, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 200usec / All channel

c) Power dissipation: Max. 50mA @ 5Vdc

66. M4354 (Analog Output, 4 Channels , 4~20mA, 550ohm, 16bit, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 200usec / All channel

c) Power dissipation: Max. 30mA @ 5Vdc

67. M4374 (Analog Output, 4 Channels , 4~20mA, 750ohm, 16bit, 18RTB)

a) Output range: 4~20mA

b) Conversion time: Max. 200usec / All channel

c) Power dissipation: Max. 50mA @ 5Vdc

68. M5112 (High speed counter, 2Cannels, 5/24Vdc, 18RTB)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc @ 25℃

c) On-state current: Max. 0.3A per channel

d) Power dissipation: Max. 120mA @ 5Vdc

69. M5122 (High speed counter, 2Cannels, 5/24Vdc, Gate Function, 18RTB)

a) Output voltage range: 24Vdc nominal (15~28.8Vdc)

b) On-state voltage drop: Max. 0.5Vdc @ 25℃

c) On-state current: Max. 0.3A per channel

d) Power dissipation: Max. 120mA @ 5Vdc

70. M5442 (PWM, 2 Channels, 0.5A/24Vdc, Source, 18RTB)

a) Output voltage: 24Vdc nominal

b) Output current: 0.5A per channel, 1.0A per Module

c) Power dissipation: Max. 75mA @ 5Vdc

71. M5444 (PWM, 4 Channels, 0.5A/24Vdc, Source, 18RTB)

a) Output voltage: 24Vdc nominal

b) Output current: 0.5A per channel, 1.0A per Module

c) Power dissipation: Max. 80mA @ 5Vdc

72. M5642 (Pulse Output 2 Channels 0.5A/24V, Push-pull, 18RTB)

a) Output voltage: 24Vdc nominal

b) Output current: 0.5A per channel, 2.0A per Module

c) Power dissipation: Max. 75mA @ 5Vdc

73. M5652 (Differential Output 2 Channels, RS422, 18RTB)

- Company Information: CREVIS (WCN: 425297)
- Model: FnIO M-Series
- ABS PDA Certificate No. 21-2173855-3-PDA dated 28-May-2024 remains valid until 06-Oct-2026

a) Output Voltage: RS422 Voltage Level

b) Input On-state Voltage: 24Vdc nominal (15~28.8Vdc)

c) On-state current: Max. 3.10mA/point @28.8V

d) Power dissipation: Max. 75mA @ 5Vdc

74. M5758 (Analog Input, 8 Channels, PTC / Input, 18RTB)

a) Supply voltage: 24Vdc nominal

b) Conversion time: 2msec / All channel

c) Power dissipation: Max. 25mA @ 5Vdc

75. M7151 (System, Field Power Filter for 24Vdc, 0Vdc(None ID Type))

a) Supply voltage: 24Vdc nominal (15~28.8Vdc)

b) Output voltage: 24Vdc nominal

c) Power dissipation: Max. 30mA @ 5Vdc

76. M7241 (Field Power Distribution (None ID Type))

a) Supply voltage: 24Vdc nominal

b) Field power contacts current: Max. 10A

c) Power dissipation: Max. 30mA @ 5Vdc