



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001AA
Revision No:
10

This is to certify:

That the Programmable Electronic System

with type designation(s)

PACSystems Rx3i and Rx7i, RSTI-EP, Series 90-30, VersaMax, Genius Remote I/O and QuickPanel View/Control

Issued to

Intelligent Platforms, LLC
Charlottesville, VA, USA

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.

Location classes:

Temperature	B
Humidity	B
Vibration	A
EMC	EMC A/B* (*EMC Class B applies only to Versamax & RsTi-EP products)
Enclosure	Required protection according to DNV Rules shall be provided upon installation on board

Issued at **Hamburg** on **2023-01-23**

for **DNV**

This Certificate is valid until **2027-11-13**.

DNV local station: **New York**

Approval Engineer: **Dariusz Lesniewski**

.....
Joannis Papanuskas
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.



Form code: TA 251

Revision: 2021-03

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Product description

PACSystems Rx3i and Rx7i, RSTI-EP, Series 90-30, VersaMax, Genius Remote I/O and QuickPanel View/Control consisting of the following catalog numbers:

Series 90-30

Catalog No	Module Description
IC690PWR124	24V DC Power Supply
IC693CHS391	10-slot Backplane
IC693CHS397	5-slot Backplane
IC693PWR321	120V AC Power Supply
IC693PWR331	24V DC Power Supply
IC693NIU004	Ethernet NIU
IC693CPU372	CPU with Ethernet
IC693CPU374	CPU with Ethernet
IC693CPU366	CPU with Profibus Master
IC693CPU367	CPU with Profibus Slave
IC693PBM200	Profibus Master
IC693PBS201	Profibus Slave
IC693MDL645	16 Circuit 24V Input Module
IC693MDL648	16 Circuit Input 48V DC Positive / Negative Logic
IC693MDL655	16 Circuit 24V Input Module
IC693MDL660	32 Point 24V DC Input
IC693MDL740	Output 12/24vdc 0.5A 16 pt. Pos.
IC693MDL748	8 Circuit Output 48V DC 0.5 A Positive
IC693MDL753	12/24 VDC Output, Pos Logic (32 Pts)
IC693MDL754	32 Point 24V DC Output
IC693MDL260	32 Point 120V AC Grouped Input
IC693MDL250	16 Point 120V AC Isolated Input Module
IC693MDL350	16 Point 120V AC Isolated Output Module
IC693MDL916	16 Point Relay Output Module
IC693BEM331	Genius Bus Controller
IC693DNM200	DeviceNET Master
IC693CPU370	CPU 370 Module (240KB config user memory, 4K I/O, 8 Racks)
IC693CPU363	CPU 363 Module (240KB configurable user memory)
IC693ACC302	High-capacity battery pack
IC693ALG221	Analog Input / Output Module
IC693ALG222CA	Analog Input; 16/8 channel, voltage, Conformal Coat
IC693ALG223CA	Analog Input; 16 Ch current, Conformal Coat
IC693ALG442CA	Mixed analog module; (4) inputs / (2) outputs; current/voltage, Conformal Coat

PACSystems Rx7i

Catalog No	Module Description
IC698CHS017	Rear Mount Rack
IC698CHS117	Front Mount Rack
IC698PSA350	120V AC Power Supply
IC698PSD300	24V DC Power Supply
IC698CPE020	700Mhz CPU, Pentium
IC698CRE020	700Mhz CPU, Pentium with Redundancy Support
IC698CPE030	Rx7i CPU, Pentium
IC698CRE030	Rx7i CPU, Pentium with Redundancy Support
IC698ETM001	Ethernet
IC698CMX016	Communications Memory Exchange
IC698RMX016	Redundancy Memory Exchange
IC697ACC721	120V AC Fan Assembly
IC697ACC744	24V DC Fan Assembly
IC697BEM731	Genius Bus Controller

PACSystems Rx3i

Catalog No

IC694ACC200CA
IC694ACC310
IC694ALG220
IC694ALG221
IC694ALG222CA
IC694ALG223
IC694ALG223CA
IC694ALG442CA
IC694ALG232CA
IC694ALG233CA
IC694ALG390
IC694ALG391
IC694ALG392
IC694ALG542CA
IC694APU300
IC694BEM331
IC694CEE001CA
IC694CHS392
IC694CHS398
IC694DNM200
IC694MDL241
IC694MDL250
IC694MDL260
IC694MDL350
IC694MDL645
IC694MDL646
IC694MDL646CA
IC694MDL648
IC694MDL654
IC694MDL655
IC694MDL660
IC694MDL660CA
IC694MDL730
IC694MDL732
IC694MDL740
IC694MDL741
IC694MDL742
IC694MDL742CA
IC694MDL748
IC694MDL752
IC694MDL753
IC694MDL754
IC694MDL754CA
IC694MDL916
IC694MDL930
IC694MDL931
IC694MDL940
IC694MDR390
IC694PSM001CA
IC694PWR321
IC694PWR330
IC694PWR331
IC694TBB032
IC695ACC302CA
IC695ACC400
IC695ACC402CA

Module Description

POWER SYNC TERMINAL ASSEMBLY, Conformal Coat
Rx3i Filler Module
Input Analog 4 PT. Voltage
Analog Input / Output Module
Analog Input; 16/8 channel, voltage, Conformal Coat
Analog Input / Output Module
Analog Input; 16 channels, current, Conformal Coat
Mixed analog module; (4) inputs / (2) outputs; current/voltage, Conformal Coat
Analog Input; 16/8 channel, voltage, Conformal Coat
Analog Input; 16 channel, current, Conformal Coat
Analog Input / Output Module
Output Analog 2 PT. Current
Output Analog 8 PT. Current/Voltage
Mixed analog module; (4) inputs / (2) outputs; current/voltage, Conformal Coat
High Speed Counter
Genius Bus Controller
EXPANSION CARRIER , Conformal Coat
Base (10 slot) expansion
Base (5 slot) expansion
DeviceNET Master
24V AC/DC Pos/Neg Logic Input, 16 pt.
16 Point 120V AC Isolated Input Module
32 Point 120V AC Grouped Input
16 Point 120V AC Isolated Output Module
24VDC Pos/Neg Logic Input, 16 pt.
Input 24vdc 16 pt. Pos/Neg logic Fast
INPUT 24 VDC 16PT POS/NEG FAST - Conformal Coat
16 Circuit Input 48V DC Positive / Negative Logic
Input TTL 32 pt.
Input 24vdc 32 pt. Pos/Neg logic Fast
32 Point 24V DC Input
32pt. 24 VDC Input (32 Points) - Conformal Coat
Output 12/24vdc 2.0A 8 pt. Pos.
Output 12/24vdc 0.5A 8 pt. Pos.
Output 12/24vdc 0.5A 16 pt. Pos.
Output 12/24vdc 0.5A 16 pt. Neg.
Output 12/24vdc 1.0A Pos. ESCP
OUTPUT 12/24 VDC 1A 16PT POS ESCP - Conformal Coat
8 Circuit Output 48V DC 0.5 A Positive
Output TTL 32 point
Output module, 12/24VDC POS logic, 32 points
32 Point 24V DC Output
24VDC W/ESCP, 32PT OUTPUT REQ HIG DEN TB, Conformal Coat
16 Point Relay Output Module
Output Relay 4.0A 8 pt. Isolated Form
Output Relay 8.0A 8 pt. Isolated Form B-C
Output Relay 2.0A 16 pt.
Mixed I/O 24vdc In/Relay out 8 pt.
POWER SYNC MEASUREMENT MODULE, Conformal Coat
Power Supply 120/240 VAC 125vdc 30W
Power Supply, High Capacity, 120VAC
Power Supply
Terminal Block
Smart external battery, Conformal Coat
RX3i Energy Pack
Energy Pac5k, Conformal Coat

IC695ACC403CA	Energy Pack, Conformal Coat
IC695ALG106CA	Isolated Analog Current/Voltage Input, 6 channels, Conformal Coat
IC695ALG112CA	Isolated Analog Current/Voltage Input, 12 channels, Conformal Coat
IC695ALG312CA	Thermocouple Input Module 12-Channel Isolated, Conformal Coat
IC695ALG412CA	Thermocouple Input Module 12-Channel Isolated, Conformal Coat
IC695ALG508CA	8-Channel Isolated RTD Input, Conformal Coat
IC695ALG600CA	Universal Analog Input, Conformal Coat
IC695ALG608CA	8 Channel Non-Isolated Analog Input, Conformal Coat
IC695ALG616CA	16 Channel Non-Isolated Analog Input, Conformal Coat
IC695ALG626CA	16 Channel Non-Isolated Analog Input with HART, Conformal Coat
IC695ALG628CA	8 Channel Non-Isolated Analog Input with HART, Conformal Coat
IC695ALG704CA	4 Channel Non-Isolated Analog Output, Conformal Coat
IC695ALG708CA	8 Channel Non-Isolated Analog Output - Conformal Coat
IC695ALG728CA	8 Channel Non-Isolated Analog Output with HART, Conformal Coat
IC695ALG808CA	8 Channel Isolated Analog Current / Voltage Output, Conformal Coat
IC695CHS007CA	7-Slot RX3i Universal Backplane, Conformal Coat
IC695CHS012	12-slot backplane
IC695CHS012CA	12-Slot RX3i Universal Backplane, Conformal Coat
IC695CHS016	16-slot backplane
IC695CHS016CA	16-Slot RX3i Universal Backplane, Conformal Coat
IC695CEP001CA	FLEXPAC Carrier, Conformal Coat
IC695CMM002CA	Rx3i serial communications module, 2 ports, Conformal Coat
IC695CMM004CA	Rx3i serial communications module, 4 ports, Conformal Coat
IC695CMX128	Control Memory eXchange reflective memory module with 128M
IC695CMU310	CPU Redundant
IC695CPE302CA	Rx3i CPE302, 1 Serial, 2 Ethernet port, Conformal Coat
IC695CPE305CA	Rx3i CPE305, 1 serial, 2 Ethernet port, Conformal Coat
IC695CPE310CA	Rx3i CPE310, 2 serial, 2 Ethernet port, Conformal Coat
IC695CPE310	Rx3i CPE310, 2 serial, 1 Ethernet port
IC695CPE330CA	1GHz 64MB CPU w/Ethernet, Conformal Coat
IC695CPE400CA	1.2GHz 64MB Quad Core CPU w/ Ethernet, Conformal Coat
IC695CPL410CA	RX3i CPL410 Standalone Controller Quad Core 1.2GHZ 5XRJ45 128GB,
IC695CPU310	CPU
IC695CPU320	M class CPU with 64M of memory & 2 serial ports
IC695CRU320	Redundant controller with 64M of memory & 2 serial ports
IC695ETM001	Ethernet
IC695ETM001CA	Ethernet Transmitter Module, Conformal Coat
IC695GCG001CA	Genius Communications Gateway, Conformal Coat
IC695LRE001	Serial Bus Transmitter
IC695MDL765CA	24V/125VDC O/P with diagnostics, Conformal Coat
IC695MDL664CA	24VDC INPUT W/ DIAGNOSTICS - Conformal Coat
IC695NIU001	Ethernet NIU
IC695NIU001CA	Ethernet network interface unit w/ 2 serial ports
IC695PBM300	Profibus Master
IC695PBS301	Profibus Slave
IC695PNC001CA	PROFINET controller module, Conformal Coat
IC695PNS001CA	Profinet Scanner, Conformal Coat
IC695PNS101CA	SOE Profinet Controller, Conformal coat
IC695PSA140CA	Redundant PWR SUPPLY 120/240VAC, 125 VDC, Conformal Coat
IC695PSA140	120V AC Power Supply
IC695PSD140	24V DC Power Supply
IC695PSD180CA	24V DC, 80W Power Supply, Conformal coat
IC695RMX128	Redundant Memory eXchange reflective memory module w/ 128M

RSTI-EP

Catalog No

EPSCPE100CA
EPSCPE115CA
EPXCPE205
EPXCPE210
EPXCPE215
EPXCPE220
EPXCPE240

Module Description

STANDALONE PACSYSTEMS RSTI-EP CONTROLLER - CONF COAT
RSTI-EP STANDALONE CONTR, 1.5MB - CONF COAT
PACSystems RSTi-EP BP Controller, 0.5MB
PACSystems RSTi-EP BP Controller, 1.0MB
PACSystems RSTi-EP BP Controller, 1.5MB
PACSystems RSTi-EP BP Controller, 2.0MB
PACSystems RSTi-EP BP Controller, 4.0MB

VersaMax

Catalog No [*]

IC200ALG230
IC200ALG240
IC200ALG260
IC200ALG264
IC200ALG320
IC200ALG328
IC200ALG620
IC200BEM002
IC200CHS002
IC200CHS006
IC200CHS022
IC200CHS025
IC200CPU001
IC200CPU002
IC200CPU005
IC200CPUE05
IC200EBI001
IC200ERM001
IC200ETM001
IC200GBI001
IC200MDL640
IC200MDL650
IC200MDL740
IC200MDL750
IC200MDD840CA
IC200MDD841
IC200MDD844
IC200MDL940
IC200PBI001
IC200PNS001CA
IC200PNS002CA
IC200PWR002 *
IC200PWR011CA
IC200PWR012CA
IC200PWR102

Module Description

Analog input 12 bit voltage/current 4 channel
Analog input 16 bit voltage/current 8 isolated channels
Analog input 12 bit voltage/current 8ch
Analog input 15 bit current 15ch
Analog output 12 bit current 4ch
Analog I/O Module
Analog I/O Module
PLC network communications Profibus-DP slave
Backplane
Communications carrier
Compact I/O carrier box style (screw style terminals)
Compact I/O carrier spring style
CPU 12k user prog 1.80msec/k boolean
CPU 20k user prog 1.80msec/k boolean
CPU with configurable user memory 0.8 msec/k boolean
CPU with configurable user memory 0.8 msec/k boolean
Remote I/O Ethernet network interface unit
Expansion receiver isolated
Expansion transmitter
Remote I/O Genius network interface unit
Input 24VDC pos/neg logic (2 group of 8) 16pt
Input 24VDC pos/neg logic (4 groups of 8) 32pt
Output 24VDC pos logic 0.5a per pt (1 group of 16) 16pt
Output 24VDC pos logic 0.5a per pt (2 groups of 16) 32pt
Mixed 24VDC input/output relay 20pt
Mixed 24VDC pos log input group 20pt/output 24VDC output 12pt
Mixed 24VDC POS LOG input group 16pt / 24 VDC output 16 pt
Output relay 2.0A per pt isolated form a 16pt
Remote I/O Profibus DP network interface unit
VersaMax PROFINET scanner w/ two 10/100Mbps copper interfaces, Conformal Coat
VersaMax PROFINET scanner with two 100Mbps multi-mode fiber(MMF) ports, Conformal Coat
Power supply with expanded 3.3VDC 24VDC input
Power supply 24VDC input, isolated, Conformal Coat
Power supply with expanded 3.3VDC 24VDC input, isolated, Conformal Coat
Power supply with expanded 3.3VDC 120/240VAC input

* IC200PWR002 is a non-isolated power supply that requires an isolated DC-DC converter for installation in marine applications.

Genius Remote I/O

Catalog No

IC660BBA026
IC660BBD120
IC660BSM021

Module Description

Block 24/48V DC Analog Current Source 6 Inputs
Block High Speed Counter
Bus Switching Module

QuickPanel Model

Number	Module Description
ES0622	6" Color TFT, Loaded QuickPanel
ES0602	6" Monochrome, Basic QuickPanel

Place of manufacture

Intelligent Platforms, LLC. 2500 Austin Dr. Charlottesville, VA 22911-8319. USA

Benchmark Electronics (M) Sdn. Bhd. Free industrial Zone Phase 1, 11900 Bayan Lepas, Pulau Penang Malaysia (For production of RX3i series only)

Application/Limitation

The Type Approval covers hardware listed under Product description including those conformally coated. 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 Ships Pt.4 Ch.9 Control and Monitoring Systems.

- This Type Approval does not cover applications requiring battery back-up or applications powered by battery.
- Equipment covered by this Type Approval shall be powered by 120V AC directly or via one of the AC to DC converters covered by this Type Approval.
- Corcom DC line filter, part # 15DCB6F (or equivalent) and Panasonic surge absorber, part # ERZV20D680 (or equivalent) shall be applied to the DC line inputs as specified by manufacturer.
I/O cables shall be shielded and grounded on both ends as specified by manufacturer.
- For Versamax installations, all Versamax products with exception of IC200PWR102 are additionally approved for Bridge and Deck installations when IC200PWR011, IC200PWR012, and IC200PWR002 DC power supplies are used in conjunction with an Corcom DC line filter #15DCB6F or equivalent. This limitation is required to meet EMC Class B.
- For RX3i installations inside consoles/housing together with other equipment with temperature rise $\geq 5^{\circ}\text{C}$, RX3i modules IC695CPE310 and IC695PNC001 must be mounted in the last slot with an empty slot to the left. All other RX3i modules may be installed in any slot. This limitation is required to meet Temperature Class B.
- During conducted RF immunity test IC694MDL660CA input cable requires three turns around ferrite, "Fair-rite, PN: 0461178281" or equivalent.
- During conducted RF immunity test IC695ALG708CA analog accuracy may be degraded by +20% of full scale.
- RSTi-EP product family to be installed with DNV type approved AC/DC regulated power supply with Vdc regulated power supply output voltage according to the range defined in the datasheet for specific equipment
- SELV AC/DC: Class II power supply marked as "double insulated", limited power source (LPS), or a SELV source with a minimum 32 VDC listed fuse with 3 A max rating or greater is required to power the RSTi EP product family.
- Equipment covered by this Type Approval shall be mounted inside an RF-tight EMC-shielded cabinet

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

hidden

Document list	Name	Issuing date
Test Reports:	LOTR-DNVGL_TAA00001AA_20170821_Rev03	2021-04-14
Technical Documentation		
	LOTD-DNVGL_TAA00001AA_20170821_Rev03	2021-04-18
GFK-2714AK_IC695CPE302_305_IPI	Release History documentation	2022-11-17
GFK-2713Z_IC695CPE310_IPI		
GFK-3248B_IC695CPE302_305_310_IPI		
Scope: IC695CPE302, IC695CPE305 modification; new controller EPXCPE2xx		
Test Reports:		
PowerSupply Failure EPXCPE2xx Testreport		2022-09-01

NW0023-2 Rev.02	2022-03-30
NW0566-2 Rev.01	2022-18-10
NV1836-1 Rev.02 [PAC System Rx3i CPU [LH8066803102701 (Intel make x5-E3930 Processor)]]	
EMC121921a EPXCPE-MAX Compliance Test Report	2021-12-19
BOM	
EPXCPE205-V13_2022_02_25	
EPXCPE220-V13_2022_02_25	
EPXCPE240-V13_2022_02_25	
IC695CPE30500_V2x (Including [LH8066803102701 (Intel make x5-E3930 Processor)])	
Manual	
GFK-2222AU PACSystems™ RX3i and RSTi-EP CPU	Jun 2022
GFK-2314AC (RX3i System User Manual)	Sep 2022
GFK-2958M (PACSystems™ RSTi-EP)	Jan 2022
Documents for IC695PSD180	
Test Report No. NW0821-1	2022-11-17
Specifications: GFK-3245A PACSystems RX3i Power Supply, 24 VDC, 80W	March 2022
Drawing No. 705-100906 (Rev. AB) Mechanical outline	2021-09-22
Drawing No. 705-101411 (Rev. AB) Circuit diagram	2021-10-15
Drawing No. 771-100903 (Rev. AF) Assembly enclosure	2022-04-08

Tests carried out

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

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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