Important Product Information

GFK-3142C

Oct 2022

GFK-3142 PACMotion VFD IPI

IC866-XXX-XXX-XX

EMERSON

PACMotion VFD

Emerson's PACMotion VFD is an integrated, rugged, and modular variable frequency drive designed for a range of applications, including water/wastewater, metro, automotive, mining, food and beverage, packaging, oil and gas, discrete manufacturing, and modular machine designs. The PACMotion VFD seamlessly integrates with Emerson's controllers and Field Agent technology. Leveraging the total system architecture provides continuous feedback that can improve your process and profitability. The flexible design offers power ranges from 0.75 to 250kW (1 to 350HP) as well as a host of communications protocols. Options such as braking resistors, input and output chokes, external filters, external keypad, and encoder option cards let you customize the PACMotion VFD to your requirements

- Exceptionally compact
- Easy access mounting slots for quick installation
- Simple startup and configuration options– "plugin and drive"
- User-friendly operation
- Easily accessible wire terminals on the front
- Laminated help card with a quick reference to parameters and wiring
- 32kHz PWM for low noise operation
- On-board diagnostic tools
- IP66 for jet spray environments
- IP55 for dirty environments

Type Designation & Decoding

Drive Part Number

The table below uses the example IC866-0015-4B1-2P

Commodity Code	Code	Description
Product name	**IC866**	PACMotion Variable Frequency Drive (VFD)
Recommended motor power	**0015**	0015 = 1.5 kW
Connection voltage	**4**	2 = 200 – 240 V
		4 = 380 – 480 V
		6 = 500 – 600 V
Interference suppression on the input	**B**	0 = None
		A = Class C2
		B = Class C1
Connection type	**1**	1 = 1-phase
		3 = 3-phase
Design	**2**	2 = Standard IP20 housing
		5 = IP55/NEMA-12K housing
		6 = IP66/NEMA-4X housing
Option Card	**P**	P = PROFINET RT (Standard) 0 = No Card Modbus TCP and Profinet System Redundancy (PNSR) sold separately; see Option Card Part Number.
Country-specific variant	**(60Hz)**	60 Hz design variant

Option Card Part Number

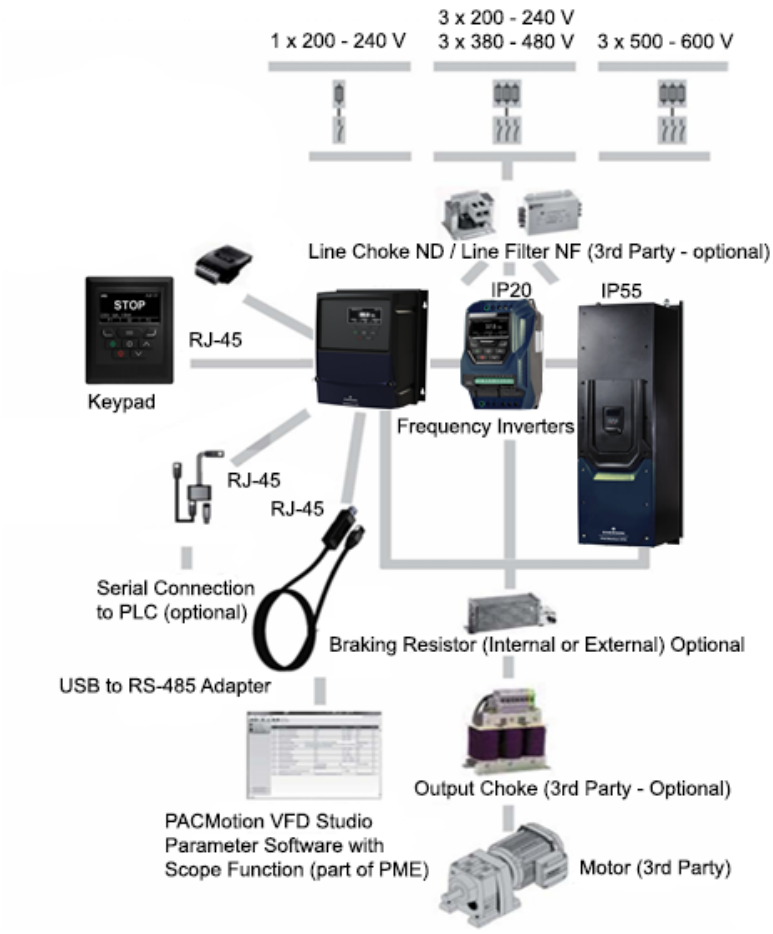
Refer to *PACMotion Variable Speed Drives User Guide,* GFK-3111A for the PACMotion VFD Product Matrix and further product details.

Fieldbus	Option Module Part Number
PROFINET RT with MRP	IC866-OC-P
PROFINET RT with MRP and PNSR (Profinet System Redundancy)	IC866-OC-PR
Modbus TCP	IC866-OC-M

System Diagram

The PACMotion Variable Frequency Drives are offered as part of a suite of PACMotion products, as shown in the following System Diagram:

Figure 1: System Diagram



Note: A list of available inverters is provided in the GFK-3111, *PACMotion VFD AC Variable Speed Drive User Guide.*

A typical system will consist of a suitable inverter for each motor to be controlled.

Each inverter:

- may contain one Option Card (optional)
- may contain a Bluetooth module (optional)
- may have a remote keypad attached (optional)
- maybe attached to a braking resistor (may be internal or external and is optional)

- will communicate with a PC running PACMotion VFD Studio, which is launched from Emerson's PAC Machine Edition (PME). (Release 9.80 SIM 11 or later required.) PACMotion VFD Studio is used to set up and monitor the VFD parameters. PME is used to configure and program any associated PACSystems Programmable Controllers (PLCs).
- Most systems will run under the control of an Emerson programmable logic controller (PLC), such as IC695CPE400. In that case, communications between the controller and the drive will take place over PROFINET.

Upgrade Strategy

PACMotion VFDs are not field-upgradeable. At this time no upgrade kit is available for download.

Upgrade Strategy: N/A

Upgrade Kit: N/A

Release History

Rev	Date	Description
C	Oct 2022	Updated Option Card information to reflect availability.
B	Jul 2021	Added support for a new Option Card, IC866-OC-PR (PROFINET Systems Redundancy Capable)
A	April 2020	Initial publication

Functional Compatibility

Subject	Feature	Minimum Version Required
PLC CPU Firmware Version Requirements	RX3i PNC001-Bxxx Release 3.00 New Hardware & Firmware to Resolve Component Obsolescence	CPE330 Release 8.95 CPU320/CPU315 Release 8.95 CPE310/CPE305 Release 8.95 CRU320 Release 8.95 CPE302 Release 9.40 (Other CPU models are not supported)
	RX3i PNC001 Release 2.26 Support Remote Get HART Device Information COMMREQ	CPE330 Release 8.95 CPU320/CPU315 Release 8.95 CPE310/CPE305 Release 8.95 CRU320 Release 8.95 CPE302 Release 9.40 (Other CPU models are not supported)
	Extended PROFINET device Subslot Number range	CPE330 Release 8.70 CPU320/CPU315 Release 8.70 CPE310/CPE305 Release 8.70 CRU320 Release 8.70 CPE302 Release 9.40 (Other CPU models are not supported)
	RX3i PNC001 Release 2.20 HART Pass-Through	CPE330 Release 8.50 CPU320/CPU315 Release 8.50 CPE310/CPE305 Release 8.50 CRU320 Release 8.50 CPE302 Release 9.40 (Other CPU models are not supported)
	RX3i PNC001 release 2.11 (or later) Hot Standby Redundancy with PROFINET I/O	CRU320 Release 8.40 CPE330 Release 8.70 (Other CPU models are not supported)
	RX3i PNC001 Release 2.00 Hot Standby Redundancy with PROFINET I/O	CRU320 Release 8.00 CPE330 Release 8.70 (Other CPU models are not supported)
	RX3i PNC001 Release 2.00 Non-Hot Standby Redundancy system	CPU320/CPU315 Release 7.13 CPE310/CPE305 Release 7.10 CRU320 Release 8.00 CPE302 Release 9.40 (Other CPU models are not supported)
Programmer Version Requirements	PACMotion VFD Studio	PAC Machine Edition Logic Developer PLC 9.80 SIM 2, or later is required to give the user access to the Emerson PACMotion VFD Studio. This package allows the user to configure the internal VFD parameters.

Subject	Feature	Minimum Version Required
PROFINET Controller Version Requirements	If using PROFINET System Redundancy, users MUST upgrade the PNC001 (PROFINET Controller) to Version 2.2 or later firmware.	Effective with PME 8.6 SIM 3 and PME 8.5 SIM 11 (PPS 2.6 SIM3 and PPS 2.5 SIM11), the PNC001 is configured to use RT Class 2 for redundant PROFINET connections. To meet specifications, this requires PNC001 firmware 2.2 or later. Under these conditions, redundant VersaMax and/or CEP PROFINET I/O will NOT connect or transfer I/O or Alarm Data if the PNC001 is running firmware before Version 2.2.
GSDML Version Requirements		**IC866-OC-P – PROFINET Standard:** GSDML-V2.31-Intelligent Platforms, LLC-PACmotionVFD-20200113.xml **IC866-OC-PR – PROFINET System Redundancy Capable:** GSDML-V2.35-Intelligent Platforms, LLC-PACmotionVFD_SysRedundancy-20210511.xml
Profinet Controller Stand Alone CPE100/115 Requirements	Simplex (non-redundantly controlled) PROFINET IO	9.35
Profinet Controller Stand Alone CPE400 Requirements	32 Simplex (non-redundantly controlled) PROFINET IO	9.00
Profinet Controller Programmer Version Requirements	RX3i PNC001 Release 3.00	PME 8.50 SIM 9 or 8.60 SIM 1
	RX3i PNC001 Release 2.11(or later) 128 PROFINET Device Support1 Critical Network Port	PME 8.50 SIM 9 or 8.60 SIM 1
	RX3i PNC001 Release 2.00 (or later) Hot Standby Redundancy with PROFINET I/O Non-Hot Standby Redundancy system using CRU320	PAC Machine Edition 8.00 SIM 5
	RX3i PNC001 Release 2.00 (or later) Non-Hot Standby Redundancy system	PAC Machine Edition 7.00 SIM 8
PACMotion Drive Firmware	PROFINET System Redundancy Capable Option Card (IC866-OC-PR)	2.50

[1] Attempts to store a configuration utilizing this feature to a prior-release PNC001 will result in an Unable to deliver configuration to module fault, which leaves the PNC001 in an un-configured state.

Problems Resolved by this Revision

None.

New Features and Enhancements

New Feature and Enhancements	Description
New Option Card	The initial release of the PROFINET System Redundancy Capable Option Card that can be installed in an IC866 PACMotion VFD. This card incorporates support for Hot Standby Redundancy when used with PACSystems redundant systems.

Restrictions and Open Issues

None.

Operational Notes

Operational Note	Description
PROFINET GSDML File	The PACMotion VFD GSDML file is available from the website. GSDML File for PACMotion VFD
PROFINET Update Rate with MRP Enabled	The PACMotion VFD PROFINET Cards do not support fast LinkUp/LinkDown detection. When PROFINET Media Redundancy is configured, the minimum supported PROFINET Update Rate is 16 milliseconds with Default Test Interval at 10ms and the Test Monitoring Count at 2. See Section 6 in GFK-2571S or later for information on PROFINET Media Redundancy Protocol (MRP).

Product Documentation

PACSystems Manuals

PACSystems RX3i and RSTi-EP CPU Reference Manual	GFK-2222
PACSystems RX3i and RSTi-EP CPU Programmer's Reference Manual	GFK-2950
PACSystems RX3i and RSTi-EP TCP/IP Ethernet Communications User Manual	GFK-2224
PACSystems TCP/IP Ethernet Communications Station Manager User Manual	GFK-2225
PACSystems RX3i & RSTi-EP PROFINET I/O Controller Manual	GFK-2571

PAC Machine Edition Manuals

Logic Developer PLC, Getting Started Guide	GFK-1918
PAC Change Management, Getting Started Guide	GFK-1779
View and PC Control, Getting Started Guide	GFK-1868

RX3i Manuals

PACSystems RX3i System Manual	GFK-2314
PACSystems RX3i PROFINET Scanner Manual	GFK-2737
PACSystems RX3i CEP PROFINET Scanner User Manual	GFK-2883
PACSystems RX3i Serial Communications Modules User's Manual	GFK-2460

PACMotion VFD Manuals

PACMotion Variable Frequency Drives User Guide	GFK-3111
PACMotion Variable Frequency Drives Advanced User Guide	GFK-3112

Secure Deployment Guides

PROFINET I/O Devices Secure Deployment Guide	GFK-2904
PACSystems RXi, RX3i, and RSTi-EP Controller Secure Deployment Guide	GFK-2830
PACMotion Variable Frequency Drives Secure Deployment Guide	GFK-3166

User manuals, product updates, and other information sources are available on the Emerson support website, http://www.emerson.com/industrial-automation-conrtrols/support.

Support Links

Home link: http://www.emerson.com/industrial-automation-controls

Knowledge Base: https://www.emerson.com/industrial-automation-controls/support

Customer Support and Contact Information

Americas

Phone:	1-888-565-4155
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Technical Support:	support.mas.apac@emerson.com

Any escalation request should be sent to: mas.sfdcescalation@emerson.com

Note: If the product is purchased through an Authorized Channel Partner, please contact the seller directly for any support.

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