Datasheet

Variable frequency drive VYBO Electric a.s.

Typ: V900-4T2500

V900 Series 400V

Rated power	250 kW
Rated output current	470 A
Supply voltage	3 x 400 V
Output voltage	0 – 400 V
Output frequency	0 – 600 Hz
Overload capacity in ND mode - Normal load (N. Duty)	120% / 60 s
Overloading in HD mode - Heavy load (H. Duty)	150% / 60 s
Control mode V/F scalar control	✓
Open-loop vector SFVC control mode	✓
Closed-loop vector CLVC control mode	✓
Analog inputs	2
Digital inputs	6
Analog outputs	2
Relay outputs	2
Open collector outputs	1
Brake transistor	✗
EMC filter	✓
+10 V output	✓
+24 V output	✓
Input for PTC	✓
Safe Torque Off (STO)	✗
Emergency STOP (EMS)	✓
Integrated Ethernet	✗
Integrated MODBUS RTU	✓
PROFINET	✓
PG card for encoder	✓
PID	✓
PLC intelligent function	✓
External panel connection (normally up to 30 m)	✓
Degree of protection IP 20	✓
Degree of protection IP 65	✗
Change of direction of rotation via external input	✓
Change of direction of rotation from the panel	✓

Detailed specification

VFD model type V900	Rated output power (kW)	Maximum input current (A)	Rated output current (A)	Recommended motor power (kW)
V900-4T2500	250	475	470	250

Input voltage (V) 50/60Hz	Power (kW)	Cross section of the voltage cable (mm^2)	Recommended circuit breaker (A)
3 phase 3 x 400 V	250	240	630

Table of suitable braking resistors

Type of VFD	Braking resistance		Braking unit	Recommended power (kW)
	Resistor power (kW)	Resistance value (Ω) (≥)		
V900-4T2500	21*2	2,5*2	21000W-2.5R*2	250

General technical parameters for all types of V900

Power supply	Input voltage range: 1 x 230 V AC ± 10 % 3 x 400 V AC ± 10 %
Input frequency resolution	Power frequency range: 47 to 63 Hz
Control mode	V/F control SFVC vector control with open circuit CLVC vector control with closed circuit (above 4,0 kW)
Maximum frequency	0 - 600 Hz
Carrier frequency	0.5 kHz - 8 kHz The carrier frequency is automatically set based on the load characteristic.
Input frequency resolution	Digital setting 0.01 Hz Analog setting: maximum frequency x 0.025%
Initial torque	G type: 0.5 Hz / 150 % (SFVC) P type: 0.5 Hz / 180 % (CLVC) P type: 0.5 Hz / 100 %
Speed range	1:100 (SVC) 1:1000 (CLVC)

Speed stability	± 0,5 % (SVC) ±0,2% (CLVC)
Overloadability	G type: 60s for 150% of rated current, 3s for 180% rated current P typy: 60s for 120% of rated current, 3s for 150% of rated current
Increase torque	Automatic torque increase or manual increase by user from 0,1 % to 30,0 %
V/F curve	Linear V/F curve Multipoint V/F curve N-voltage V/F curve (multiple 1,2*voltage, 1,4*voltage, 1,6*voltage, 1,8*voltage, square)
V/F separation	Two types: full separation; half separation
Ramp modes	Linear ramp 4 groups of acceleration / deceleration times with a range of 0.0-6500.0 s
DC braking	Braking frequency: 0.0 Hz to maximum frequency Braking time: 0.0-36.0 s Braking current value: 0.0% -100.0%
Control in JOG mode (stepping)	JOG frequency range: 0.00-50.00 Hz JOG acceleration / deceleration time: 0.0-6500.0 s
Simple PLC, multiple preset speeds	Implemented up to 16 speeds using a simple PLC function or combination of end states of clamps
Built-in PID regulator	Facilitates a process-controlled closed-loop control system.
Automatic voltage regulation (AVR)	It can automatically maintain a constant output voltage when the supply voltage changes.
Overvoltage and overcurrent control	Current and voltage are automatically limited during operation to prevent frequent tripping due to overvoltage and overcurrent.
Fast limit of current	Helps prevent common errors due to AC motor overcurrent
Torque and steering limitation	It can automatically limit the torque and prevent frequent overcurrent change during running. Torque control can be implemented in CLVC mode
High performance	AC motor control is performed by high-performance vector current control technology.
PG card support	Support for differential input PG card, resolver PG card, rotary transformer PG card, etc. PG cards can be connected to models V900-4T0040 and larger PG cards can be connected to models V900-2S0040 and 2S0055

STO safety function	"Emergency Stop" system: in case of emergency, stops the inverter immediately, after activating the J4 switch on the STO.
PTC motor temperature control	Input for PTC motor or thermal contact protection.
Time management	Time range: 0 - 6500 minutes
Communication protocol	MODBUS RTU; PROFINET
Boot Command Channel	Control panel / Control terminals / Serial communication port You can switch between these sources in different ways.
Frequency source	10 kinds of frequencies , Setting digital, analog voltage, analog current, pulse, serial port. You can switch between these sources in different ways.
Auxiliary frequency source	10 kinds of frequencies. Allows fine tuning of auxiliary frequency and frequency synthesis.
Input terminals	5 digital inputs for types 0,4 - 5,5 kW 1 analog input for types 0,4 - 5,5 kW 6 digital inputs for types above 7,5 kW 2 analog inputs for types above 7,5 kW
Output terminals	1 high-speed pulse output (open collector) 1 relay output for types 0,4 - 5,5 kW 1 analog output for models 0,4 - 5,5 kW
	2 relay outputs for types 7,5 - 500 kW 2 analog outputs for performance 7,5 - 500 kW 1 high-speed pulse output (open collector)
EMC (compatibility)	IE 61000-4-6; IEC 61000-4-4; IEC 61000-4-11; IEC 61000-4-5
Standards	EN/IEC 61800-3:2017; C1, which is suitable for the 1st environment; EN/IEC 61800-3:2017; C2, which is suitable for the 1st environment;
LED display	Displays parameters
Lock keys and select features	Can block buttons partially or completely and define the range of functions of some buttons to prevent malfunctions.
Protection mode	Motor short-circuit detection at power-up, input/output phase loss protection, over-current protection, over-voltage protection, under-voltage protection, over-temperature protection and overload protection.
Installing in an environment	Install indoors, avoid direct sunlight, salt, dust, corrosive or flammable gas, smoke, steam. Resistance to chemical contaminants class 3C3 EN/IEC 60721-3-3 Dust pollution resistance 3S3EN/IEC 60721-3-3.

Height above sea level	Under 1000 m n.m (reduce the power when used above 1000 m.n.m.)
Ambient temperature	-10 °C - 40 °C (reduce the power when used above 40 °C (max. to 50 °C)
Humidity	Less than 95% relative humidity, no condensation IEC 60068-2-3
Vibration	Less than 5,9 m/s2 (0,6g) IEC 60068-2-6
Storage temperature	- 20 °C to + 60°C

Dimensional drawing V900 - 250kW 4T2500