PACMotion™ VFD

Flexible AC Drive Solution

Key Benefits

- **Standard PROFINET integration and built-in auto-tuning feature make setup and commissioning new drives quick and easy**
- **High-performance drives support up to 200% overcurrent and 200% starting torque allowing smaller drives to be utilized reliably for applications with variable loads**
- **Conformally coated electronics and available IP55 and IP66 enclosures allow drives to be mounted without a control cabinet**
- **Built-in safe torque off (STO) support saves development and commissioning time by allowing integrated safety and standard applications**

Flexibility to Meet Your Needs

Emerson's PACMotion VFDs are integrated, rugged and modular AC variable frequency drives designed for a range of industries, including water/wastewater, metro, automotive, mining, food and beverage, packaging, oil and gas, discrete manufacturing and modular machine designs.

PACMotion VFDs seamlessly integrate with Emerson's PAC, PLC and Edge Controllers. 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) for input voltages from 200 to 600 volts. Options, such as braking resistors, external keypads, encoder option cards, as well as multiple communications protocols, let you customize PACMotion VFDs to your specific application requirements.

Fully Integrated for System Simplicity

PACMotion VFDs easily and seamlessly integrate with PACSystems RX3i applications for quick and cost-effective installation. With drive configuration tools incorporated directly within PAC Machine Edition and a built-in auto-tuning feature for automatically adjusting the drive based on attached motors and loads, PACMotion VFDs offer plug-and-play startup and simplified programming.

Rugged Design for Demanding Applications

PACMotion VFDs are built to perform in harsh environments. Conformally coated circuit boards can withstand the most demanding environmental conditions. For applications with variable loading, PACMotion VFDs also provide a high current overload capacity: rated up to 150% for up to 60 seconds at a time and 200% for short durations. With operating temperatures up to 40°C for IP55 and IP66 enclosures and up to 50°C for IP20, PACMotion VFDs can meet your toughest challenges. Built-in support for Safe Torque Off (STO) allows PACMotion VFDs to integrate seamlessly into applications requiring safety as well.

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Compact, Modular Design

The compact footprint of PACMotion VFDs minimize control cabinet space, or with IP55 or IP66 enclosures, you can skip the control cabinet entirely. The built-in keypad and display allow operators to validate parameters locally, providing instant feed-back during troubleshooting.

The modular design even allows multiple individual units to be connected and controlled with a single keypad.

Connects and Optimizes

Connecting PACMotion VFDs with other Emerson products lets you monitor, record, and optimize performance in real time. Use real-time data from Edge Connectivity to automatically optimize VFD output to minimize energy consumption while keeping the application in tolerance. Monitor drive attributes like current consumption and temperature in real-time to predict component failure, eliminating unplanned downtime.

Specifications

- 1 and 3 Phase 200-240VAC +/- 10%
- 3 Phase 380-480VAC +/- 10%
- 3 Phase 500-600VAC +/- 10%
- 0.75 up to 250kW (1 up to 350 HP)
- Integrated with PAC Machine Edition
- Integrated control for multiple motor types:
  - AC Induction
  - Permanent Magnet AC
  - Brushless DC
  - Synchronous Reluctance
- Integrated Safe Torque Off (STO)

Temperature Range

- -10°C to 40°C for IP55 and IP66
- -10°C to 50°C for IP20
- -40°C to 60°C in storage (not in operation)
- Cold-plate technology allowing heat dissipation interface via external heat sink or machine components

Overload Ratings

- Current overload up to 150% for up to 60 seconds
- Current overload up to 200% for 4 seconds
- Breakaway torque up to 200% for 2 seconds

Display

- LED for local status

Integrated Drive I/O

- Inputs: 3 digital + 2 configurable digital/analog
- Outputs: 2 configurable digital/analog + 2 relays
- Optional expansion I/O cards available

Motor Cable Length

- 100m+ shielded
- 150m+ unshielded

Protocols

- Modbus/RTU (standard)
- PROFINET RT (standard on *-xP models)
- Modbus/TCP (optional)

Housings

- IP20 Standard
- IP55/NEMA-12K Housing
- IP66/NEMA-4X Housing

Filters

- Integrated EMC filter (up to 11Kw)
  - 1PH class A/B limit
  - 3PH class A limit
    (EN 55011 and EN 50014 meets EN 61800-3)

Certifications

- CE
- cUL
- UL 61010
- C-Tick
- EU RoHS
- EU Reach
- China RoHS
- TUV – SIL / PLd

IP20 Drives - Weights and Dimensions

Frame Size	Height		Width		Depth		Weight
	mm	in	mm	in	mm	in	Kg
2	221	8.7	110	4.33	185	7.28	1.8
3	261	10.28	131	5.16	205	8.07	3.5
4	418	16.46	172	6.77	240	9.45	9.2
5	486	19.13	233	9.17	260	10.24	18.1
6A	614	24.17	286	11.25	320	12.59	32
6B	726	28.58	330	13	320	12.59	43
8	995	39.17	480	18.89	477	18.77	130

IP55 Drives - Weights and Dimensions

Frame Size	Height		Width		Depth		Weight
	mm	in	mm	in	mm	in	Kg
4	450	17.72	171	6.73	252	9.92	11.5
5	540	21.26	235	9.25	270	10.63	23
6	865	34.06	330	12.99	330	12.99	55
7	1280	50.39	330	12.99	360	14.17	89

IP66 Drives - Weights and Dimensions

Frame Size	Height		Width		Depth		Weight
	mm	in	mm	in	mm	in	Kg
2	257	10.12	188	7.4	239	9.41	4.8
3	310	12.2	211	8.29	266	10.47	7.7

Part Numbers Explained - EXAMPLE: IC866-0015-2B1-2P

Product Name	IC866	PACMotion VFD
Continuous rated motor power	0015	0015 = 1.5 kW / 2HP
Connection voltage	2	2 = 200 - 240VAC 4 = 380 - 480VAC 6 = 500 – 600VAC
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 6 = IP66/NEMA-4X
Option Card	P	P = Profinet RT (Standard) 0 = Empty (Purchase separately)

IP20 Drives

200-240V ±10% - 1 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-2B1-2#	0.75	1	4.3	2
IC866-0015-2B1-2#	1.5	2	7	2
IC866-0022-2B1-2#	2.2	3	10.5	2
200-240V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-2A3-2#	0.75	1	4.3	2
IC866-0015-2A3-2#	1.5	2	7	2
IC866-0022-2A3-2#	2.2	3	10.5	2
IC866-0040-2A3-2#	4	5	18	3
IC866-0055-2A3-2#	5.5	7.5	24	3
IC866-0075-2A3-2#	7.5	10	30	4
IC866-0110-2A3-2#	11	15	46	4
IC866-0150-2A3-2#	15	20	61	5
IC866-0185-2A3-2#	18.5	25	72	5
380-480V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-4A3-2#	0.75	1	2.2	2
IC866-0015-4A3-2#	1.5	2	4.1	2
IC866-0022-4A3-2#	2.2	3	5.8	2
IC866-0040-4A3-2#	4	5	9.5	2
IC866-0055-4A3-2#	5.5	7.5	14	3
IC866-0075-4A3-2#	7.5	10	18	3
IC866-0110-4A3-2#	11	15	24	3
IC866-0150-4A3-2#	15	20	30	4
IC866-0185-4A3-2#	18.5	25	39	4
IC866-0220-4A3-2#	22	30	46	4
IC866-0300-4A3-2#	30	40	61	5
IC866-0370-4A3-2#	37	50	72	5
IC866-0450-4A3-2#	45	60	90	6A
IC866-0550-4A3-2#	55	75	110	6A
IC866-0750-4A3-2#	75	100	150	6B
IC866-0900-4A3-2#*	90	150	180	6B
IC866-2000-4A3-2#**	200	300	370	8
IC866-2500-4A3-2#**	250	350	450	8

500-600V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-603-2#	0.75	1	2.1	2
IC866-0015-603-2#	1.5	2	3.1	2
IC866-0022-603-2#	2.2	3	4.1	2
IC866-0040-603-2#	4	5	6.5	2
IC866-0055-603-2#	5.5	7.5	9	2
IC866-0075-603-2#	7.5	10	12	3
IC866-0110-603-2#	11	15	17	3
IC866-0150-603-2#	15	20	22	3
IC866-0185-603-2#	18.5	25	28	4
IC866-0220-603-2#	22	30	34	4
IC866-0300-603-2#	30	40	43	4
IC866-0370-603-2#	37	50	54	5
IC866-0450-603-2#	45	60	65	5

IP55 Drives

200-240V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0055-2A3-5#	5.5	7.5	24	4
IC866-0075-2A3-5#	7.5	10	30	4
IC866-0110-2A3-5#	11	15	46	4
IC866-0150-2A3-5#	15	20	61	5
IC866-0185-2A3-5#	18.5	25	72	5
IC866-0220-2A3-5#	22	30	90	6
IC866-0300-2A3-5#	30	40	110	6
IC866-0370-2A3-5#	37	50	150	6
IC866-0450-2A3-5#	45	60	180	6
IC866-0550-2A3-5#	55	75	202	7
IC866-0750-2A3-5#	75	100	248	7
380-480V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0110-4A3-5#	11	15	24	4
IC866-0150-4A3-5#	15	20	30	4
IC866-0185-4A3-5#	18.5	25	39	4
IC866-0220-4A3-5#	22	30	46	4
IC866-0300-4A3-5#	30	40	61	5
IC866-0370-4A3-5#	37	50	72	5
IC866-0450-4A3-5#	45	60	90	6
IC866-0550-4A3-5#	55	75	110	6
IC866-0750-4A3-5#	75	100	150	6
IC866-0900-4A3-5#*	90	150	180	6
IC866-1100-4A3-5#*	110	175	202	7
IC866-1320-4A3-5#*	132	200	240	7
IC866-1600-4A3-5#*	160	250	302	7

500-600V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0150-603-5#	15	20	22	4
IC866-0185-603-5#	18.5	25	28	4
IC866-0220-603-5#	22	30	34	4
IC866-0300-603-5#	30	40	43	4
IC866-0370-603-5#	37	50	54	5
IC866-0450-603-5#	45	60	65	5
IC866-0550-603-5#	55	75	78	6
IC866-0750-603-5#	75	100	105	6
IC866-0900-603-5#	90	125	130	6
IC866-1100-603-5#	110	150	150	6

IP66 Drives

200-240V ±10% - 1 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC-866-0008-2B1-6#	0.75	1	4.3	2
IC866-0015-2B1-6#	1.5	2	7	2
IC866-0022-2B1-6#	2.2	3	10.5	2
200-240V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-2A3-6#	0.75	1	4.3	2
IC866-0015-2A3-6#	1.5	2	7	2
IC866-0022-2A3-6#	2.2	3	10.5	2
IC866-0040-2A3-6#	4	5	18	3
380-480V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-4A3-6#	0.75	1	2.2	2
IC866-0015-4A3-6#	1.5	2	4.1	2
IC866-0022-4A3-6#	2.2	3	5.8	2
IC866-0040-4A3-6#	4	5	9.5	2
IC866-0055-4A3-6#	5.5	7.5	14	3
IC866-0075-4A3-6#	7.5	10	18	3
500-600V ±10% - 3 Phase Input				
Drive Model Number	**kW**	**HP**	**Output Current (A)**	**Frame Size**
IC866-0008-603-6#	0.75	1	2.1	2
IC866-0015-603-6#	1.5	2	3.1	2
IC866-0022-603-6#	2.2	3	4.1	2
IC866-0040-603-6#	4	5	6.5	2
IC866-0055-603-6#	5.5	7.5	9	2
IC866-0075-603-6#	7.5	10	12	3
IC866-0110-603-6#	11	15	17	3

NOTE: Replace # with:
0 = No Profinet Module included
P = Profinet Module Included

*HP calculated at 460V, KW at 400V (according to standard set in NEC Table 430-150)
**No UL on these units and these require use of an input choke (1% - 4%)

Breaking Resistors

Catalog Number	Description
IC866-BR-100-020-21	Braking Resistor, Size 2, 100R, 200W
IC866-BR-050-020-51	Braking Resistor, IP55, Size 2, 50R, 200W
IC866-BR-033-040-21	Braking Resistor, Size 4 33R, 500W

Accessories

Catalog Number	Description
IC866-CABL-B-5	RS485 Connect Multiple VFDs RJ45, .5m
IC866-CABL-B-10	RS485 Connect Multiple VFDs RJ45, 1m
IC866-CABL-B-30	RS485 Connect Multiple VFDs RJ45, 3m
IC866-CABL-SPLIT	RJ45 Cable Splitter/Expansion Module
IC866-CABL-TR	RJ45 Terminating Resistor
IC866-EKPD	External TFT display for VFD w/RJ45 cable
IC866-BLUE	Bluetooth Parameter Module for VFD
IC866-OC-TTL	Encoder Feedback Plug In (5 VDC)
IC866-OC-HTL	Encoder Feedback Plug In (12-30 VDC)
IC866-OC-IO	Digital I/O Option Card for VFD
IC866-CABL-USB485	Connect VFD to PC USB

Input Chokes

Catalog Number	Description
IC866-ICH-016-201-20	Input Choke IP20, 230V, PH1, 16A
IC866-ICH-016-201-60	Input Choke IP66, 230V, PH1, 16A
IC866-ICH-025-201-20	Input Choke IP20, 230V, PH1, 25A
IC866-ICH-025-201-60	Input Choke IP66, 230V, PH1, 25A
IC866-ICH-006-603-20	Input Choke IP20, 500V, PH3, 6A
IC866-ICH-006-603-60	Input Choke IP66, 500V, PH3, 6A,
IC866-ICH-010-603-20	Input Choke IP20, 500V, PH3, 10A
IC866-ICH-010-603-60	Input Choke IP66, 500V, PH3, 10A
IC866-ICH-036-603-20	Input Choke IP20, 500V, PH3, 36A
IC866-ICH-018-603-60	Input Choke IP66, 500V, PH3, 18A
IC866-ICH-050-603-20	Input Choke IP20, 500V, PH3, 50A
IC866-ICH-090-603-20	Input Choke IP20, 500V, PH3, 90A
IC866-ICH-200-603-00	Input Choke IP00, 500V, PH3, 200A
IC866-ICH-300-603-00	Input Choke IP00, 500V, PH3, 300A

Fieldbus Communications Cards

Catalog Number	Description
IC866-OC-P	PROFINET I/O Option Card
IC866-OC-M	Modbus TCP Option Card

Output Chokes

Catalog Number	Description
IC866-OCH-008-603-20	Output Choke IP20, 500V, PH3, 8A
IC866-OCH-008-603-60	Output Choke IP66, 500V, PH3, 8A
IC866-OCH-012-603-20	Output Choke IP20, 500V, PH3, 12A
IC866-OCH-012-603-60	Output Choke IP66, 500V, PH3, 12A
IC866-OCH-030-603-20	Output Choke IP20, 500V, PH3, 30A
IC866-OCH-018-603-60	Output Choke IP66, 500V, PH3, 18A
IC866-OCH-075-603-20	Output Choke IP20, 500V, PH3, 75A
IC866-OCH-180-603-00	Output Choke IP00, 500V, PH3, 180A
IC866-OCH-300-603-00	Output Choke IP00, 500V, PH3, 300A

External EMC Filters

Catalog Number	Description
IC866-EEF-010-201-20	External Filter 1-ph 240V - 10A - IP20
IC866-EEF-010-201-60	External Filter 1-ph 240V - 10A - IP66
IC866-EEF-025-201-20	External Filter 1-ph 240V - 25A - IP20
IC866-EEF-025-201-60	External Filter 1-ph 240V - 25A - IP66
IC866-EEF-016-403-20	External Filter 3-ph 480V - 16A - IP20
IC866-EEF-016-403-60	External Filter 3-ph 480V - 16A - IP66
IC866-EEF-180-403-20	External Filter 3-ph 480V - 180A - IP20
IC866-EEF-025-403-20	External Filter 3-ph 480V - 25A - IP20
IC866-EEF-025-403-60	External Filter 3-ph 480V - 25A - IP66
IC866-EEF-300-403-00	External Filter 3-ph 480V - 300A - IP00
IC866-EEF-050-403-20	External Filter 3-ph 480V - 50A - IP20
IC866-EEF-006-403-20	External Filter 3-ph 480V - 6A - IP20
IC866-EEF-006-403-60	External Filter 3-ph 480V - 6A - IP66
IC866-EEF-080-403-20	External Filter 3-ph 480V - 80A - IP20

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