

**CARLO GAVAZZI**  
Automation Components

**CARLO GAVAZZI**

# 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 ...

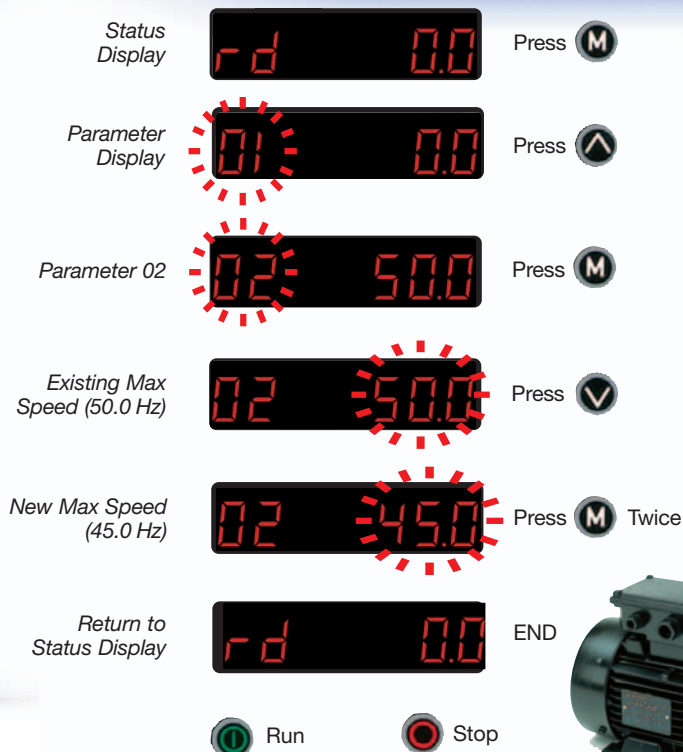
*VariFlex* provides a powerful solution for most motor applications

### 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

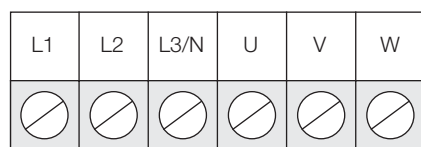


# Simplicity of set up – in minutes!

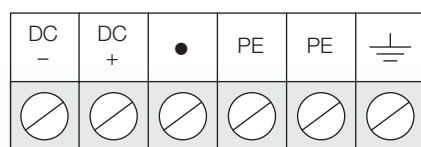
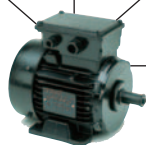


## Quick to connect...

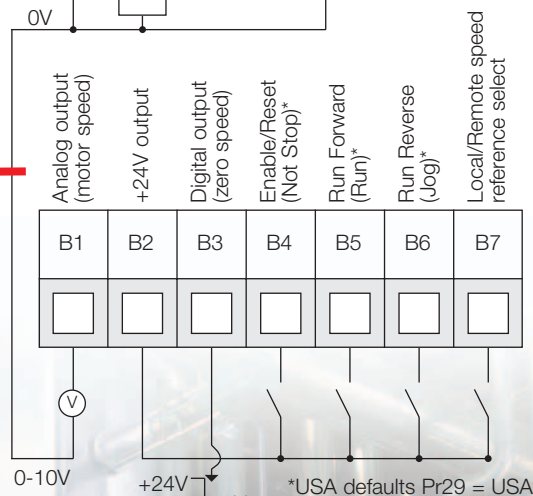
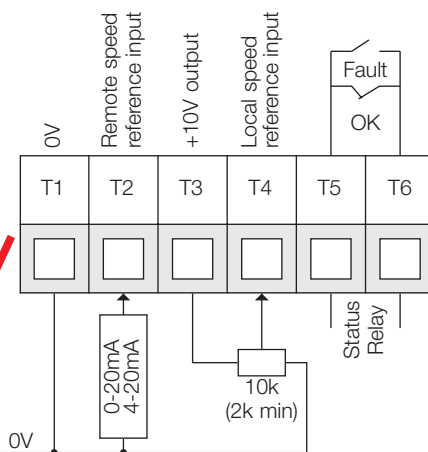
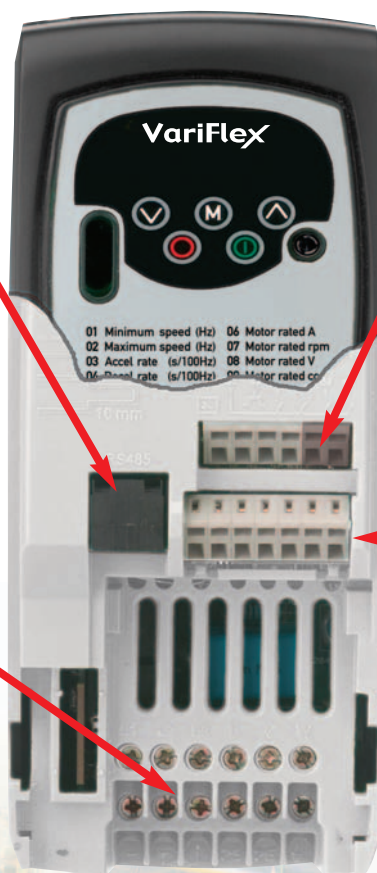
Modbus RTU (RS485)  
Serial Communications



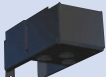
AC Supply



- DC + Brake Resistor



## 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.



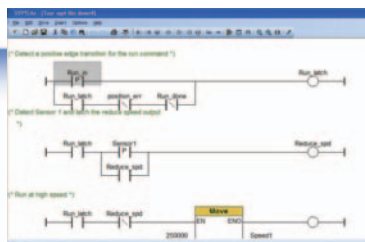
SmartStick is a custom memory stick that makes multiple drive programming fast, and 100% reliable. Perfect for storing correct factory settings for maintenance records.



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<br>Hp | Motor Power<br>kW | Supply voltage<br>and frequency              | 100% continuous<br>output current (A) | 150% overload<br>current for 60s (A) |
|-------------|------|-------------------|-------------------|----------------------------------------------|---------------------------------------|--------------------------------------|
| RVFA120025  | A    | 0.33              | 0.25              | 1 phase<br>200–240VAC ±10%<br>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<br>200–240VAC ±10%<br>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                                 |
| Part Number | Size | Motor Power<br>Hp | Motor Power<br>kW | Supply voltage<br>and frequency              | 100% continuous<br>output current (A) | 150% overload<br>current for 60s (A) |
| RVFB340037  | B    | 0.5               | 0.37              | 3 phase<br>380 – 480VAC ±10%<br>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                                 |

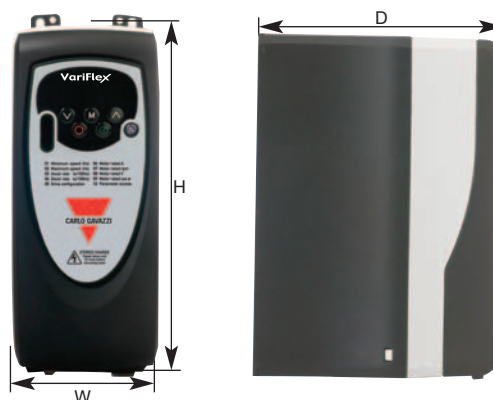
NOTE: Size A & B can be DIN rail mounted or panel mounted. Size C can only be panel mounted

## 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**

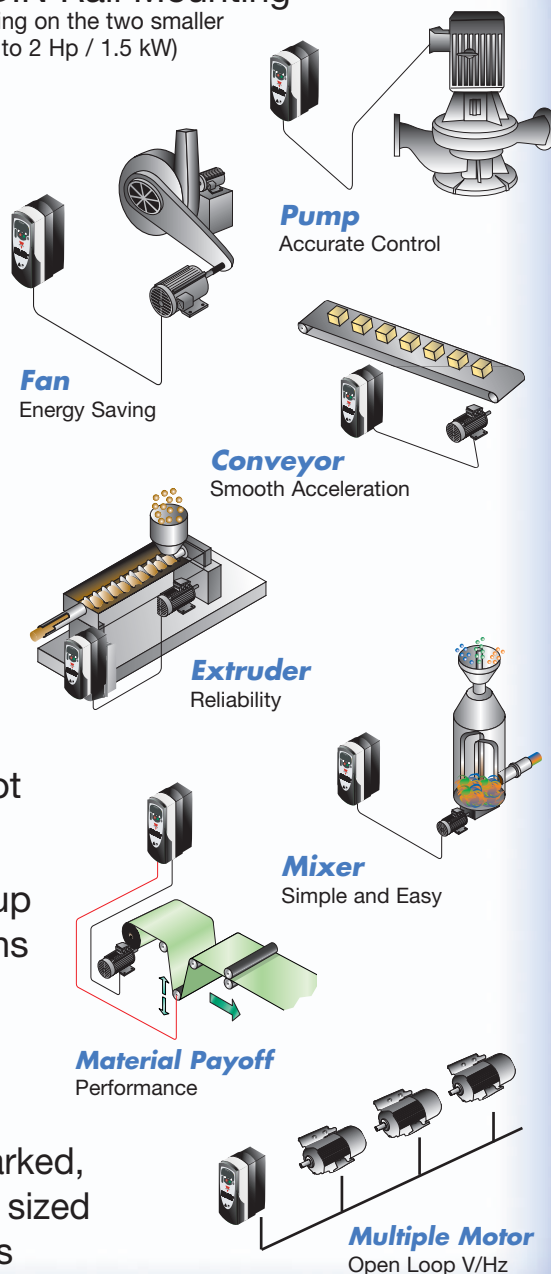
**Stop/Go/Change**

**Preset program upload slot**

**Easy set up instructions**

**Clearly marked, practically sized connectors**

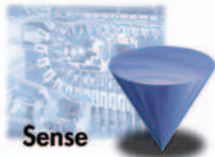
**Serial communications**



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



# The Complete Product Package



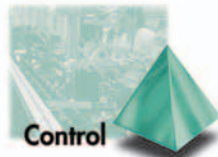
## Sense

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

## A Global Force in Industrial Automation

CARLO GAVAZZI has a multitude of sales offices spanning North America (*not to mention our hundreds of distributors*). Therefore, we can be viewed as "your local automation resource" - assisting you every step of the way in finding the proper solution for your various application requirements. Naturally, our job is greatly simplified as we have such a vast range of solutions to offer you via our comprehensive *product package*.

Our worldwide sales offices make us an ideal business partner, *especially for manufacturers of exported machinery*, as our products are available locally and they are CE marked.

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