Datasheet
Variable frequency drive VYBO Electric a.s.
Type: V810-4T0550

V810 series 400V

Rated power	55 kW
Rated output current	110 A
Supply voltage	3 x 400 V
Output voltage	0 – 400 V
Output frequency	0 – 3200 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	8
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	✓
PROFIBUS	✓
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 V810	Rated output power (kW)	Maximum input current (A)	Rated output current (A)	Recommended motor power (kW)
V 810-4T0550	55	105	110	55

Input voltage (V) 50/60Hz	Power (kW)	Cross section of the voltage cable (mm^2)	Recommended circuit breaker (A)
3 PH 3x400 V	55	35	125

Table of suitable braking resistors

Type of VFD	Braking resistance		Braking unit CDBR	Braking moment (10% ED)	Recommended power (kW)
	Resistor power (W)	Resistance value (Ω) (≥)			
V 810-4T0550	4500	9,4	External	125	55

General technical parameters for all types of V810

Power supply	Input voltage range: 1 x 230 V AC ± 15% 3 x 400 V AC ± 15% 3 x 690 V AC ± 15% Power frequency range: 47 to 63 Hz
Control mode	V/F scalar control SFVC vector with open circuit CLVC vector control
Maximum frequency	SFVC, CLVC vector control: 0 - 320 Hz V/F scalar control: 0 - 3200 Hz
Carrier frequency	1 - 16 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 (SFVC) 1:1000 (CLVC)
Speed stability	± 0.5% (SFVC) ± 0.02% (CLVC)
Torque control accuracy	± 5% (CLVC)
Overloadability	G type: 60s for 150% of rated current, 3s for 180% of rated current. P type: 60s for 120% of rated current, 3s for 150% of rated current.
Increase torque	Auto-boost or user manual increment 0.1% to 30.0%
V/F curve	Linear V/F curve Multipoint V/F curve N-voltage V / F curve (multiple of 1.2-voltage, 1.4-voltage, 1.6-voltage, 1.8-voltage, adjusted)
V/F separation	Two types: full separation; half separation
Ramp modes	Linear ramp S-curve ramp 4 groups of acceleration / deceleration times with a range of 0.0-6500.0 s
Input terminals	8 digital inputs, binary ON / OFF inputs, 1 terminal X5 can support high speed pulse input. All terminals have have optional PNP or NPN 2 analog inputs, one of which FIV supports -10 V / +10 V; or a 0-10 V input and the second FIC supports a 0-10V or 0-20mA (4-20 mA) input.
Output terminals	1 Programmable open collector output: provides 1 output terminal (open collector output or high speed pulse output) 2 relay outputs, 2 analog outputs: FOV and FOC with optional 0 – 20 mA (4 – 20 mA) or 0 – 10 V output
PG cards	The drive is equipped with a port for PG cards (for encoder), or PG cards for use with a resolver, etc.

DC braking	Braking frequency: 0.0 Hz to maximum frequency Braking time: 0.0-36.0 s Braking current value: 0.0% -100.0%
Brake unit	Models up to 18.5 kW have a built-in brake unit as standard.
Control in JOG mode (stepping)	JOG frequency range: 0.00-50.00 Hz JOG acceleration / deceleration time: 0.0-6500.0 s
Implem. more preset speeds	Implemented up to 16 speeds using a simple PLC function or a combination of X end states.
PTC	Input for PTC motor or thermal contact protection.
Built-in PID regulator	Facilitates a process-controlled closed-loop control system.
Automatic AVR voltage regulation	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.
Torque and steering limitation	It can automatically limit torque and prevent frequent overcurrent changes during operation.
EMS STOP security feature	Emergency stop system: in an emergency, the drive stops immediately after activating EMS STOP.
Fast current limit	Helps prevent common errors due to AC motor overcurrent
High performance	AC motor control is performed by high-performance vector current control technology.
Time Management	Time range: 0.0-6500.0 minutes
Communication	MODBUS RTU, PROFIBUS-DP (from 5,5 kW)
Boot Command Channel	Depending on the panel, control terminals, the serial communication port can be switched in many ways
Frequency source	10 types of frequencies, given by digital analog voltage analog current, pulse, serial port, X8, PID, can be switched in many ways
Auxiliary frequency source	10 kinds of frequencies, micro adjustment can be easily implemented, frequency synthesizer
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, output phase loss protection, overcurrent protection, overvoltage protection, live protection, overheat protection and overload protection.

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;
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 meters above sea level. (reduce the power level when used above 1000 meters above sea level.)
Ambient temperature	– 10 ° C to 40 ° C (reduce power level if ambient temperature is between 40 ° C to 50 ° C)
Humidity	Less than 95% relative humidity, no condensation IEC 60068-2-3
Vibration	Less than 5.9 m / s2 (0.6 g) IEC 60068-2-6
Storage temperature	- 20 °C to + 60°C

Dimensional drawing V810 - 55kW 4T0550