



Marine & Offshore

Certificate number: 20595/D0 BV

File number: AP3911

Product code: 4501H

This certificate is not valid when presented without the full attached schedule
composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Intelligent Platforms, LLC

Charlottesville, VA - UNITED STATES OF AMERICA

for the type of product

PROGRAMMABLE LOGIC CONTROL UNITS

PACSystems RX3i and RsTi-EP

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships

EC Code: 31/31B

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 11 Oct 2028

For Bureau Veritas Marine & Offshore,

At BV PORT EVERGLADES CENTRE, on 19 Oct 2023,

Flavio Rosas

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 5 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **PACSystems RX3i** includes the following modules:

1.1 - Technical Specifications:

Part Number	Description	Firmware Versions
IC694ACC200CA	Power Sync Terminal Assembly	1.xx
IC694ALG222CA	Analog input; 16/8 channel; voltage	2.xx
IC694ALG223CA	Analog input; 16 channel; current	2.xx
IC694ALG232CA	Analog input; 16/8 channel; voltage	2.xx
IC694ALG233CA	Analog input; 16 channel; current	2.xx
IC694ALG442CA	Mixed analog; (4) inputs / (2) outputs	2.xx
IC694ALG542CA	Mixed analog; (4) inputs / (2) outputs; current/voltage	2.xx
IC694BEM331	RX3i Genius Bus Controller	1.x
IC694CEE001CA	RX3i CEP Expansion Carrier	NA
IC694MDL645CA	Input module 24 VDC 16 point POS/NEG logic	NA
IC694MDL646CA	Input module 24 VDC 16 point POS/NEG logic	NA
IC694MDL655	Input module 24 VDC 32 point POS/NEG logic	NA
IC694MDL660CA	Input module 24 VDC 32 point POS/NEG logic	NA
IC694MDL740CA	Output module 12/24 VDC 0.5 amps 16 points, positive logic	NA
IC694MDL742CA	Output module 12/24 VDC 1amps 16 points, positive logic with Electronic Short Circuit Protection (ESCP)	NA
IC694MDL753	Output module, 12/24VDC POS logic, 32 points	NA
IC694MDL754CA	Output module 12/24 VDC 0.75 amps 32 points, positive logic with Electronic Short Circuit Protection (ESCP)	1.xx
IC694PSM001CA	Power Synchronisation and Measurement Module	1.xx
IC694PWR331	Power Supply, 24 Vdc, High Capacity	NA
IC695ACC302	Smart External Battery	NA
IC695ACC400CA	RX3i CPU Energy Pack	NA
IC695ACC402CA	RX3i CPU Energy Pack	NA
IC695ACC403CA	RX3i Rackless CPU Energy Pack	NA
IC695ALG106CA	Isolated Analog Current/Voltage Input 6 Channels	2.xx
IC695ALG112CA	Isolated Analog Current/Voltage Input 12 Channels	2.xx
IC695ALG312CA	Thermocouple Input Module 12-Channel Isolated	2.xx
IC695ALG412CA	Thermocouple Input Module 12-Channel Isolated (10dB noise rejection)	2.xx
IC695ALG508CA	RTD Input 8-Channels Isolated Module	2.xx
IC695ALG600CA	8 point Universal Analog Input Module	2.xx
IC695ALG608CA	8 point Analog Current/Voltage Input	2.xx
IC695ALG616CA	16 point Analog Current/Voltage Input	2.xx
IC695ALG626CA	16 point Analog Current/Voltage Input (HART Support)	2.xx
IC695ALG628CA	8 point Analog Current/Voltage Input (HART Support)	2.xx
IC695ALG704CA	4 Point Analog Current / Voltage Output	2.xx
IC695ALG708CA	8 Point Analog Current / Voltage Output	2.xx
IC695ALG728CA	8 point Analog Current/Voltage Output (HART Support)	2.xx
IC695ALG808CA	8 Point Isolated Analog Current / Voltage Output	2.xx
IC695CEP001CA	RX3i CEP Carrier with RJ-45 Copper Ethernet Interface	2.xx
IC695CHS007CA	RX3i 7-slot universal backplane	NA
IC695CHS012	RX3i 12 slot universal base	NA
IC695CHS012CA	12-Slot RX3i Universal Backplane	NA
IC695CHS016CA	16-Slot RX3i Universal Backplane	NA
IC695CMM002CA	Serial Communications module, 2 ports	2.xx
IC695CMM004CA	Serial Communications module, 4 ports	2.xx
IC695CMU310	RX3i Redundant High Availability CPU with two built-in serial ports.	6.xx
IC695CMX128	Control Memory eXchange reflective memory module with 128M.	1.xx
IC695CPE302CA	RX3i CPU, 1 Serial, 2 Ethernet ports, 2 Mb User Memory	10.xx

IC695CPE305CA	RX3i CPU, 1 Serial, 2 Ethernet ports, 6 Mb User Memory	10.xx
IC695CPE310CA	RX3i CPU, 2 Serial, 2 Ethernet ports	10.xx
IC695CPE330CA	RX3i 1GHz 64MB CPU with Ethernet	10.xx
IC695CPE400CA	RX3i 1.2GHz 64MB Rackless CPU with Field Agent	10.xx
IC695CPL410CA	RX3i 1.2GHz 64MB Rackless CPU with Linux	10.xx
IC695CPU310	300Mhz CPU with 10Meg of memory 2 SERIAL PORTS	6.xx
IC695CPU320	M class CPU with 64M of memory & 2 serial ports	6.xx
IC695CRU320	Redundant controller with 64M of memory & 2 serial ports	6.xx
IC695ETM001	Ethernet module 10/100 Mbits	7.xx
IC695ETM001CA	Ethernet Transmitter Module	7.xx
IC695HSC308	RX3i High Speed Counter, 8Channels	1.xx
IC695GCG001CA	RX3i Genius Communications Gateway	3.xx
IC695MDL664CA	Digital Input Module with Diagnostics	1.xx
IC695MDL765CA	Digital Output Module with Diagnostic	NA
IC695NIU001CA	RX3i Network Interface Unit	7.xx
IC695PBM300	RX3i PROFIBUS Master Module	1.xx
IC695PBS301	RX3i Profibus Slave module supports V1 functionality.	1.xx
IC695PNC001CA	Profinet Controller	3.xx
IC695PNS001CA	RX3i PROFINET Scanner (PNS) module	3.xx
IC695PNS101CA	SOE Profinet Controller	3.xx
IC695PSA040CA	Power Supply 120/240VAC or 125VDC , 40 Watts	NA
IC695PSA140CA	Power Supply 120/240VAC or 125VDC , 40W, Load Sharing	NA
IC695PSD140	RX3i Multi-function 24VDC Power Supply, 40 Watt	NA
IC695PSD180	RX3i Multi-function 24VDC Power Supply, 80Watt	NA
IC695RMX128	Redundant Memory eXchange reflective memory module with 128M.	1.xx
EPSCPE100CA	Stand alone PACsystems RSTI-EP Controller	10.xx
EPSCPE115CA	RSTI-EP Controller, 1.5MB	10.xx
EPXCPE205	RSTI-EP Controller, 0.5MB	10.xx
EPXCPE210	RSTI-EP Controller, 1 MB	10.xx
EPXCPE215	RSTI-EP Controller, 1.5 MB	10.xx
EPXCPE220	RSTI-EP Controller, 2.0 MB	10.xx
EPXCPE240	RSTI-EP Controller, 4.0 MB	10.xx

2. DOCUMENTS AND DRAWINGS:

- Intelligent Platforms CD ROM containing Manuals , Drawings and BOMs
- Intelligent Platforms Documents Ref. GFK-2460K dated July 2023, GFK-2441A dated Oct 2019, GFK-2308Y dated Jan 2023, GFK-2885A dated Feb 2014, GFK-2314E dated July 2014, GFK-2379E dated Sep 2019, GFK-2378J dated Sep 2019, GFK-2748D dated Sep 2019, GFK-2939A dated Sep 2019, GFK-3000B dated Sept 2019, GFK-2501H dated Aug 2022, GFK-2373M dated Aug 2022, GFK-2884M dated Feb 2023, GFK-2941M dated Oct 2021, GFK-3002G dated May 2021, GFK-2399K dated Oct 2021, GFK-2891D dated Sept 2019, GFK-2314Q dated Feb 2018, GFA2177, dated July 2018.
- Intelligent Platforms Excel Sheet - Index II of product Documentation for BV.
- Intelligent Platforms Excel Sheet - Module List with dwgs v0.4 and associated Drawings.

Intelligent Platforms:

- 2020 Marine Certification Test Plan, No. TDD-20200921-SY Rev.1.3, dated 30-09-2020.
- Schematic drawings Nos.: 41G2393-SC01-000-C0 Rev.1, 41G2437-SC01-000-A0 Rev.0, 41G1485-SC01-000-E0 Rev.3, 41G1301-SC01-000-F0 Rev 1, 41G1302-SC01-000-F0 Rev.1, 41G1491-SC01-000-H0 Rev.1, 41G1905-SC01-000-B3 Rev.0, 41G1905-SC01-000-B2 Rev.0 41G1905-SC01-000-C1 Rev.0.
- Mechanical drawings Nos.: 42G9000-0107 Rev.E, 41G2202-SA10 Rev.A, 42G9000-0233 Rev.A, 42G9000-0234 Rev.A, 41G1244-MD01 Rev.3, 44c718374 Rev.3, 41G1491-AD30 Rev.0, 42G9000-0212-A1 Rev.A1, 42G9000-0212-A3 Rev.2, 42G9000-0213-A5 Rev.1, 42G9000-0392-A2 Rev.A5.
- Data Sheets Nos.: 00813-0100-0101 dated May 2020, 00813-0100-0102 dated Jan 2021, GFK-2332BF dated Aug 2022, GFK-2554C dated Sep 2019, GFK-2573AD dated May 2023, GFK-2654E dated Dec 2020, GFK-2655D dated Dec 2020, GFK-2716D dated Sep 2019, GFK-2717F dated Dec 2020, GFK-2718E dated Dec 2020, GFK-2738AD dated May 2023.
- Test Design Document, No. TDD-20211018-LPK-1, dated 03 May 2021.
- Rx3i System User Manual, No. GFK-2314AE, dated March 2023.
- Drawing No. 41G1243-SC01-000-D2 rev. A0
- Drawing No. 41G1486-SC01-000-E0 rev 1

- Schematic Drawing, No. sch-CPE305B-V3.6, dated 28/03/2022.
- Schematic Drawing, No. sch-CPE305F-V1.0, dated 10/04/2019.
- Assembly Drawing IC695CPE30-V2.6, dated 21/04/2022.
- Schematic Drawing, No. sch-CPU1PWR-V1.0, dated 07/07/2020.
- Schematic Drawing, No. sch-CPU1BP-V1.1, dated 28/07/2021.
- Schematic Drawing, No.SCH-CPU1SOC-V2.1, dated 25/01/2022.
- Assembly Drawing, No. EPXCPE2XX, dated 08/04/2022.
- Test Plan for EPXCPE2XX, No. TDD-20220108-LPK,v.1.5, dated 02/12/2022
- Test Plan, No. TDD-20211021-LPK-1, v.0.4, dated 26-Oct-2021.
- User Manual, PACSystems RX3i and RSTi-EP CPU, No. GFK-2222AX, dated May 2023.
- Software version numbers, No. ECO-00034799, dated July 26, 2021.
- Software review process V1.05, dated 9/12/2011.
- Marine with EPXCE information_Software, dated 03 Aug 2022.

- PACSystems Product Information, No. GFK-3248D, dated May 2023
- Assembly Drawing ,No. IC695CPE310-V5.0, dated 11.10.2022
- CPE310 Test Design Document, No. TDD-20220821-LPK-1, dated 21-August 2022
- Test Plan IC695PSD180, No. TDD-20221008-LPK, dated 10/15/2022
- Drawing No. 705-101411, dated 2021-10-15
- IC694MDL742CA-Justification Product Update dated 10-06-2023
- Product Changes Excel Sheet
- Drawing of FR4 PCB, No. 41G3120-SC01-000-A0
- Drawing of Ceramic PCB, No. 44C288880-S01-R01

3. TEST REPORTS:

Northrop Grumman Corp.:- Thermal Test Report No. 5002264, dated 26 Sept 2008

MET Laboratories:- Marine Type Approval Test Report No. 24735-IACS, Rev. 1, dated 21Nov 2008

Curtis-Straus LLC:

- NPI610 Test Report No. EJ1320-1 dated 04 Aug 2010
- NPI610 Test Report No. EJ1320-2 dated 07 Oct 2010
- Test Report No. NL1393-1 dated 29 June 2012
- Test Report No. EL1393-2dated 16 June 2012
- Test Report No. EO2963-1dated 21 Jan 2015
- Test Report No. NO2963-1dated 29 Dec 2014
- Test Report No. EP2585-1 dated 17 Feb 2016
- Test Report No. NP2585-1 dated 6 April 2016
- Test Report No. ER1753-1 dated 28 Sept 2017
- Test Report No. NR1753-1 dated 22 Sept 2017
- Test Report Nb. NS0421-1 - rev.1 dated 18 April 2018
- Test Report Nb. ES0421-1 - rev.1 dated 20 April 2018

Bureau Veritas Consumer Products Services, Inc:

- Test Report No. EU2105-1, dated 02-12-2020.
- Test Report No. NU2105-1, dated 10-11-2020.
- Test Report No. 3269ERM.001, dated 11-16-2021.
- Test Report No. NV1836-1,issue-02, dated 02/10/22.
- Test Report No. NW0023-2, issue-02, dated 03/30/22.
- Test Report No. 3696ERM.001, dated 06-14-2022.
- Test Report No. NW0821-1, dated 17 November 2022
- Test Report No. EW0566 Rev 2, dated 10/05/2022
- Test Report No. NW0566-2, dated 10/18/22

4. APPLICATION / LIMITATION:

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31/31B**

- 4.4 - The equipment fulfils the EMC requirements for installation in General power Distribution Zones.
- 4.5 - The Part Numbers such as IC694ACC200CA, IC694CEE001CA, IC694MDL646CA, IC694MDL660CA, IC694MDL742CA, IC694MDL754CA, IC694PSM001CA, IC695ACC402CA, IC695ACC403CA, IC695ALG508CA, IC695ALG708CA, IC695CEP001CA, IC695CPE310CA, IC695CPE330CA, IC695CPE400CA, IC695GCG001CA, IC695PNS001CA, IC695PSA140CA fulfil the EMC requirements for the installation in Bridge and Deck Zones.
- 4.6 - Sensors used in the system and required as per Rules are to be duly approved by the Society.
- 4.7 - Each application is to be submitted to the Society's consideration.
- 4.8 - The system is to be installed within a metallic cabinet.
- 4.9 - IC694PWR331 is to be installed with DC Lines filter (CorCom 15DCB6F or equivalent).
- 4.10 - Where the system is used for machinery safeguards required by the Rules, the equipment is to be duplicated by another and different system.
- 4.11 - The equipment must be installed and used in accordance with the manufacturer's guidelines and product documentation.
- 4.12 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.
- 4.13 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.
- 4.14 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
 - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.15 - The Part Numbers such as IC694BEM331, IC695ACC302, IC695CMU310, IC695CPU310, IC695CPU320, & IC695CRU320 can be installed on ships contracted for construction before 1 January 2022. On or after this date of 1 January 2022, equipment is to comply with IACS UR E10 Rev. 8.
- 4.16 - The Part Number lists which are not in Section 4.15 covered by this Type Approval certificate have been tested according to requirements of IACS UR E10 rev8.
- 4.17- Equipment has to be supplied by a power supply(IC695PSD1040) or equivalent approved by the society.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The PLCs **PACSystems RX3i** are to be supplied by **Intelligent Platforms, LLC** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **Intelligent Platforms, LLC** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - For information, **Intelligent Platforms, LLC** has declared to Bureau Veritas the following production site(s):

Name of Production Sites	Address	Country
Intelligent Platforms, LLC	2500 Austin Drive, Charlottesville, VA , 22911	USA
Spectrum Controls	1705 132nd Ave NE, Bellevue WA 98005	USA
ProTechnologies Inc.	331 ShelleyBrook Dr, Pilot Mountain, 27041	USA
Hilscher GmbH	Hilscher GmbH, Rheinstraße 15, Hattersheim	GERMANY
Horner APG	59 South State Ave, 46201 Indianapolis, IN	USA
OCM Manufacturing Inc	2183 Thurston Dr. , K1G 6C9 Ottawa , Ontario	CANADA
Benchmark Electronics (M) Sdn Bhd	Free Industrial Zone, Phase 1, 11900 Bayan Lepas, Penang	MALAYSIA

6. MARKING OF PRODUCT:

- 6.1 - Maker's name or trade mark.
- 6.2 - Serial number of the units.
- 6.3 - Equipment type number or model identification under which it was type-tested.
- 6.4 - The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.

7. OTHERS:

- 7.1 - It is **Intelligent Platforms, LLC's** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This Certificate supersedes the Type Approval Certificate N° 20595/C6 BV issued on 12 January 2023 by the Society.

*** END OF CERTIFICATE ***