

OJ Drives®



OJ DV series

- 13 power variants
- 5 enclosure sizes
- IM, PM and BLDC motors
- Operation from -40° to +50°
- BACnet MS/TP
- UL 61800-5-1, CS22.2.174 recognized

A series of drives dedicated for ventilation systems comprising 13 output variants (from 0.5 to 15 kW) fitted in four different enclosures to match any rooftop fan, plug fan or AHU application.

Wide ambient temperature range

Continuous operation in almost any environment from -40°C to +50°C / -40°F to +122°F. In Fire Mode, OJ DV can run for an hour in temperatures up to +70°C / +158°F.

Flexible design

By adding different modules, OJ DV are suitable for any fan system. With their installation flexibility, they can be mounted inside or outside the air flow.

BACnet MS/TP

BACnet ensures that information is exchanged in a standardised way between sensors, actuators, and controls in a building. Equipped with BACnet MS/TP the OJ DV can now be part of the building automation. BACnet MS/TP is running on RS-485.

Energy efficient

Passive cooling allows the drives to save energy while providing reliable, highly efficient power for the ventilation system. With OJ DV, an efficiency of up to 97% can be achieved.

Plug & Play technology


Preprogrammed motor settings help maximize functionality, while the removable front cover facilitates easy access to connectors for instant system configuration.

Norms and standards

The OJ DV series comes with a fully integrated EMC filter and therefore meets norms for emissions and immunity in industrial and residential areas EN 61800-3 (C1 and C2). IE requirements can be easily fulfilled using an IM or PM motor together with an OJ DV.

The OJ DV product series is cULus Recognised according to UL 61800-5-1 and CS22.2.174.



	Type	DV-1005	DV-1007	DV-1011	DV-1013	DV-3015	DV-3024	DV-3030	DV-3040	DV-3055	DV-3065	DV-3075	DV-3110	DV-3150	
Enclosure		H1			H1x			H3			H4			H5	
Power size	kW	0.5	0.75	1.1	1.3	1.5	2.4	3.0	4.0	5.5	6.5	7.5	11	15	
Horsepower	Hp	0.7	1.0	1.5	1.7	2.0	3.2	4.0	5.4	7.4	8.7	10.0	14.7	20.1	
Efficiency	%	> 94%			> 96.5%			> 96.5%			> 97.5%				
Power supply															
Voltage	VAC	1 x 230 VAC 50/60 Hz +/-10%					3 x 208 - 240 VAC 50/60 Hz +/-10% *1 3 x 380 - 480 VAC 50/60 Hz +/-10%								
Supply current at max. load at nominal supply voltage (400V/480V)	A	3.0	4.4	6.5	8.5	3.1/2.6	5.0/4.2	6.3/5.2	8.4/7.0	11.5/9.6	13.6/11.3	15.7/13.1	23/19.1	31.1/26.1	
Power factor (cos-phi) at max. load		> 0.99 (Active PFC)					> 0.9								
Motor output															
Nominal motor power (on shaft) *2	kW	0.5	0.8	1.15	1.3	1.5	2.4	3.0	4.0	5.5	6.5	7.5	11	15	
Frequency	Hz	AC motor: 0-120 PM motor: 0-400													
Max. output voltage	Vrms	3 x 0 - 250 VAC					3 x 0 - 0.9 x Vin								
Max. output current	Arms	2	3.2	4.5	5.2	4.5	6.4	7.8	10.0	12.0	15.0	19.0	27	35.0*3	
Protection															
Max. fuse	A	16												32	
Short circuit capacity	A	1000	1000	2000	2000	2000	3500	3500	3500	3500	5000	5000	5000	5000	
FLA	A	3.6	5.3	7.8	9.2	3.3	5.2	6.6	8.7	12.0	14.2	16.4	23.8	32.5	
Motor output		Short-circuit protected between phases													
Motor		Protected by current limit													
Over-voltage protection		Yes, 400 V (PTC)					Yes, 565 V								
Overload protection		Current and temperature overload protection													
Environment															
Operating temperature	°C/°F	-40°C to +50°C / -40°F to +122°F													
Starting temperature	°C/°F	-40°C to +50°C / -40°F to +122°F													
Storage temperature	°C/°F	-40°C to +70°C / -40°F to +158°F													
Dimensions	mm	185 x 230.5 x 90 mm			185 x 265 x 125 mm		185 x 265 x 100 mm			220 x 294 x 107 mm			244 x 399 x 144 mm		
Protection rating		IP 54 & 65 / NEMA 4x													
Enclosure material		Aluminium													
Front cover		Plastic													
Weight	kg	2.0			3.6		3.0			3.9			9.5		
Humidity	% rh	10-95% rh, non-condensing													
Surface		Corrosion resistant to EN/ISO 12944-2:1998 Category C4													
Air flow / cooling		Turbulent air speed of min. 3 m/s to achieve max. output power at max. ambient temperature. Turbulent air speed below 3m/s and higher ambient temperature might lead to reduced output power. (3m/s turbulent air speed is equivalent to 6,5m/s laminar air speed)													
Interfaces															
Modbus RTU		RS485 (baud rate: 9.6, 19.2, 38.4, 57.6, 115.2 Kbaud)													
BACnet MS/TP		Baud rate: 9600, 19200, 38400, 57600, 115200 kbs MAC: 0 - 127, MAX Master: 1 - 127, Device object ID: 0 - 4194302													
Digital communication	Slave	2 x RJ12 & 2 x spring terminals													
Digital communication	Master	1 x RJ12 connection													
Analogue In1		0-10 VDC, 100% @ 9.5 V DC +/-2%													
Analogue Out1		+10 VDC													
Digital In1		Start/stop with internal pull-up													
Digital In2		Alarm reset													
Digital Out1		Tacho: 1 pulse/revolution Alarm/running signal													
Green LED		Lit: Power connected Flashing: Active communication													
Red LED		Flashing: Alarm but still running Constantly lit: Critical alarm - stop motor													
Features															
Technology		Sinusoidal back-EMF signal controlled via FOC (Field Oriented Control)													
Flying start		Yes, < 30% of max. speed													
Ramp-up time	sec.	15-300													
Ramp-down time	sec.	15-300													
Alarm		Yes													
Alarm reset		Via digital input, MODBUS or powering down for more than 60 seconds													
Fan stop	sec.	The braking system stops the fan as quickly as possible. Braking time will depend on the inertia of the fan.													
Service data log		Operating hours, alarms, loads, software version, max. temp., max. motor voltage, max. motor current, max. ripple voltage, max. ripple current													
Software updating		Yes, via serial interface													
Motor parameters		Preprogrammed by OJ or on-site configuration													
Fire mode		Nominal power for 1 hour at 70°C ambient temperature													
Field weakening		Yes													
Short-circuit protection		Yes													
Integrated EMC filters		Yes													
Approvals															
EMC		EN/BS 61800-3 (C1 & C2)													
LVD		EN/BS 61800-5-1 / UL 61800-5-1													
Product standard		EN/BS 61800 Part 2													
North America		UL -61800-5-2 / CS22.2.174													
RoHS Directive		Yes													
Product approvals															

Note: Data are valid at: nominal supply voltage, +25°C and sufficient air flow
 * 1: At 3 x 230V supply the output power is derated to 58% / * 2: Motor Power Factor = 0.8 and efficiency = 90% / * 3: H5 OGF variant is limited to 32A

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