LEROY SOMER®

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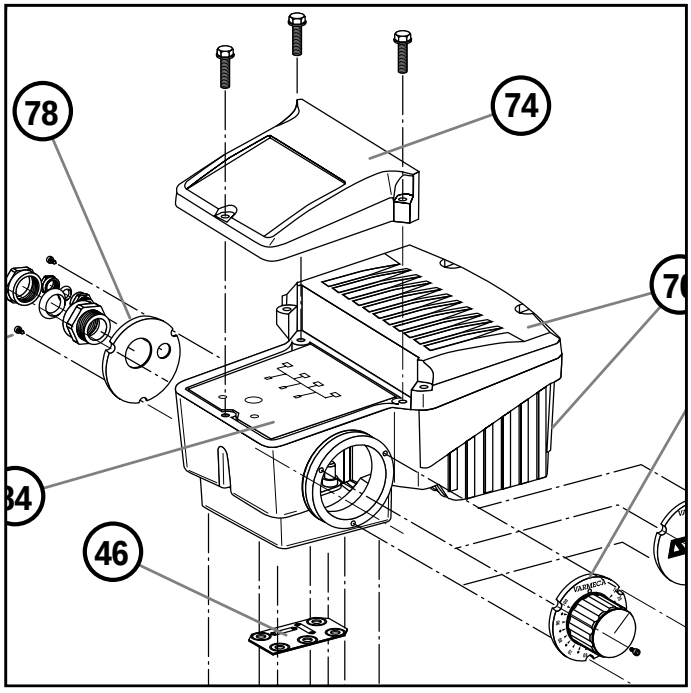
This manual is to be given to the end user



VARMECA - 10

Variable speed motor or geared motor

installation and maintenance

VARMECA - 10
Variable speed motor or geared motor

NOTE

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CAUTION

For the user's own safety, this VARMECA - 10 motor must be connected to an approved earth (⏚ terminal).

It is imperative that the equipment is supplied via an isolating device and a circuit-breaking device (power contactor) which can be controlled by an external safety system (emergency stop, fault detector).

The VARMECA - 10 motor is fitted with safety devices which, in the event of a fault, control stopping and thus stop the motor. The motor itself can become jammed for mechanical reasons. Voltage fluctuations, and in particular power cuts, may also cause the motor to stop.
The removal of the causes of the shutdown can lead to restarting, which may be dangerous for certain machines or installations. In such cases, it is essential that the user takes appropriate precautions against the motor restarting after an unscheduled stop.

VARMECA - 10 is a component designed to be integrated in an installation or an electrical machine. It is the responsibility of the user to take all necessary precautions to ensure that the system complies with current standards.

For safety reasons, LEROY-SOMER prohibits the use of VARMECA - 10 for lifting applications.
LEROY-SOMER declines all responsibility in the event of the above recommendations not being observed.

VARMECA - 10
Variable speed motor or geared motor

SAFETY AND OPERATING INSTRUCTIONS FOR ELECTRICAL ACTUATORS (In accordance with the low voltage directive 73/23/EEC modified by 93/68/EEC)

⚠ • Throughout the manual, this symbol warns of consequences which may arise from inappropriate use of the VARMECA - 10, since electrical risks may lead to material or physical damage as well as constituting a fire hazard.

1 - General
Depending on their degree of protection, VARMECA - 10 motors may contain moving parts, as well as hot surfaces, during operation.
Unjustified removal of protections, incorrect use, faulty installation or inappropriate operation could represent a serious risk to personnel, animals and equipment.
For further information, consult the manual.
All work relating to transportation, installation, commissioning and maintenance must be performed by experienced, qualified personnel (see IEC 364 or CENELEC HD 384, or DIN VDE 0100 and national specifications for installation and accident prevention).
In these basic safety instructions, qualified personnel means persons competent to install, mount, commission and operate the product and possessing the relevant qualifications.

2 - Use
VARMECA - 10 motors are components designed for integration in installations or electrical machines.
When integrated in a machine, commissioning must not take place until it has been verified that the machine conforms with directive 89/392/EEC (Machinery Directive).
It is also necessary to comply with standard EN 60204, which stipulates in particular that electrical actuators (which include VARMECA - 10) cannot be regarded as circuit-breaking devices and certainly not as isolating switches.
Commissioning can take place only if the requirements of the Electromagnetic Compatibility Directive (89/336/EEC, modified by 92/31/EEC) are met.
VARMECA - 10 motors meet the requirements of the Low Voltage Directive 73/23/EEC, modified by 93/68/EEC. The harmonised standards of the DIN VDE 0160 series in connection with standard VDE 0660, part 500 and EN 60146/ VDE 0558 are also applicable.
The technical characteristics and instructions concerning the connection conditions specified on the nameplate and in the documentation provided must be observed without fail.

3 - Transportation, storage
All instructions concerning transportation, storage and correct handling must be observed.
The climatic conditions specified in the technical manual must be observed.

4 - Installation
The installation and cooling of equipment must comply with the specifications in the manual supplied with the product.
VARMECA - 10 motors must be protected against excessive stress. In particular, there must be no damage to parts and/or modification of the clearance between components during transportation and handling. Avoid touching the electronic components and contact parts.
VARMECA - 10 motors contain parts which are sensitive to electrostatic stress and may be easily damaged if handled incorrectly. Electrical components must not be exposed to mechanical damage or destruction (risks to health !).

5 - Electrical connection
When work is performed on VARMECA - 10 motors which are powered up, national accident prevention specifications must be respected.
The electrical installation must comply with the relevant specifications (for example conductor cross-sections, protection via fused circuit-breaker, connection of protective conductor). More detailed information is given in the manual.
Instructions for an installation which meets the requirements for electromagnetic compatibility, such as screening, earthing, presence of filters and correct insertion of cables and conductors, are given in the documentation supplied with the VARMECA - 10. These instructions must be followed in all cases, even if the VARMECA - 10 carries the CE mark.
Adherence to the limits given in the EMC legislation is the responsibility of the manufacturer of the installation or the machine.

6 - Operation
Installations incorporating VARMECA - 10 motors must be fitted with additional protection and monitoring devices as laid down in the current relevant safety regulations : law on technical equipment, accident prevention regulations, etc. Modification of VARMECA - 10 motors using control software are permitted.
Active parts of the device and live power connections must not be touched immediately after the VARMECA - 10 is powered down, as the capacitors may still be charged. In view of this, the warnings fixed to VARMECA - 10 motors must be observed.
During operation, all doors and protective devices must remain closed.

7 - Service and maintenance
Refer to the manufacturer's documentation.

VARMECA - 10

Variable speed motor or geared motor

CONTENTS

1 - GENERAL INFORMATION

1.1 - General operating principle

The VARMECA - 10 is the physical association of a 3-phase asynchronous motor and an integrated speed controller.
The motor allows all kinds of mounting arrangements (foot or flange) and can be combined with standard gearboxes from the LEROY-SOMER range.
In the standard version, the integrated speed controller does not require any connection other than the power supply.
The options may be used to broaden the application range of the VARMECA - 10.
Thanks to the advanced technology of the IGBT power module, very high efficiency and reduced noise levels are possible.

1.2 - Product name

VARMECA - 10 rating	
Rating	**Power (kW)**
VMA 11 -25	0.25
VMA 11 -37	0.37
VMA 11 -55	0.55
VMA 11 -75	0.75
VMA 11 -90	0.9
VMA 11 -110	1.1
VMA 12 - 150	1.5
VMA 12 -180	1.8
VMA 12 -220	2.2
VMA 13 -300	3
VMA 13 -400	4
VMA 14 -550	5.5
VMA 14 -750	7.5

Cable gland position	
Code	**Position**
BD	Button on left side Cable gland : right side
BG	Button on right side Cable gland : left side

Option	
Code	**Option**
SD	Without button Cable gland : right side
SG	Without button Cable gland : left side
CMA	Integrated Run/Stop control
CMAVAR	Integrated Forward/ Reverse/Stop control
FLT VMA	Integrated EMC filter
Brake	Electromechanical failsafe brake
CVI - VMA	Integrated speed control

Example

VMA 12 - 150	BD	FLT VMA

1.3 - Specifications

1.3.1 - Electrical data

Power supply	3-phase supply 400V -10 % to 440V +10 %, 50 - 60 Hz ± 5 %
Output voltage	From 0V to input voltage
Power range	0.25 - 0.55 - 0.75 - 0.9 - 1.1 - 1.5 - 1.8 - 2.2 - 3 - 4 - 5.5 - 7.5 kW
Maximum number of power-ups per hour	10

1.3.2 - Specifications and functions

SPECIFICATIONS	VARMECA - 10
Overload	150 % of In for 40s, 10 times per hour
Motor frequency variation range	- from 12 to 80Hz at constant torque * - from 12 to 50 Hz for general applications * - from 6 to 220 Hz - range adjustable using parameter-setting option ** (see VARMECA - 10 manual - parameter-setting)
Efficiency	97.5 % x motor efficiency

CONTROL	VARMECA - 10
Speed reference	- Analogue reference (0V or 4mA = minimum speed) (10V or 20mA = maximum speed) - 0 - 10V with integrated potentiometer - 0 - 10V with remote potentiometer option * - 0 - 10V with external reference * - 4 - 20mA with external reference * - reference with internal potentiometer (CVI - VMA option) - limitation of maximum speed with internal potentiometer (CVI - VMA option) • Digital reference - 1 to 3 preset speeds (accessible with the parameter-setting option **)
Speed regulation	Regulation of a reference with the integrated PI loop (accessible with the parameter-setting option **) Specifications of the PI sensor : 0 - 10V signal
Run/Stop	• With 3-phase power supply (10 times per hour max) • With remote volt-free contact • With integrated Run/Stop control (CMA option)
Forward/Reverse	• With internal connection on the terminal block • With remote volt-free contact • With integrated Forward/Reverse/Stop control (CMA VAR option)
Stop mode	• On ramp (with volt-free contact or integrated Run/Stop control) • Freewheel stop (by cutting the 3-phase power supply) • Freewheel stop (with volt-free contact or integrated Run/Stop control) (accessible with parameter-setting option **) • On electromechanical brake (integrated control)
Ramps	• Selection of acceleration and deceleration ramps with volt-free contact : 2s or 5s (factory setting 5s for F max 80 Hz) • Ramps adjustable from 0 to 20s (accessible with the parameter-setting option **)

INDICATIONS	VARMECA - 10
Display	Indicator lamp • Permanent green light : mains connected • Flashing green light : current limit • Permanent or flashing orange light : overload • Flashing red light : fault, under- or overvoltage • Permanent red light : other fault
Relay	• Speed controller fault volt-free contact - 1A - 250V - contact open, speed controller faulty or powered down
Analogue output	• Speed image 0 - 10V, 3mA • 0V = zero speed • 10V = maximum speed

* Adjust using mini DIP switch (see section 2.3)
** See VARMECA - 10 manual - Parameter-setting.

VARMECA - 10
Variable speed motor or geared motor
GENERAL INFORMATION

Specifications and functions (continued)

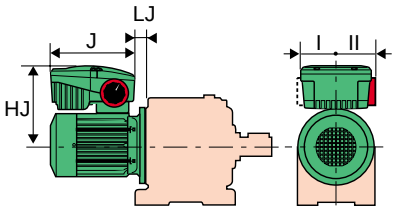
PROTECTIONS	VARMECA - 10
Power	• Undervoltage • Overvoltage • Overloads : - overheating, speed controller and motor - protection against locked rotor • Short-circuit - motor windings - phase-earth
Control	• Short-circuit on 0 - 10V inputs or outputs
Trip clearance	• By powering down the VARMECA

OPTIONS	VARMECA - 10
Run/Stop control	• Integrated in the cover
Forward/Reverse/Stop control	• Integrated in the cover
Without control button	• For remote control. Indicator lamp on the VARMECA
EMC filter	• Integrated in the cover
Integrated speed adjustment	• Mounted instead of the mains supply connection plate
Electromechanical brake	• Integrated, the control and power supply do not require any connection
Parameter-setting console	• Provides access to the VARMECA programming (see VMA - 10 manual - Parameter-setting)
Parameter-setting software	

1.4 - Environmental specifications

Specifications	Level
Protection index	IP 55
Storage temperature	-40°C to +70°C (IEC 68.2.3)
Transport temperature	-40°C to +70°C
Operating temperature	-20°C to +40°C (+50°C with derating)
Altitude	≤ 1000m without derating
Ambient humidity	Without condensation
Vibrations	IEC 68-2-34 (acceleration 0.01 g^2/Hz)
Shocks	IEC 68-2-27 (peak acceleration 50g)
Immunity	Conforming to EN 50082-2
Conducted and radiated emissions (with integrated filter option)	Conforming to EN 50081-2, and EN 55011 class A

1.5 - Weight and dimensions



Type	Dimensions in mm							Weight of VARMECA (kg)
	HJ	J	I	II	LJ			
					B3/B14	B5	B5 with	
LS 71 L	195	225	82.5	92.5	8	8	34	4.2
LS 80 L	205	225	82.5	92.5	12	12	39	4.2
LS 90 S and L	215	225	82.5	92.5	12	32	32	4.2
LS 100 L	220	225	82.5	92.5	12	12	33	4.2
LS 112 M	220	225	82.5	92.5	12	12	33	4.2
LS 112 MG	229	225	82.5	92.5	20	20	16.5	4.2
LS 132 S	264	324	112	112	38	38	68	6.1
LS 132 M	264	324	112	112	16	16	68	6.1

2 - INSTALLATION

⚠ • It is the responsibility of the owner or user to ensure that the installation, operation and maintenance of the inverter and its options comply with legislation relating to the safety of personnel, animals and equipment, and with the current regulations of the country of use.

• Before carrying out any work, disconnect and lock the speed controller power supply and wait 2 minutes to make sure that the capacitors have discharged.

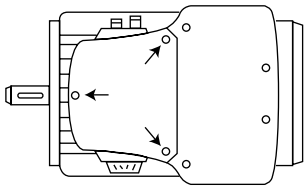
• After connection, ensure that the seals are firmly in place, and that the screws and cable glands are watertight to ensure IP 55 protection. Clear any condensation from the drain holes.

2.1 - General

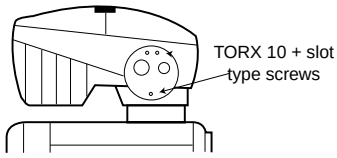
The VARMECA - 10 is fitted to the machine like a standard motor, with flange or foot mounting.
The motor ventilation cools the whole assembly. Make sure that the ventilation air inlet is free of obstruction.
The positions of the potentiometer/cable gland supports are specified at the time of ordering. However they may be reversed if necessary.

2.2 - Reversing the supports

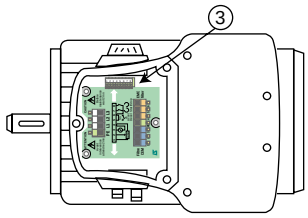
1) Undo the 3 TORX 20 + slot type screws and remove the cover.



2) Remove the control button and cable gland support fastening screws (TORX 10 + slot type screws).

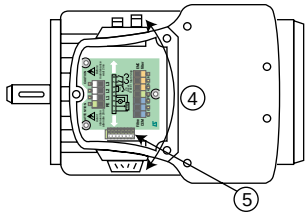


3) Disconnect the printed circuit layer holding the control button potentiometer.



4) Reverse the control button and cable gland supports.

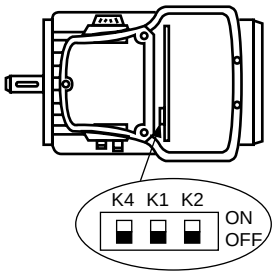
5) Reconnect the printed circuit layer holding the control button potentiometer and replace the fastening screws.



6) Replace the cover.

2.3 - Adjusting the MINI DIP switches

Used to select the reference, F max., and speed control
1) 0.25 to 2.2 kW ratings
Remove the rear cover to access the Mini Dip switches
2) 3 and 4 kW ratings (Non-removable rear cover)
The Mini Dip switches can be accessed via the connection space, through a special opening in the rear cover, which is protected by a plastic plug. When replacing the plastic plug, ensure that it is in perfect condition, as it must make a watertight seal.
3) 5.5 and 7.5 kW ratings
Remove the rear cover to access the Mini dip switches.



	K4	K1	K2
- Speed adjustment via local control button	OFF	-	-
- Speed adjustment via remote potentiometer	ON	ON	-
- Speed reference via external reference 0-10V	ON	ON	-
- Speed reference via external reference 4-20mA	ON	OFF	-
- Max frequency 50 Hz	-	-	OFF
- Max frequency 80 Hz	-	-	ON

CAUTION :
These operations should only be performed in exceptional circumstances and must be carried out by experienced and qualified personnel.

VARMECA - 10
Variable speed motor or geared motor
CONNECTIONS

3 - CONNECTIONS

• The voltages on the power terminal blocks and the cables connected to them may cause fatal electric shocks. The stop function of the controller does not protect against these high voltages.

• The controller contains capacitors which remain charged at a fatal voltage even after the power supply has been cut off.

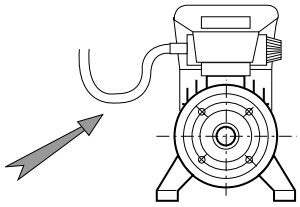
• After the controller power supply has been cut off, wait for 2 minutes (so that the internal circuits discharge the capacitors) before removing the protective covers.

• The speed controller power supply must be protected against overloads and short-circuits.

• It is vital to respect the rating of protections.

3.1 - Wiring precautions

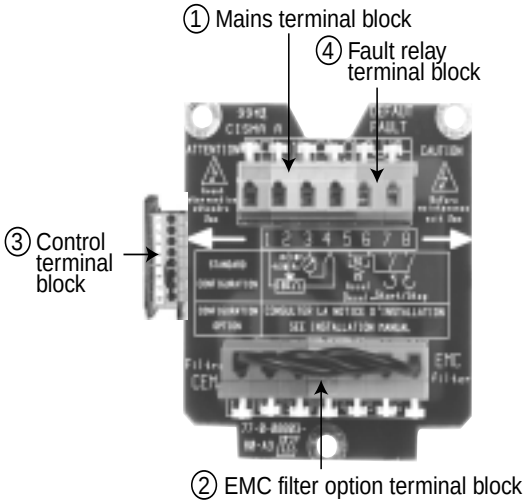
- When the VARMECA - 10 is controlled remotely, avoid parallel routing of power cables and control cables.
- All remote control cables must be shielded and have a cross-section between 0.22 mm² and 1 mm².
- Incorporate a bend where the cables enter the cable glands so that water cannot penetrate the terminal box.
- Tighten the cable glands firmly.



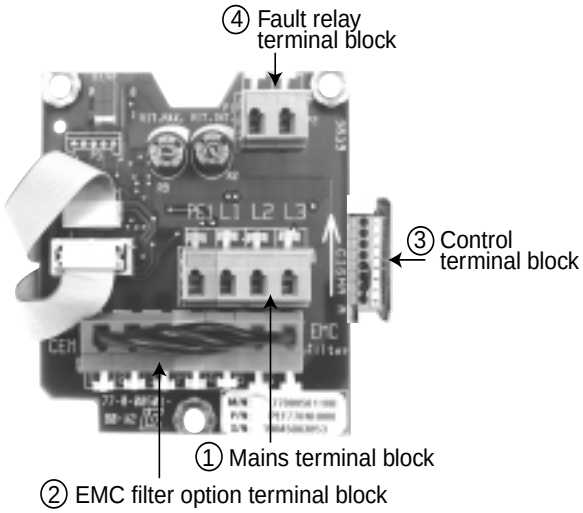
3.2 - Terminal blocks

3.2.1 - Layout

• Standard



• With CVI - VMA option



3.2.2 - Mains terminal block (1)

Ref.	Function
L1 L2 L3	Connection of the 3 mains protected phases defined in section 1.3.1
PE	Compulsory connection to earth

Note : To open blade terminals, use a flat screwdriver (maximum width 4 mm).

3.2.3 - EMC filter option terminal block (2)

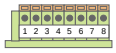
Ref.	Function
1 2 3	Filter output Connection of blue wires
PE	Compulsory connection of filter earth
4 5 6	Filter input Connection of orange wires

CAUTION :
Standard VARMECA - 10 motors are supplied with blade terminals 1 and 4, 2 and 5, 3 and 6 connected together : to fit the filter undo these connections.

VARMECA - 10
Variable speed motor or geared motor
CONNECTIONS

3.2.4 - Control terminal block (3)

This is located on the side printed circuit and used for remote control.
To open blade terminals use a flat screwdriver (maximum width 2.5 mm).



Standard configuration

Ref.	Specifications
1	Source +10V, 3 mA of the 10 kΩ potentiometer
2	Reference input 0 to +10V or 4-20mA 0-10V : impedance = 100 kΩ 4-20mA : impedance = 0.5 kΩ
3	Analogue speed output 0 to +10V, 3mA 0V = zero speed 10V = maximum speed
4	0V common with terminal 6
5	Ramp selection logic input 5s : terminals 5 and 6 connected 2s : terminals 5 and 6 not connected
6	0V common with terminal 4
7	Reverse/stop control logic input
8	Forward/stop control logic input

On leaving the factory, terminals 5 and 6 are connected together (ramp 5s) as are terminals 6 and 8 (forward).

Optional configuration

It is possible to control the motor using preset speeds, PI feedback, etc, by setting the parameters using the console or PEGASE VMA 10 option (see VARMECA - 10 manual - Parameter-Setting).

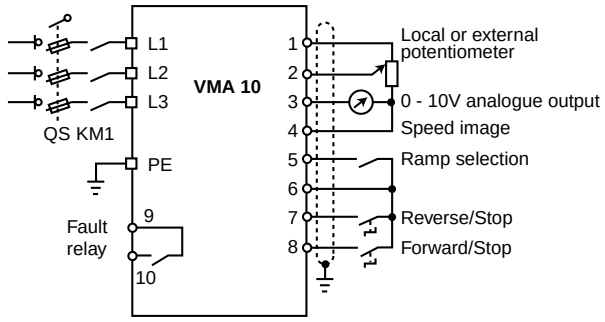
3.2.5 - Fault relay terminal block (4)

Ref.	Specifications
9 - 10	Volt-free contact 250V 1 A

3.2.6 - Connection (standard configuration)

⚠ **• All connections and work must be carried out with the power switched off.**

Standard configuration



QS : Fused isolator
KM1 : Line contactor

When connecting a 10 kΩ potentiometer for remote control, use the "without control button" option. However, if you have the standard "with control button" version, it is essential to set mini dip switch K4 to ON.

3.3 - Electrical and electromagnetic phenomena

The VARMECA - 10 complies with the electromagnetic compatibility directive 89/336/EEC, modified by 92/31/EEC, provided it is fitted with the EMC filter option.

3.4 - Description of cables and protections

⚠ **• When using a circuit-breaker, it must be a motor circuit-breaker (curve D).**
• Comply with the size of protection fuses.
• The cable size may vary according to legislation applicable in the country, which will take precedence over the values given in the table below without exception.
• These tables should never be used instead of current standards.

VARMECA rating	Power (kW)	3-phase mains, 400V -10 % to 440V +10 %		
		Current (A)	gl fuses (A)	Cables (mm²)
11 - 25	0.25	1.4	3	1.5
11 - 37	0.37	1.7	3	1.5
11 - 55	0.55	2.2	3	1.5
11 - 75	0.75	3	6	1.5
11 - 90	0.9	3.5	6	1.5
11 - 110	1.1	4.1	6	1.5
12 - 150	1.5	5.3	10	1.5
12 - 180	1.8	6.2	10	2.5
12 - 220	2.2	7.7	12	2.5
13 - 220	2.2	7.7	12	2.5
13 - 300	3	8.9	16	2.5
13 - 400	4	10	16	2.5
14 - 400	4	10	16	2.5
14 - 550	5.5	13	16	2.5
14 - 750	7.5	16	20	4

Note : The mains current value is a typical value which depends on the source impedance. The higher the impedance, the lower the current.

4 - COMMISSIONING

⚠ **• Before the VARMECA - 10 motor is powered up, check that the electrical connections are correct, and that any moving parts are mechanically protected.**

• For the safety of personnel, the VARMECA - 10 must not be powered up with the protective covers removed.

4.1 - Standard VARMECA - 10

4.1.1 - Starting on power-up

- Power-up : the green indicator lamp is lit continuously. As control terminals 6 and 8 are connected together, the motor starts running forward.
- Set the speed reference using the side control button.

The number of power-ups is limited to 10 per hour.

4.1.2 - Starting with remote control

- Power-up : the green indicator lamp is lit continuously.
- Activate the run command corresponding to the required direction. The motor starts.
- Set the speed reference using the side control button.

4.2 - VARMECA - 10 with remote potentiometer option

- Power-up : the green indicator lamp is lit continuously.
- Select the required ramp.
- Set the reference using the 10 kΩ remote potentiometer.
- Select the required direction of rotation. The motor starts.

5 - FAULTS - DIAGNOSTICS

Information relating to the status of the VARMECA - 10 is provided by a three-colour indicator lamp located on the control button support.

Colour and state of indic. lamp	Cause of trip	Checks to be performed
Permanent green	No fault Mains present	
Flashing green	Current limiting	• Check that the motor is not overloaded or stalled
Flashing or permanent orange	Overload	• The motor is overloaded : check the motor current using a clamp ammeter, section 6.2.2
Permanent red	• Short-circuit of a motor winding • Locked motor rotor • Faulty insulation of a winding • Overheating I^2t • Internal fault	• Check that no incident has occurred • Switch off and then on again to clear the fault • Check that the deceleration ramp is long enough (5s) for applications with high inertia. • If the fault remains, consult LEROY-SOMER
Flashing red	• Undervoltage • Overvoltage	• Check the mains voltage • Check that the deceleration ramp is long enough (5s) for applications with high inertia. • Switch off and then on again

Trips can be cleared by switching off the **VARMECA - 10**.

6 - MAINTENANCE

⚠ **• All work relating to installation, commissioning and maintenance must be carried out by experienced and qualified personnel.**

• Do not carry out any work before the VARMECA - 10 power supply circuit has been cut off and locked, and wait 2 minutes for the capacitors to discharge.

6.1 - Servicing

No specific servicing is required for VARMECA - 10 motors, apart from the regular removal of dust from the ventilation louvres and the cooling fins located at the bottom of the box.
Do not dismantle the VARMECA - 10 while it is still under guarantee, as this would then immediately become null and void.

CAUTION :
The rear cover protects the electronic boards and should only be removed for adjustment using the mini DIP switches marked K1, K2, K4 (0.25 to 2.2 kW and 5.5 and 7.5 kW ratings) ✶.
Certain components which are sensitive to electrostatic discharges may be destroyed simply by touching them.
Do not leave any metal object in the connection area, as this could cause a short-circuit.

✶ For 3kW and 4kW ratings, K1, K2 and K4 can be accessed without removing the rear cover, via the connection space, through a special opening in the rear cover, protected by a plastic plug.

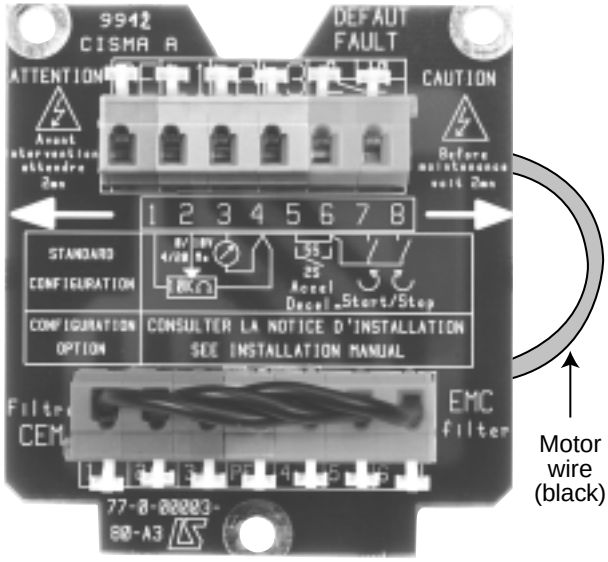
6.2 - Measurements

6.2.1 - General

The input voltages can be measured using ordinary instruments.
The motor current **is not measured on the VARMECA - 10 power supply (L1, L2, L3)**. It is measured using an ordinary clamp ammeter on the longest wire, which forms a loop on the side of the connection circuit.

6.2.2 - Procedure for measuring the motor current (if the motor wire loop is inaccessible)

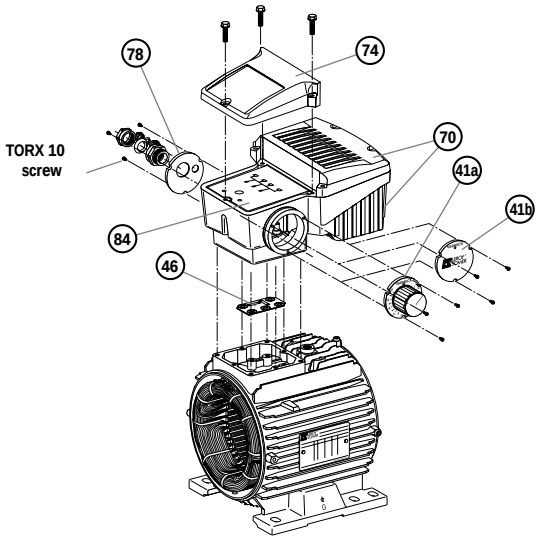
- Open the VARMECA - 10 power supply circuit and lock it.
- Wait 2 minutes for the capacitors to discharge.
- Open the cover of the VARMECA - 10.
- Remove the mains cable (L1, L2, L3).
- Remove the 3 TORX 20 + slot type screws from the connection circuit.
- Pass the longest motor wire along the side of the connection circuit.
- Replace the connection circuit and fasten it.
- Reconnect the mains (L1, L2, L3).
- Pass the clamp ammeter through the motor wire loop.



6.3 - Spare parts

Description		Part code	Ref.
Control button + indicator lamp kit (BD or BG)		AEM905KB001	41a
Kit without control button (SD or SG)		AEM905KB002	41b
Cable gland kit (standard)		AEM907KE001	78a
Cable gland kit (3PE brake)		AEM907KE002	78b
DE cover + EMC filter kit (FLT VMA) + Run/Stop control (CMA)		AEM906KC001	74b
DE cover + EMC filter kit (FLT VMA)		AEM906KC002	74c
DE cover + Run/Stop control kit (CMA)		AEM906KC003	74d
DE cover only		AEM906KC004	74a
DE cover + EMC filter kit (FLT VMA) + FWD/REV control (CMA VAR)		AEM906KC005	74f
DE cover + FWD/REV control kit (CMA VAR)		AEM906KC006	74e
Brake supply kit		AEM904KA001	46
Standard interconnection printed circuit		PEF770NC001	84a
Interconnection printed circuit with CVI-VMA option		PEF770NH001	84b
Standard speed controller kit with NDE cover	0.37 / 0.55 / 0.75 / 0.9 / 1.1 kW	AEM902CB101	70a
	1.5 / 1.8 / 2.2 kW	AEM902CB102	70b
	3 / 4 kW	AEM902CB103	70c
Speed controller kit with CVI-VMA option and NDE cover	0.37 / 0.55 / 0.75 / 0.9 / 1.1 kW	AEM902CB105	70f
	1.5 / 1.8 / 2.2 kW	AEM902CB106	70g
	3 / 4 kW	AEM902CB107	70h

When ordering spare parts, specify the serial number and type of the motor and gearbox on which the VARMECA - 10 is installed.



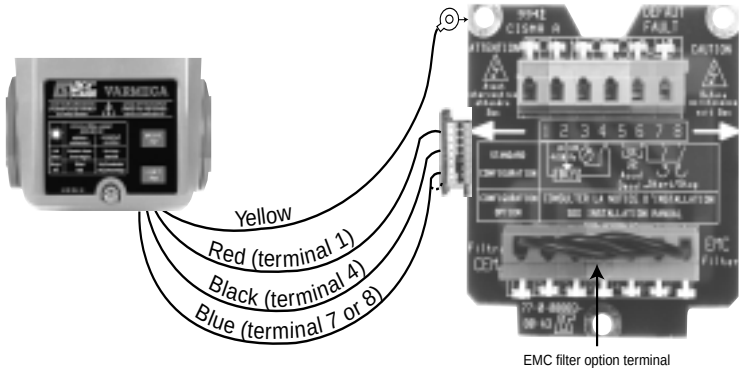
7 - OPERATING EXTENSIONS

7.1 - Option without control button (SD or SG)

The speed control button is no longer located on the VARMECA - 10 (the indicator lamp remains) but near the operator.
Ramp selection and selection of running direction can also be positioned close to the operator.

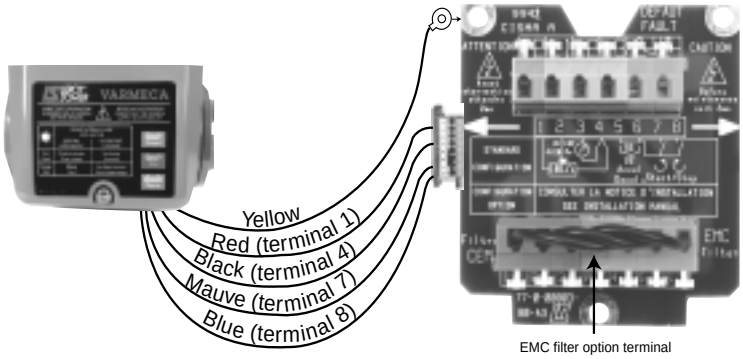
7.2 - Integrated run-stop control option (CMA)

With a Run key and a Stop key located on the cover, it is possible to control the VARMECA - 10 locally, once it has been powered up, as required.
For a run command to be taken into account, the key must be held down for one second.



7.3 - Forward/Reverse/Stop control option (CMA VAR)

As with the CMA option, the keys are located on the cover. They are used to control the motor locally in both directions of rotation.
For an instruction to be taken into account, the relevant key must be held down for 1 second.

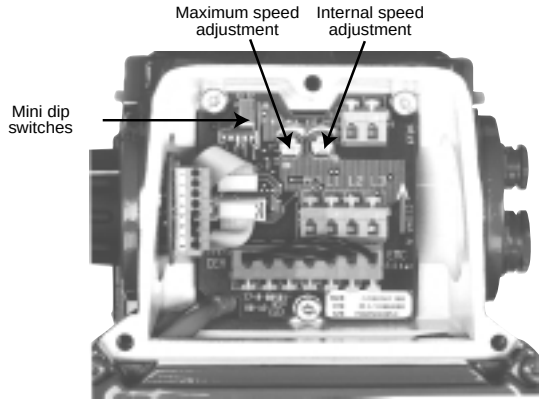


7.4 - EMC filter option (FLT VMA)

The filter is located in the VARMECA - 10 cover and is connected instead of connections 1-4, 2-5, and 3-6, paying attention to the colour of the wires. It is essential to connect the filter PE terminal.

7.5 - Integrated speed adjustment option (CVI-VMA)

The CVI-VMA printed circuit replaces the standard connection circuit and offers the additional functions described below.



7.5.1 - Adjustment of the internal speed (VIT INT) and maximum speed (VIT MAX) via potentiometers

The "VIT MAX" potentiometer is used to reduce the maximum speed for a maximum reference, independently of the setting of K2. The "VIT INT" potentiometer is used to adjust an operating speed : it replaces the adjustment of the external potentiometer. Access to these settings depends on the position of the selector switches (S1, S2, S3).

7.5.2 - Speed selection switches

The selection is made according to the following table :

Reference selected	Position of MINI DIP switches				
	CVI - VMA board			Control board (see section 2.3)	
	S1	S2	S3	K1	K4
"Local" control button	OFF	ON	ON	ON	ON
"VIT INT" Potentiometer (CVI-VMA)	OFF	OFF	ON	ON	ON
External reference 0 - 10V	ON	OFF	ON	ON	ON
External reference 4 - 20 mA	ON	OFF	OFF	ON	ON

Factory setting

7.6 - Electromechanical brake option

The motor must be fitted with an **FCR brake adapted** for the VARMECA - 10.
The brake has an integral power supply. The brake is energised as soon as the run command is validated. It is released after a stop command, at the end of deceleration or on disconnection of the power supply.
The rectifier circuit is mounted on the motor terminal plate.

7.7 - Parameter-setting console option (CDC-VMA)

The console option provides access to the internal settings of the controller (terminal block configuration, ramp settings, speeds, PI, etc).
See VARMECA - 10 manual - Parameter-settings.

Description of the option :
1 CDC-VMA console
1 cable, L = 1.5m
1 single phase power supply 230V.

7.8 - Parameter-setting software option (PEGASE VMA 10)

This option provides access to the internal settings of the controller from a PC. The software is compatible with WINDOWS 95-98.
See VARMECA - 10 manual - Parameter-settings.

Description of the option :
1 software pack
1 cable, L = 3 m