



Smart solutions.
Strong relationships.

Dynamic drives for small AC motors

Emotron VSU

0.75 kW to 18.5 kW / 1 Hp to 25 Hp

IP20

Designed for higher overloads and 50°C ambient



Authorised Distributors



SC Industrial Syndicate

5/105, Bombay Samachar Marg, Fort, Mumbai 400 023

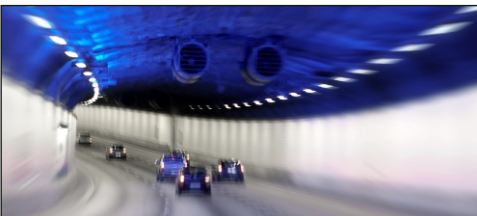
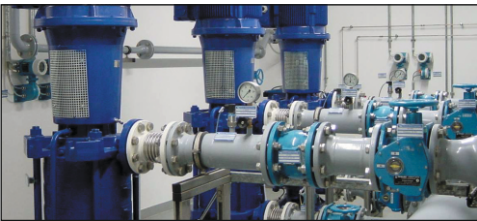
Tel : 022 2266 3444 / 5615 / 5439 / 1840 / 1079 Fax : 2266 0628

Website : www.scindustrial.com Email : sales@scindustrial.com

*We put all our energy
into saving yours!*



Save energy with AC drives Energy savings upto 50%



Small drive - big functionality

Speed control with Emotron VSU drives can give significant energy savings in your application.

Our Expertise

CG Drives & Automation has developed, manufactured and delivered efficient and reliable motor control equipment for 35 years. We offer standard products and complete drive solutions that ensure the safe and cost-efficient operation of demanding industrial applications. We provide smart solutions to users, operators, system integrators and OEMs around the world. Wherever there are demanding applications.

Our drives are reliable and productive with exceptional motor performance as you would expect from Emotron series drives.



Clever and easy to use

Prepared for the real world

The Emotron VSU is a dynamic drive for use in all industrial application where simplicity, reliability and productivity are required.

- Standard rated for 50 degrees C @ 8kHz switching frequency.
- Heavy duty drive for various applications.
- Robust drives with conformal coated boards enable application in hot and humid climate.
- Detachable cooling fan for easy cleaning or replacement.

Simple to commission and use

Emotron VSU is an easy drive – easy to connect, easy to configure and easy to install.

- All connectors are generously sized and clearly labeled.
- The keypad is user-friendly with max LEDs to display status and minimum keys for ease of configuration.

Excellent control performance

- Up to 180% torque @ 0.25Hz (sensorless vector)
- <10 ms torque response
- Speed control range up to 1:200 (sensorless vector)
- Speed control accuracy up to 0.2% (sensorless vector)
- Online autotuning of motor parameters

Special Features

- Built in brake chopper
- Modbus RS485 as default
- Detachable keypad with parameter copy function
- Parameter backup
- Common DC bus
- Free switchover between two motors' parameters
- Flexible parameter displayed
- Various master & auxiliary command and switchover
- Speed search start
- Variety of accel/decel curves optional
- Automatic correction of analog, contracting brake
- 16-step speed control programmable (2-step speed supports flexible frequency command)
- Wobble frequency control
- Fixed length control
- Count function
- Three faults recorded
- Over excitation brake
- Over voltage stall protection
- Under voltage stall protection
- Restart upon power loss
- Skip frequency
- Frequency binding
- Four kinds of accel/decel time
- Motor thermal protection
- Flexible fan control
- Process PID control
- Multi-functional key programmable
- Droop control
- Parameter identification
- Field-weakening control
- High-precision
- Torque restraint
- V/f separated control
- Vector control





Emotron series VSU Ordering Codes

Emotron VSU – 3 phase, 380–480V

Model	Normal duty (120% , 1 min, every 10 min)			Heavy duty O/L (150% , 1 min, every 10 min)			High Overload ability	
	Power	Rated Current	Max out	Power	Rated current	Max output current	Max output (180%, 10s)	Max Current (200%, 0.5s)
	kW	A	A	kW	AMP	A	A	A
VSU48-003-20CNB	1.5	3.8	4.5	0.75	2.5	3.8	4.5	5
VSU48-004-20CNB	2.2	4.8	5.8	1.5	3.8	5.7	6.84	7.6
VSU48-006-20CNB	3.7	8	9.6	2.2	5.5	8.3	9.9	11
VSU48-009-20CNB	5.5	11	13.2	3.7	9	13.5	16.2	18
VSU48-013-20CNB	7.5	16	19.2	5.5	13	19.5	23.4	26
VSU48-017-20CNB	11	21	25.2	7.5	17	25.5	30.6	34
VSU48-024-20CNB	15	30	36.0	11	24	36.0	43.2	48
VSU48-030-20CNB	18.5	36	43.2	15	30	45.0	54	60

Max current	Maximum current for 60 sec, in every 600 Sec
Normal duty	Applications with variable torque like Pump, Fan, Blower
Heavy duty	Applications with constant torque like Crane, Hoists, Lifts, Mills, Crushers, Conveyors, Feeders, Press, Textile, Agitators, Mixers, CNC, Centrifuge, Packaging etc.

Optional Accessories (One slot available for following accessories)

Expansion board	Remark
EPC-CM1	Supports expanded 232 communication. Applicable for standard VSU and VSX.
EPC-CM2	PROFIBUS-DP communication board. Applicable for EMOTRON VSU and VSX.
EPC-IM1	Supports two current/voltage analog inputs. Current input: 0A-1A, Voltage input: 0V-24V (for injection molding machine application)
EPC-VD2	For flying start (speed search) function, and b1-05 should be set to 3. With this card, flying start will be accurate and smooth; While without this card (b1-05=2), flying start may be failed, or not accurate/smooth.
EPC-TM1	Supports one analog input, one digital input, one analog output and one relay output.
EPC-RT1	Supports real-time clock input, one analog input, and one relay output. Applicable for customized EMOTRON VSU and VSX if this function is requested.



Technical Data

POWER INPUT (L1, L2, L3)

Voltage	3-phase AC380V/AC400V/AC415V/AC440V/ AC460V/AC480V
Continuous voltage variation*	±21%. Short variation of -27%
Voltage imbalance	Less than 3%. As per IEC618000-2
Frequency	50/60 Hz. Tolerance + -5%
Power Factor	0.97

POWER OUTPUT (U, V, W)

Voltage	3-phase: 0~ rated input voltage, error <±3%
Output frequency range	0 to 600 Hz
Frequency resolution	0.01 Hz

OVERLOAD CAPACITY

Normal duty	120% 60 Sec / 600 Sec
Heavy duty	150% 60 Sec / 600 Sec
High overload	180% 10 Sec, 200% 0.5 Sec
Starting torque	0.5 Hz: 180% (V/f, vector control 1) 0.25 Hz 180% (vector control 2)

CONTROL CHARACTERISTICS

Acceleration time setting	0 to 6000 seconds
Deceleration time setting	0 to 6000 seconds
Switching frequency	0.7 kHz~16 kHz
Control method	V/f control Sensor-less vector control 1 Sensor-less vector control 2
Range of speed regulation	1: 100 (V/f, vector control 1) 1: 200 (vector control 2)
Speed accuracy	±0.5% (V/f control) ±0.2% (vector control 1 & 2)

BASIC FUNCTIONS

Frequency setting sources	Digital setting + keypad Digital setting + terminal UP/DOWN Communication Analog setting (AI1/AI2/EAI)
Motor started methods	Started from starting frequency Terminal Pulse Setting DC braking and then started Speed search started
Motor stopped methods	Ramp to stop, Coast to stop, Ramp stop + DC brake
Dynamic braking unit	Inbuilt
DC braking capacity	DC braking start frequency: 0.00~600.00 Hz DC braking current: 0.0~100.0% DC braking time: 0.0~30.00s

* at 440 V

DIGITAL INPUTS (6 Nos)

Programmable DI	5
Logic	PNP or NPN
Voltage	24 VDC. Range: 10 V~30 V, 0-200 Hz
Digital / Pulse Inputs	1
Voltage	10 V - 30 V
Frequency	0.1 Hz~50 kHz

DIGITAL OUTPUTS (3 Nos)

Open collector DO	1
Voltage Range	0-24 V
Current Range	0 - 50 mA
Open collector DO or Pulse o/p	1
Frequency	0 - 50 Hz
Relay Outputs	1
Contact capacity	250 VAC/ 3A, 30 VDC/ 3A

ANALOGUE INPUTS (2 Nos)

Voltage or Current AI	1
Current Range	0~20 mA: input impedance - 500 Ω
Max current	25 mA
Voltage Range	0~10 V: input impedance - 100 Ω
Max voltage	12.5 V
Only voltage AI	1
Voltage Range	-10~10 V: input impedance - 25 Ω
Max Voltage	Range; -12.5 V ~+12.5 V

ANALOGUE OUTPUT (1 No)

Voltage or Current AO	1
Current Range	0~20 mA: input impedance - 200Ω-500Ω
Voltage Range	0~10 V: impedance ≥ 10kΩ

ENVIRONMENT

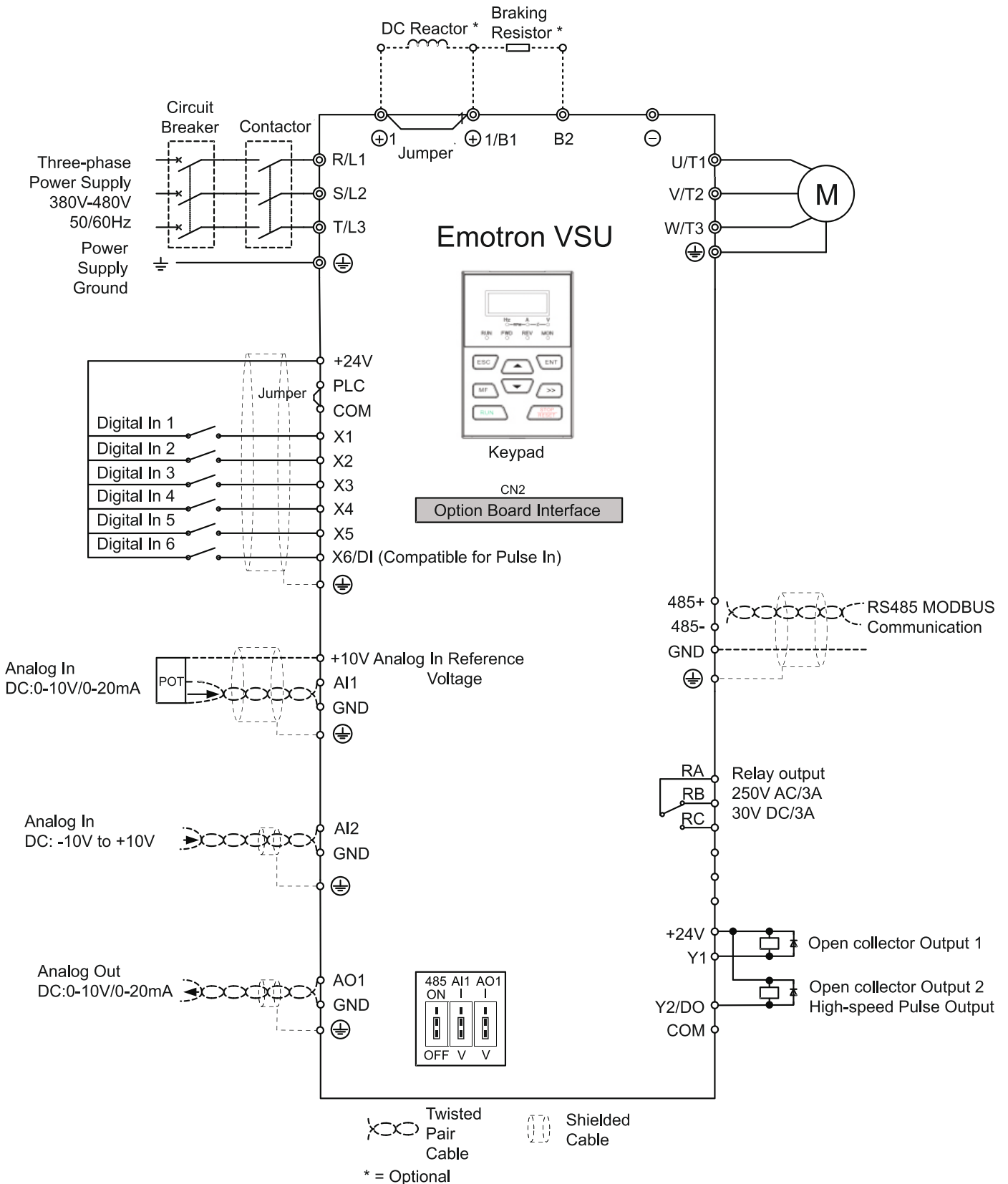
Enclosure	IP20
Ambient temperature	-10°C ~50°C
Relative humidity	0-95%, no condensation
Vibration	Less than 5.9 m/s2 (0.6g)
Storage temperature	-40°C ~+70°C
Altitude	0~2000 m. Deration above 1000 m

COMMUNICATION INTERFACE

Default Interface	Modbus 485
485 differential signal	4800/ 9600/ 19200/ 38400/ 57600/ 115200 bps
Max Distance	500 mts. Std network cable
Optional interface	Profibus-DP

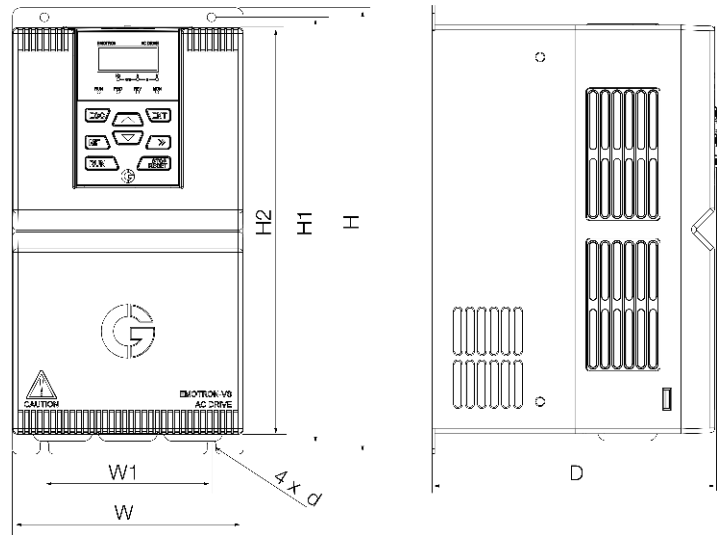
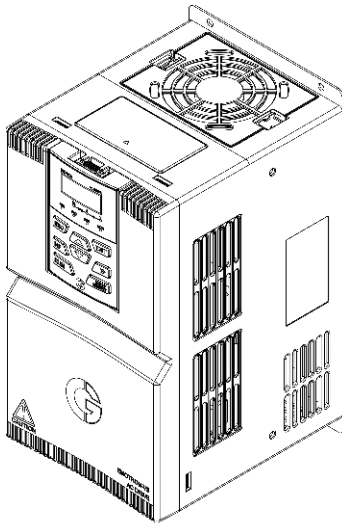


Terminal and wiring details





Dimensional details



Model	External and Installation dimensions (mm)							Weight Kg
	W	H	D	W1	H1	H2	d	
VSU48-003-20CNB	93	190	152	70	180	170	4.5	1.8
VSU48-004-20CNB	120	245	169	80	233	220	5.5	2.6
VSU48-006-20CNB	120	245	169	80	233	220	5.5	2.6
VSU48-009-20CNB	120	245	169	80	233	220	5.5	2.6
VSU48-013-20CNB	145	280	179	105	268	255	5.5	3.9
VSU48-017-20CNB	145	280	179	105	268	255	5.5	3.9
VSU48-024-20CNB	190	365	187	120	353	335	6	5
VSU48-030-20CNB	190	365	187	120	353	335	6	5

