



## VariFlex Drives

- Simple Programming
- Compact Size
- Powerful Performance
- 1/3 to 5 Hp (0.25 to 4kW)



Switch



# VariFlex

## AC Drives made easy ...



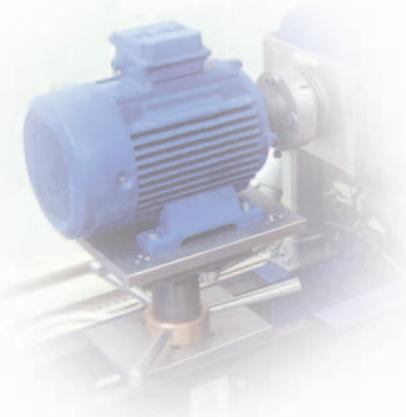
### Bon voyage!

When the journey has been well planned, you just need to fasten your seatbelt, sit back and enjoy the drive.



### Versatile Controller ...

VariFlex provides a powerful solution for most motor applications



### Every detail is aimed to speed up your start

- Simple to set up – all the parameters you need (for 90% of typical applications) are on the front. Who else makes it this easy?
- Easy installation – choose between simple panel mounting or DIN-rail mounting (up to 2 Hp / 1.5 kW)
- Simple connections – easy access terminals with clear markings
- Easy start up – simple push button set up – no need for complex programming
- Gets your machine running quickly and reliably with the minimal fuss



# Simplicity of set up - in minutes!



**VariFlex**

01 Minimum speed (Hz) 06 Motor rated A  
 02 Maximum speed (Hz) 07 Motor rated rpm  
 03 Accel rate (s/100Hz) 08 Motor rated V  
 04 Decel rate (s/100Hz) 09 Motor rated cos φ  
 05 Drive configuration 10 Parameter access

**CARLO GAVAZZI**

STORED CHARGE  
 Power down unit  
 10 mins before  
 removing cover

**Setup Sequence:**

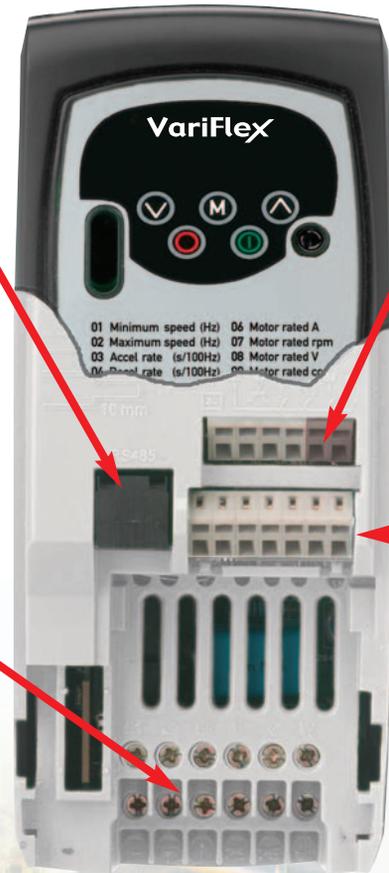
- Status Display: **r-d** 00 Press **M**
- Parameter Display: **01** 00 Press **▲**
- Parameter 02: **02** 500 Press **M**
- Existing Max Speed (50.0 Hz): **02** 500 Press **▼**
- New Max Speed (45.0 Hz): **02** 450 Press **M** Twice
- Return to Status Display: **r-d** 00 END

**Run** (Green button)    **Stop** (Red button)



## Quick to connect...

**Modbus RTU (RS485) Serial Communications**



**AC Supply:** L1, L2, L3/N, U, V, W

**DC Supply:** DC -, DC +, Brake Resistor, PE, PE, Ground

**Terminal Block T1-T6:**

- T1: 0V
- T2: Remote speed reference input (0-20mA)
- T3: +10V output
- T4: Local speed reference input (10k (2k min))
- T5: Status Relay
- T6: Fault/OK

**Terminal Block B1-B7:**

- B1: Analog output (motor speed) (0-10V)
- B2: +24V output
- B3: Digital output (zero speed)
- B4: Enable/Reset (Not Stop)\*
- B5: Run Forward (Run)\*
- B6: Run Reverse (Jog)\*
- B7: Local/Remote speed reference select

\*USA defaults Pr29 = USA

## Options for all applications

	Order Code	Description	
Remote Keypad	VF-Keypad Remote	Remote panel mounting LED display to IP54 (NEMA 12) with additional function key	
	SM-Keypad Plus	Remote panel mounting LCD multilingual text keypad display to IP54 (NEMA 12) with additional help key. A PC software tool enables you to set up your own text lines	
Parameter Storage	SmartStick	Upload drive parameters to the SmartStick for storage or for easy setup of identical drives or downloading to replacement drives	
Fieldbuses	SM-PROFIBUS DP		
	SM-DeviceNet		
	SM-CANopen		
	SM-INTERBUS		
	SM-Ethernet	Ethernet TCP/IP	
Extra I/O	SM-I/O Lite	Additional I/O (1 x AI ( $\pm 10V$ bi-polar or 4-20mA), 1 x AO (0-10V or 4-20 mA), 3 x DI and 1 x Relay) as well as a speed reference input to connect a standard incremental encoder for accurate speed holding	
	SM-I/O Timer	As per SM-I/O Lite but with the addition of a Real Time Clock for scheduling drive running	
	SM-PELV	Isolated I/O to NAMUR NE37 specifications for chemical industry applications	
Software	CGSoft	Software for your PC or Laptop which allows you to commission and store parameter settings. Use with Comms Cable	
	Comms Cable	Cable with isolation RS232 to RS485 converter. For connecting PC/Laptop to the drive when using CGSoft or SyPTLite	
PLC Functions	SyPTLite	Software for your PC or Laptop which allows you to program PLC functions within the drive. Use LogicStick with Comms Cable	
	LogicStick	The LogicStick plugs into the front of the drive and enables you to program PLC functions within the drive	
Power Hardware	Additional EMC Filters	These additional filters are designed to operate together with the drive's own integral EMC filter in areas of sensitive equipment	
	Braking Resistors	For heavy or repetitive braking or deceleration duties	
	Gland Cover Size A, B or C	Bottom metal gland plate cover for installations using conduit entry	
	Top Cover Size A, B or C	Top cover for NEMA 1 installations	

# Easy but Powerful Drives

Choice of fieldbus modules enables factory wide integration, especially with Ethernet TCP/IP.



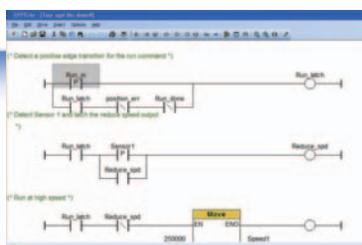
SmartStick is a custom memory stick that makes multiple drive programming fast, and 100% reliable. Perfect for storing correct factory settings for maintenance records.



Simple additional metal gland plate cover for connecting conduit - UL/NEMA Compliance.



Replace nano and micro PLCs by using the LogicStick and SyPTLite giving ladder and function block programming for timers, counters, latches, etc. – to get the most from SmartDrive's intelligence option.



**NAMUR**

Chemical industry conformance gives security in demanding application environments

Recipe changes, program changes and manipulation tasks can be done easily via LogicStick, saving money on extra hardware.



SM-I/O Timer allows real time clock applications for switching on and scheduling operations.



'Click-in' integration and keypad set up to almost any fieldbus network and automation architecture – with the widest selection of fieldbus options



## Control

- Open loop vector control
- Speed or torque control
- Speed reference input: 0-10 V, 0-20 mA, 4-20 mA, (-10 to +10 V SM-I/O Lite option)
- 4 digital inputs
  - World (enable, run forward, run reverse, local/remote)
  - USA (not stop, run, jog, local/remote)
- Switching frequency: 3 (default) – 6 – 12 – 18 kHz
- Output frequency 0 to 1500 Hz
- Accel and Decel ramps (linear and S type)
- Positive logic control
- Serial communication
  - Modbus RTU RS485 via R J45 connector
  - Baud rate 4800, 9600, 19200 or 38400 bits per second
- DC injection braking as standard
- Dynamic braking transistor as standard
- Dynamic motor flux V/Hz for energy savings
- Quadratic motor flux V/Hz for fan and pump optimization

## Protection

- Undervoltage, Supply and DC Link Overvoltage, Phase Loss, Drive Overload, Instantaneous Overcurrent, Short Circuit, Ground Fault, Drive Thermal, Watchdog & Motor Thermal Protection.

## Dimensions

Drive size	W		H		D	
	mm	in	mm	in	mm	in
A	75	2.95"	140	5.5"	145	5.71"
B	85	3.35"	190	7.48"	156	6.14"
C	100	3.93"	240	9.45"	173	6.81"

## Ratings

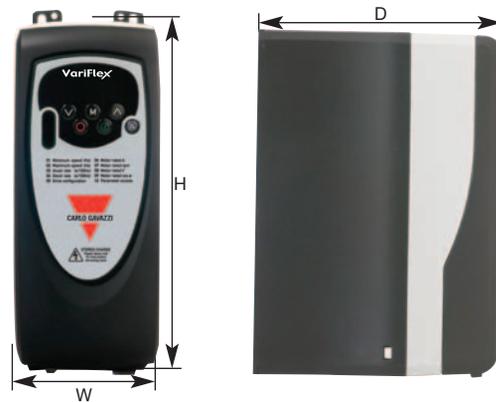
Part Number	Size	Motor Power		Supply voltage and frequency	100% continuous output current (A)	150% overload current for 60s (A)
		Hp	kW			
RVFA120025	A	0.33	0.25	1 phase 200–240VAC ±10% 48 – 62Hz	1.7	2.6
RVFA120037	A	0.5	0.37		2.2	3.3
RVFA120055	A	0.75	0.55		3.0	4.5
RVFA120075	A	1.0	0.75		4.0	6.0
RVFBD20110	B	1.5	1.1	1 or 3 phase 200–240VAC ±10% 48 – 62Hz	5.2	7.8
RVFBD20150	B	2.0	1.5		7.0	10.5
RVFCD20220	C	3.0	2.2		9.6	14.4
RVFB340037	B	0.5	0.37	3 phase 380 – 480VAC ±10% 48 – 62Hz	1.3	2.0
RVFB340055	B	0.75	0.55		1.7	2.6
RVFB340075	B	1.0	0.75		2.1	3.2
RVFB340110	B	1.5	1.1		2.8	4.2
RVFB340150	B	2.0	1.5		3.8	5.7
RVFC340220	C	3.0	2.2		5.1	7.7
RVFC340300	C	3.0	3.0		7.2	10.8
RVFC340400	C	5.0	4.0		9.0	13.5

## General Characteristics

- Maximum overload 150% of rated current for 60s
- Intelligent Thermal Management (ITM) optimizes switching frequency
- 8 preset speeds
- Flying start
- Mains dip ride through
- Automatic no-spin autotune for fast performance optimization
- Keypad access to all parameters for more demanding set-ups

## Environment

- IP20
- NEMA 1 rating with optional cover
- Ambient temperature -10 to +40°C @ 3 kHz switching
- Humidity 95% maximum (non-condensing)
- Electromagnetic Immunity complies with EN61800-3 and EN61000-6-3 and 4
- Electromagnetic Emissions complies with EN61800-3 (second environment) as standard. Complies with EN61000-6-3 (residential) and EN61000-6-4 (industrial) generic standards with optional footprint EMC filter



# Drive control the way you need it ...

1/3 to 5 Hp (0.25 to 4kW)



**Panel or DIN Rail Mounting**

(DIN Rail mounting on the two smaller housings for up to 2 Hp / 1.5 kW)

**Motor status readout**

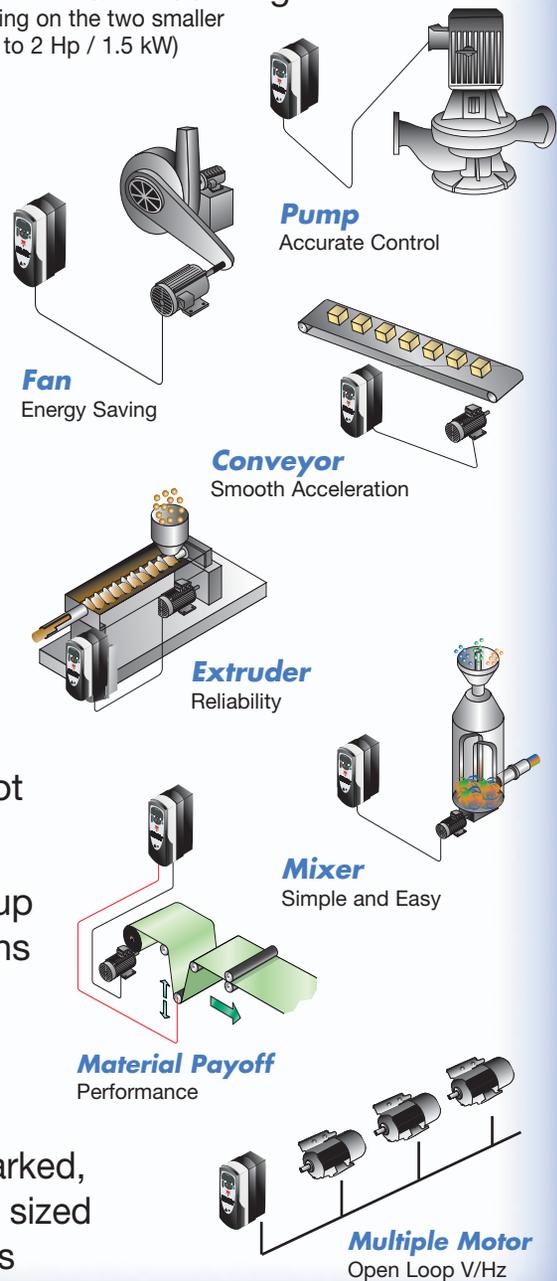
**Stop/Go/Change**

**Preset program upload slot**

**Easy set up instructions**

**Clearly marked, practically sized connectors**

**Serial communications**



**...for easy, powerful and cost effective motor control**

# The Complete Product Package



**Sense**  
 Inductive Proximity Sensors  
 Tripleshield™ Capacitive Sensors  
 Photoelectric Sensors  
 Ultrasonic Sensors  
 Level Sensors  
 Limit Switches  
 Magnetic Switches



**Switch**  
 Solid State Relays  
 Contactors and Overloads  
 Manual Motor Starters  
 Motor Controllers  
 VariFlex Drives  
 Electromechanical Relays  
 Pilot Devices  
 Cam Switches  
 Rotary Disconnects



**Control**  
 Energy Management  
 Digital Panel Meters  
 PID Controllers  
 Switching Power Supplies  
 Time Delay Relays  
 Current Monitoring Relays  
 Voltage Monitoring Relays  
 Three Phase Monitoring Relays  
 Signal Conditioners  
 Current Transformers  
 Enclosures



**Safety**  
 Safety Light Curtains  
 Safety Control Modules  
 Safety Interlock Switches  
 Safety Mat Systems  
 Safety Magnetic Sensors



**Dupline**  
 Dupline Field & Installation Bus  
 Building Automation Systems  
 Elevator Systems

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