LEROY SOMER

3532 - 05.2004 / f

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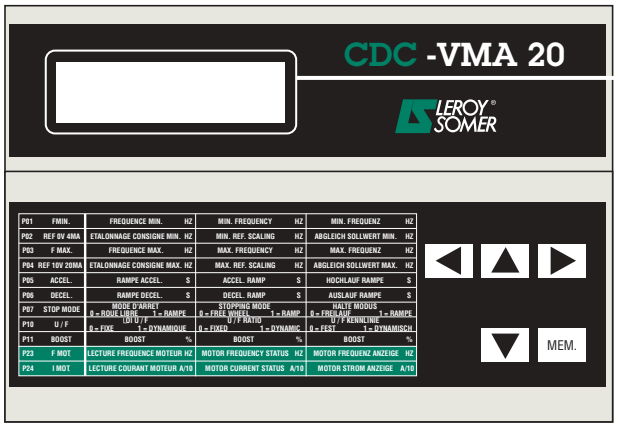
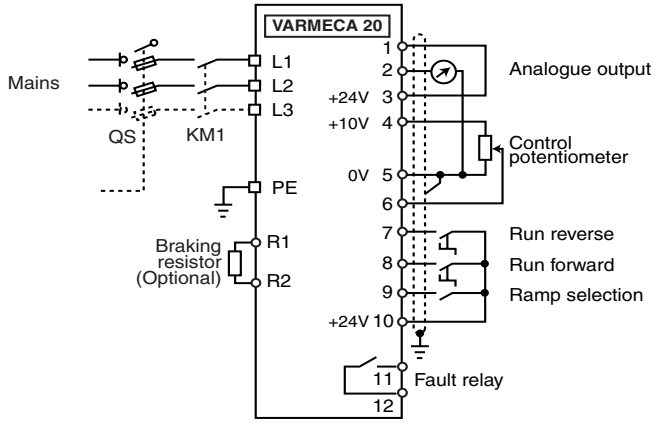


This manual is to be given to the end user



VARMECA 20

Variable speed motors and geared motors

Parameter setting manual

VARMECA 20
Variable speed motors and geared motors

NOTE

LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

LEROY-SOMER gives no contractual guarantee whatsoever concerning the information published in this document and cannot be held responsible for any errors it may contain, nor for any damage resulting from its use.

CAUTION

For the user's own safety, this VARMECA 20 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 20 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 20 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 20 for hoisting applications where there may be a risk to goods and people.
LEROY-SOMER declines all responsibility in the event of the above recommendations not being observed.

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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 20, 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 20 motors may contain moving parts, as well as hot surfaces, during operation.
Unjustified removal of protection devices, 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 20 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 20) 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 20 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 20 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 20 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 20 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 20. These instructions must be followed in all cases, even if the VARMECA 20 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 20 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. Modifications to VARMECA 20 motors using control software are permitted.
Active parts of the device and live power connections must not be touched immediately after the VARMECA 20 is powered down, as the capacitors may still be charged. In view of this, the warnings fixed to VARMECA 20 motors must be observed.
During operation, all protective covers must remain closed.

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

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GENERAL INFORMATION

1 - GENERAL INFORMATION

• This manual describes how to set the parameters of the VARMECA A20 and B20 drives irrespective of their software differences.

• The operating characteristics are described in sections 2.5 and 4 "VARMECA 20 parameters" and "Wiring diagrams".

• The VARMECA A20 and B20 version number appears on the label situated under the main connection block.

• When using the VARMECA 20 parameter-setting tools, the precautions described in the installation and maintenance manual, Ref. 3481, should be applied.

1.1 - Operating principle

This manual describes access to the parameter settings of the VARMECA 20 range via a CDC-VMA 20 console or PEGASE VMA 20 PC software.

Combined with the VARMECA 20, these tools are used for programming, diagnostics and displaying parameters.

1.2 - General characteristics

1.2.1 - "CDC-VMA 20 console" option

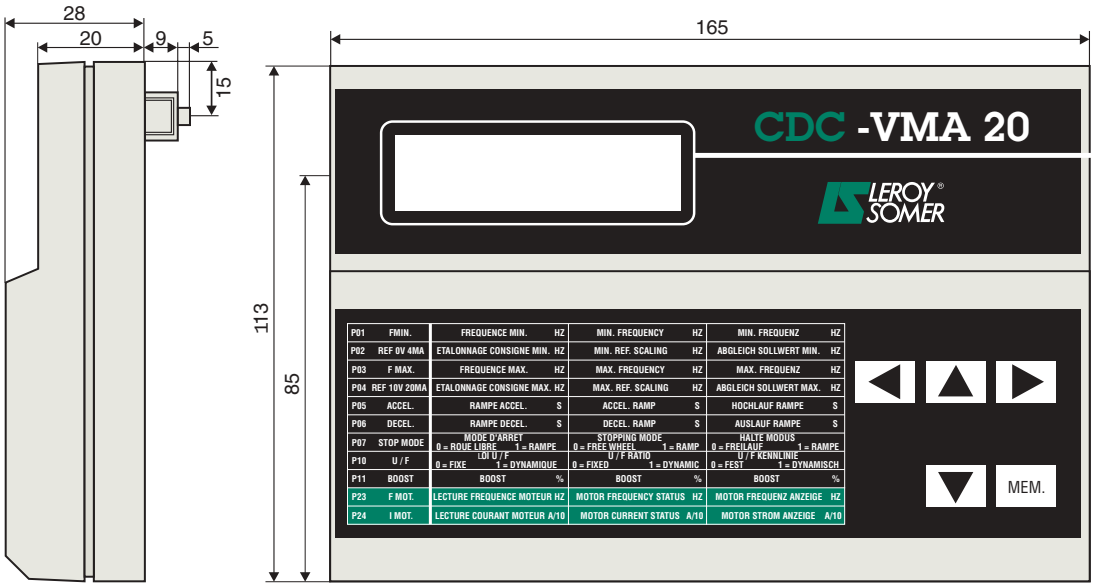
The kit comprises:
- 1 connection cable (length = 3m) to connect to the VARMECA 20
- 1 console with digital LCD display - 2 lines of 16 characters
- 1 parameter setting manual

1.2.2 - "PEGASE VMA 20 PC software" option

The kit comprises:
- 1 connection cable (length = 3m) to connect to the VARMECA 20
- 1 CD-ROM for loading the software onto a PC
- 1 parameter setting manual

Minimum PC configuration:
- Pentium 100 MHz or equivalent
- 8 Mb of RAM
- Windows 95/98/NT/2000

1.3 - Weight and dimensions of the CDC-VMA 20 console



Weight: 0.3 kg

2 - COMMISSIONING THE CDC-VMA 20 CONSOLE

2.1 - Installation

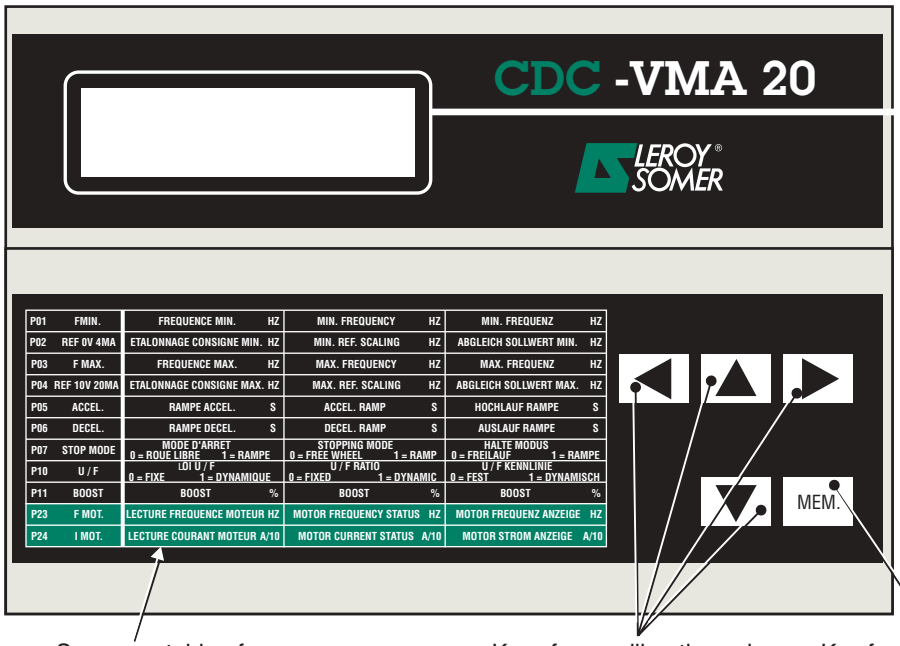
2.1.1 - Checks on receipt

When you receive your CDC-VMA 20 console, make sure that it has not been damaged during transport. Should damage have occurred, please report it to those responsible for its transport.

2.1.2 - Connection

- Open the front cover of the VARMECA 20.
- Connect the 4-pin socket at the end of the cable to the connector located on the VARMECA 20 connection card.
- The cable SUB-D socket is then connected to the console SUB-D socket.

2.2 - Presentation of the CDC-VMA 20 keyboard



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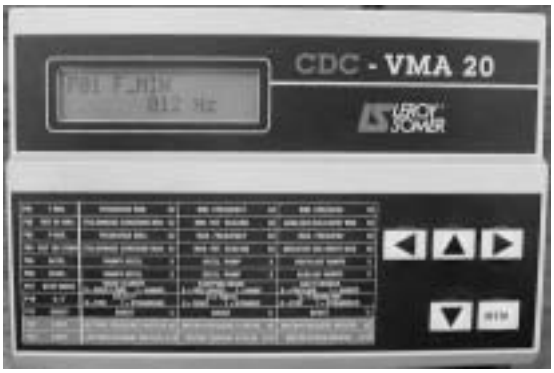
COMMISSIONING THE CDC-VMA 20 CONSOLE

2.3 - Read mode

- Connect the console to the VARMECA 20 RS 232 socket.
- Power up the VARMECA 20.
- On power-up, the console display is positioned on the 1st parameter P01 F-MIN.

The 1st line of the display indicates the parameter description.
The 2nd line indicates the parameter value and its unit of measurement.
The ▲ key scrolls through the parameters.
The ▼ key is used for scrolling in the opposite direction.



2.4 - Parameter setting mode

⚠ **• Parameter modifications must be made with the VARMECA 20 stopped (run command disabled).**

To modify a setting, use the ▲ or ▼ keys to access the parameter.
The ▶ key is used to make the parameter to be modified flash.
Modify the setting value with the ▲ or ▼ keys.
As soon as the value differs from the value memorised, the message M ? appears.
When the desired setting value has been reached, it can be memorised using the MEM. key.
M ? disappears from the display.
The ◀ key is used to quit parameter-setting mode.

2.5 - VARMECA 20 parameters

List and description of the parameters which can be accessed by the CDC-VMA 20 console

Display	Description	Adjustment range		Factory setting
		VMA A20	VMA B20	
P01 F-MIN	Minimum operating frequency	6 to Fmax		12Hz
P02 REF 0V/4mA	Calibration of the 0V or 4mA min. reference	0 to Fmax		12Hz
P03 F-MAX	Maximum operating frequency	32 to 220Hz	32 to 100Hz	50 or 80Hz
P04 REF 10V/20mA	Calibration of the 10V or 20mA max. reference	32 to 220Hz	32 to 100Hz	50 or 80Hz
P05 ACCEL RAMP *	Acceleration ramp Ramp value to switch from 0 to 50Hz Incrementation In the standard configuration, terminals 9 and 10 must be connected together in order to modify the value of the acceleration ramp.	0 to 100s 1s	0 to 40s 0.1s	3s
P06 DECEL RAMP *	Deceleration ramp Ramp value to switch from 50 to 0Hz Incrementation In the standard configuration, terminals 9 and 10 must be connected together in order to modify the value of the deceleration ramp.	0 to 100s 1s	0 to 40s 0.1s	3s
P07 STOP MODE *	Stop mode **Freewheel** = freewheel stop **ramp** = stop following ramp **automatic** = controlled deceleration	ramp, freewheel or automatic	ramp or freewheel	ramp
P08 UN-MOT	Voltage applied to the motor at frequency base	0 to 480V		230 or 400V
P09 FN-MOT	Base frequency of motor	50 to Fmax		50Hz
P10 CONTROL U/F *	Selection of voltage/frequency ratio **constant = fixed U/F** Voltage P08 will be applied at the point of frequency P09 **dynamic = dynamic U/F** The voltage adapts automatically to the motor load (position of mini dip switch K3 = OFF)	constant or dynamic		constant from 0.25 to 1.1Kw dynamic from 1.5 to 4Kw

* This parameter can be modified if the VARMECA is powered up and a stop command has been issued.

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Display	Description	Adjustment range						Factory setting
		VMA A20			VMA B20			
P11 BOOST *	Voltage value applied in the low frequencies (percentage of the mains voltage)	0 to 40 %						adapted to the motor according to the power rating
P12 OVER BOOST *	Voltage value applied during the starting phase (percentage of the mains voltage)	0 to 50 %						adapted to the motor according to the power rating
P13 F PWM *	Switching frequency	4, 6, 8 or 11 KHz						11KHz 0.25 to 1.1Kw 8KHz 1.5 to 2.2Kw 6KHz 3Kw 4KHz 4Kw
P14 CONFIG *	Terminal block configuration: **STANDARD** **CONFIG.1** = 2 preset speeds **CONFIG.1** = 3 speeds **with VMA ESFR option** + analogue reference **CONFIG.2** = 3 preset speeds + analogue reference - 1 running direction **CONFIG.3** = correction of an external reference using the local control knob **CONFIG.4** = 2 preset speeds proportional to the reference **CONFIG.5** = PI regulation of a pressure or a flow **CONFIG.6** = jog operation command **CONFIG.7** = faster/slower command Requires P60 = ON	STANDARD CONFIG.1 **Not available** CONFIG.2 CONFIG.3 CONFIG.4 CONFIG.5 CONFIG.6 **Not available**			STANDARD CONFIG.1 CONFIG.1 **Not available** CONFIG.3 CONFIG.4 **Not available** CONFIG.6 CONFIG.7			STANDARD
		config. 1	config. 2	config. 4	config. 1	config. 4	config. 7	
P15 VP1-1	Preset speed 1 in config. 1 and 4	VP1	-	VP1	VP1	VP1	V.red.	50Hz
P16 VP2-1 VP1-2	Preset speed 2 in config. 1 and 4 or preset speed 1 in config. 2	VP2	VP1	VP2	VP2	VP2	-	60Hz
P17 **VP2-2**	Preset speed 2 in config. 2 of the VMA A20	-	VP2	-	-	-	-	40Hz
P17 **VP3-1**	Preset speed 3 in config. 1 of the VMA B20 with VMA ESFR option (enabled in P69)	-	-	-	VP3	-	-	40Hz
P18 VP3-2	Preset speed 3 in config. 2	-	VP3	-	**Not available**			70Hz
P19 ROTATION *	Selection of direction of rotation	FORWARD or REVERSE						FORWARD
P20 SELECT - N 2	Terminal 2 assignment: **OUTPUT N** = analogue output image of the frequency: 0V zero frequency 10V max. frequency **INPUT PI** = analogue input for the 0-10V or 4-20mA PI function (see mini dip K2) **OUTPUT I** = analogue output image of the motor current: 0V = 0A, 10V = 10A **OUTPUT P** = analogue output image of the motor power: 0V = 0 kW, 10V = 5kW	OUTPUT N INPUT PI OUTPUT I OUTPUT P			OUTPUT N **Not available** **Not available** **Not available**			OUTPUT N
P21 PI - K PROPOR.	PI loop proportional gain	1 to 100			**Not available**			10
P22 PI - K INTEGR.	PI loop integral gain	1 to 100			**Not available**			10
P23 F - MOT	Motor frequency reading	Value in Hz						
P24 I - MOT	Motor current reading	Value in A						

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* This parameter can be modified if the VARMECA is powered up and a stop command has been issued.

VARMECA 20

Variable speed motors and geared motors

COMMISSIONING THE CDC-VMA 20 CONSOLE

Display	Description	Adjustment range		Factory setting
		VMA A20	VMA B20	
P25 FAULT	Fault reading OK = no fault I2T MOTOR = overheating motor LEVEL In = current threshold reached for torque limiting OVER CURRENT = overcurrent LOCKED ROTOR = locked rotor UNDER VOLT. = DC bus undervoltage EEPROM = eeprom fault or external fault if P87 = ON RS 232 = serial link fault ENABLE = drive disabled LIMIT.I = drive in current limiting mode LIMIT.TH = motor overloaded UNDER P1 = operation in under pressure mode FAULT POSITION K2 = power supply fault on the terminal block I/O	OK I2T MOTOR **Not available** OVER CURRENT LOCKED ROTOR UNDER VOLT. EEPROM RS 232 ENABLE LIMIT.I LIMIT.TH UNDER P1 FAULT POSITION K2	OK I2T MOTOR LEVEL In OVER CURRENT LOCKED ROTOR UNDER VOLT. EEPROM RS 232 ENABLE LIMIT.I LIMIT.TH **Not available** FAULT POSITION K2	OK
P26 STOP-F.min	STOP USING REFERENCE function enabled REFERENCE, when the reference is less than Fmin. This function forces stopping of the motor ON = enabled, OFF = disabled	ON or OFF		OFF
P27 RELAY	Assignment of the relay FAULT = relay assigned to faults F-MOT=REFERENCE = reference reached FAULT VMA ON = relay assigned to the fault if there is a run command	FAULT F-MOT = REFERENCE FAULT VMA ON	**Not available** **Not available**	FAULT
P30 V Bus DC	DC bus voltage reading Umains = Vbus/1.414	Value in DC Volts		
P31 ETAT K1-K2-K3	Reading of the status of the K1, K2, K3 mini dip switches **K1** = selection of the analogue reference 010 = 0 to 10V; 420 = 4 to 20mA **K2** = selection of the analogue input terminal 2, 010 = 0 to 10V; 420 = 4 to 20mA **K3**: selection of the voltage/frequency ratio **U/F SET:** factory setting can be modified by parameter P10 **U/F cst** : fixed U/F ratio regardless of the setting of P10	010 - 010 - U/F SET 010 - 420 - U/F SET 010 - 010 - U/F cst 010 - 420 - U/F cst 420 - 010 - U/F SET 420 - 420 - U/F SET 420 - 010 - U/F cst 420 - 420 - U/F cst		
P32 STATUS N13	State of the additional logic input terminal 13 with VMA ESFR option (parameters P69 and P70) ON = input enabled OFF = input disabled	**Not available**	ON or OFF	
P33 STATUS N9	State of the logic input - terminal 9 ON = input enabled OFF = input disabled	ON or OFF		
P34 STATUS N8	State of the logic input - terminal 8 ON = input enabled OFF = input disabled	ON or OFF		
P35 STATUS N7	State of the logic input - terminal 7 ON = input enabled OFF = input disabled	ON or OFF		
P36 VARMECA	Display of the VARMECA status ON = running; OFF = stopped	ON or OFF		
P42 O CTN ELEC	Power module temperature reading	Value in °C		
P50 T1 - P - min	Draining time delay	0 to 120s	**Not available**	10s
P51 P - min	Draining pressure (as a % of the max. pressure)	0 to 100 %		10 %
P52 T2- F - min	Stop on min. pressure level time delay	0 to 120s		10s

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Display	Description	Adjustment range		Factory setting
		VMA A20	VMA B20	
P54 PI DECAL	PI offset in 1/8 Hz steps	0 to 5Hz	**Not available**	0
P55 REF.PI	PI reference reading	0 to 25000		0 to 1000
P56 INPUT PI	PI feedback reading	0 to 25000		0 to 1000
P57 ALARM	Signals operation of the pump in configuration 5 OK = No fault UNDER P1 = Underpressure fault ALARM Q = Flow alarm	OK UNDER P1 ALARM Q		
P58 VP5	Value of the preset reference in configuration 5	0 to 100% of the sensor value		0
P59 BAR FACTOR	Conversion factor for direct reading in m. bars on the CDC - VMA 20 console	1 to 20		1
P60 CONTROL DYN. *	Enabling of the "MATERIALS HANDLING" configuration ON = configuration enabled OFF = configuration disabled	**Not available**	ON or OFF	OFF
P61 FD BRAKE *	Brake release frequency		1 to 20Hz	6
P62 FB BRAKE *	Brake engage frequency		1 to 20Hz	2
P63 TD BRAKE *	Brake release time delay unit = 0.01s		0 to 100	10
P64 TORQUE *	Magnetisation time delay unit = 0.01s		0 to 100	10
P65 T DC INJECT. *	DC injection time delay at the end of deceleration unit = 0.01s		0 to 1000	0
P66 TB BRAKE *	Brake engage time delay unit = 0.01s		0 to 200	20
P67 UC DC INJECT. *	Level of DC injection at the end of deceleration unit = % of the motor rated voltage		0 to 100 %	0
P68 ID BRAKE *	Current threshold prior to brake release unit = % of the motor rated current		0 to 100 %	0
P69 VMA ESFR *	Enabling of the VMA ESFR option card ON = configuration enabled OFF = configuration disabled		ON or OFF	OFF
P70 N13 *	Assignment of additional logic input terminal 13. VP3-1 = Preset speed 3 D. BRAKE = Electrical brake release		VP3-1 D.BRAKE	VP3-1
P71 LEVEL IN *	Current threshold which trips the torque limiting fault unit = % of the motor rated current		0 to 100 %	0
P72 T LEVEL IN	Trip time after exceeding the current threshold unit = 1s		0 to 120	0
P80 I NEG CTRL *	Reserved for LEROY-SOMER	ON / OFF	Not available	0
P81 F_MAX I Lim *	Reserved for LEROY-SOMER	0 to 220 Hz	Not available	0
P82 F_min I Lim *	Reserved for LEROY-SOMER	0 to 49 Hz	Not available	0
P83 OFFSET I Lim *	Reserved for LEROY-SOMER	0 to 100 %	Not available	0
P84 STEP F IF I Lim *	Reserved for LEROY-SOMER	0 to 16	Not available	6
P86 LEVEL U P07	Ramp freezing trip value after exceeding the voltage threshold if P07 = "AUTOMATIC" unit = V	0 to 800V DC	Not available	700
P87 EXT FAULT N9	Assignment of terminal 9 to management of an external fault	ON or OFF	Not available	OFF
P90 LOG1VARMECA	VARMECA software version (year)			
P91 LOG2VARMECA	VARMECA software version (week)			
P92 LOG2VARMECA	VARMECA software version	Version A	Version B	Version A or B
P93 LOG CDC_VMA	Console software version			
P28 CAL_MOT *	VARMECA 20 rating reading			
P29 CODE	Access code	Reserved for LEROY-SOMER		

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* This parameter can be modified if the VARMECA is powered up and a stop command has been issued.

3 - COMMISSIONING THE PEGASE VMA 20 PC PARAMETER SOFTWARE

3.1 - Installation

3.1.1 - Checks on receipt

When you receive your parameter setting kit, make sure that it has not been damaged during transport. Should damage have occurred, please report it to those responsible for its transport.

3.1.2 - Minimum PC configuration

Pentium 100 MHz
Windows 95 - 98
32 Mb memory
30 Mb disk space

3.1.3 - Connection

- Open the front cover of the VARMECA 20.
- Connect the 4-pin socket at the end of the cable to the connector located on the VARMECA 20 connection card (P3 connector).
- The cable SUB-D socket is then connected to the PC SUB-D socket.

3.2 - Software installation

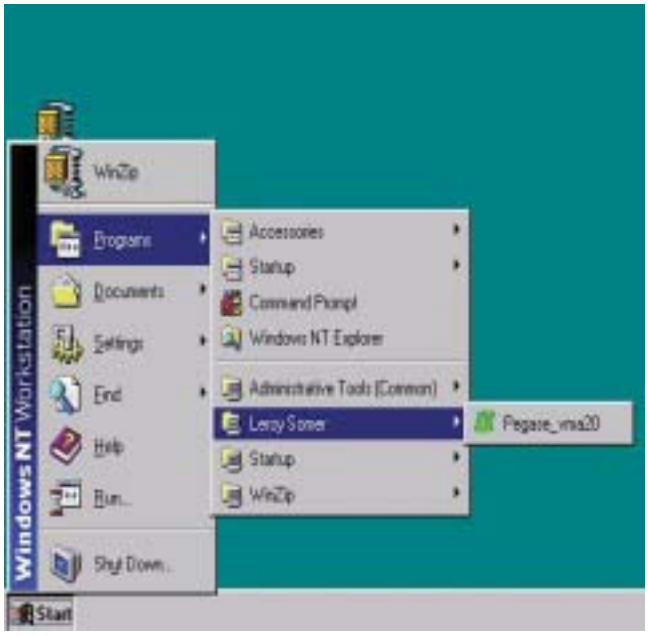
- Insert the CD in the drive
- After a few seconds the following window appears:

Click here for installation then follow the instructions

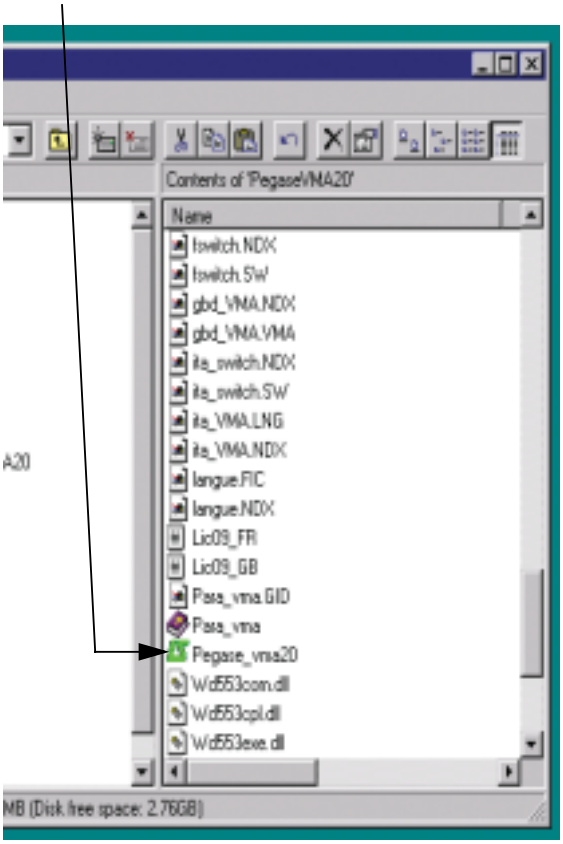
During installation, the program suggests a destination directory. If you are happy with this suggestion, click "Next" to end installation (see page below).
If you wish to install PEGASE VARMECA in a different directory, click "Browse" to select another destination directory. Once you have made your choice, click "Next" to end installation.

3.3 - Using the software

To open PEGASE VARMECA 20, if it has been installed in the directory suggested during installation, proceed as shown below:



If PEGASE VARMECA 20 has been installed in a different directory:
Double-click on the LS Pegase_vma20 icon where you have installed PEGASE VARMECA 20.

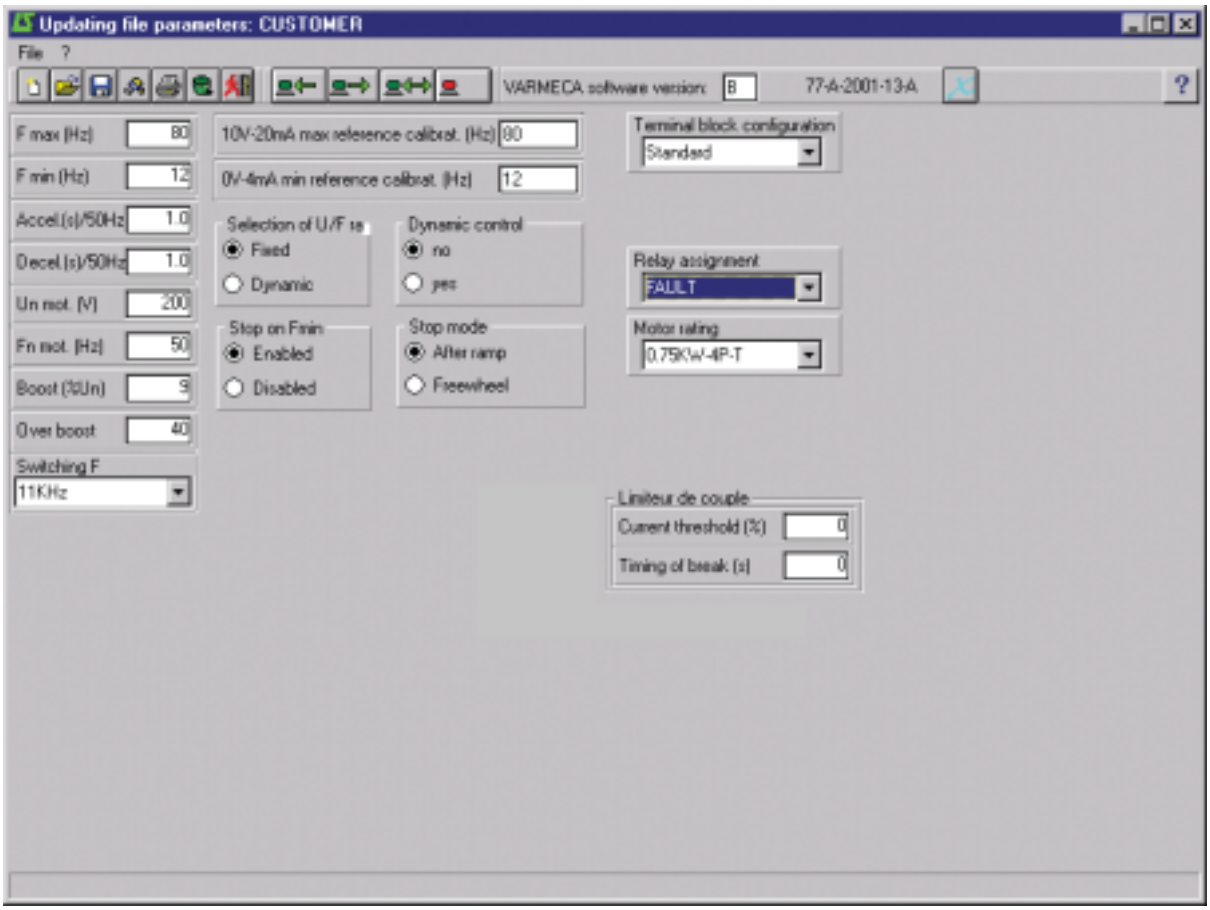


The initial window appears.

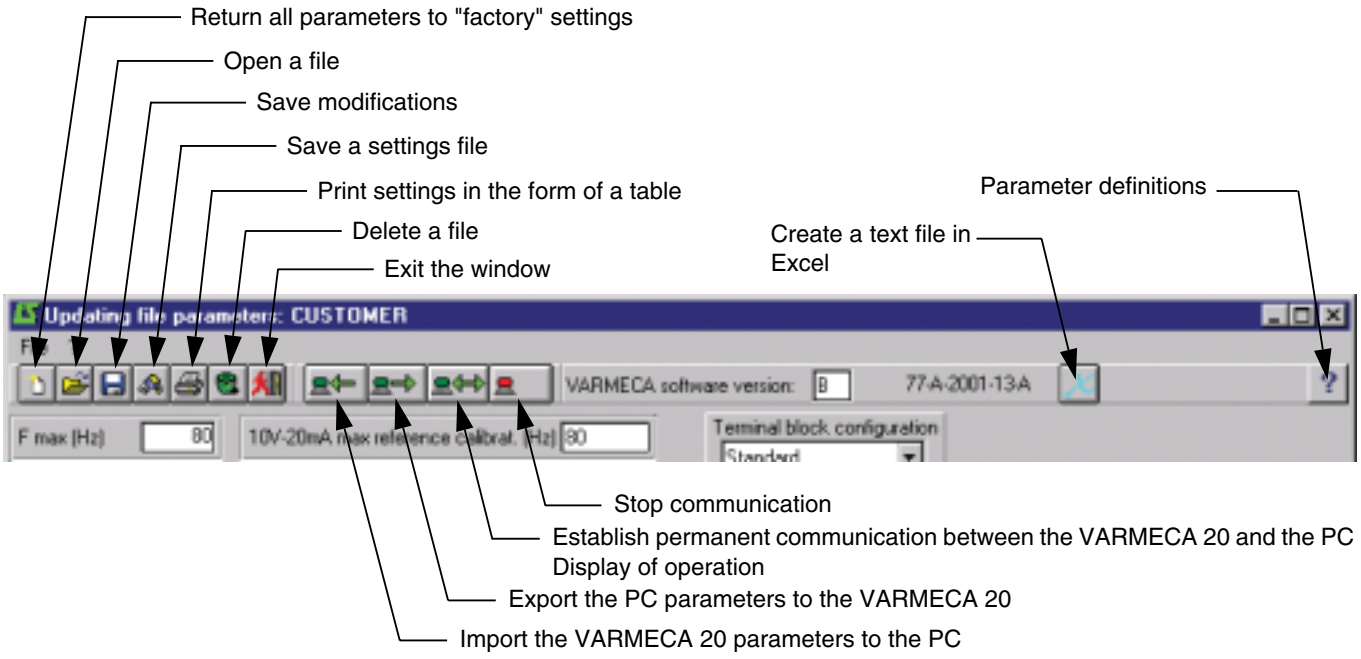
3.3.1 - Detail of the 1st window

3.3.2 - Detail of the VARMECA 20 parameters window

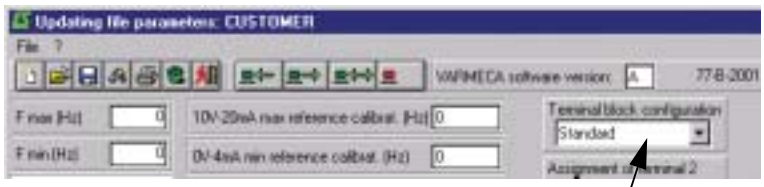
Click on the "VARMECA 20 parameters" window. This window is used to access the VARMECA 20 parameters.



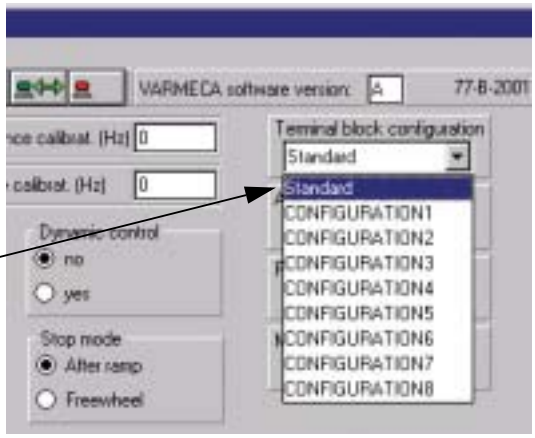
3.3.2.1 - Button functions



3.3.2.2 - Help with wiring

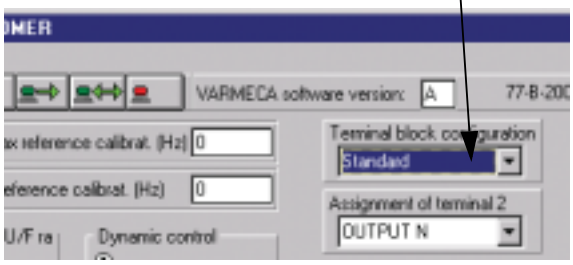


Click on the list of "configurations"

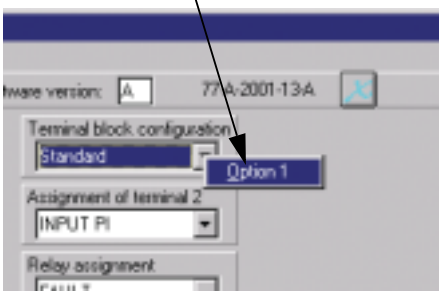


Select the desired configuration, Eg: Standard

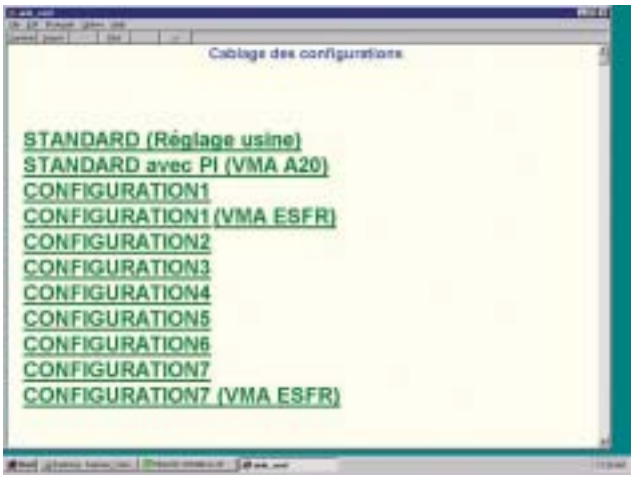
The selection appears on a blue background



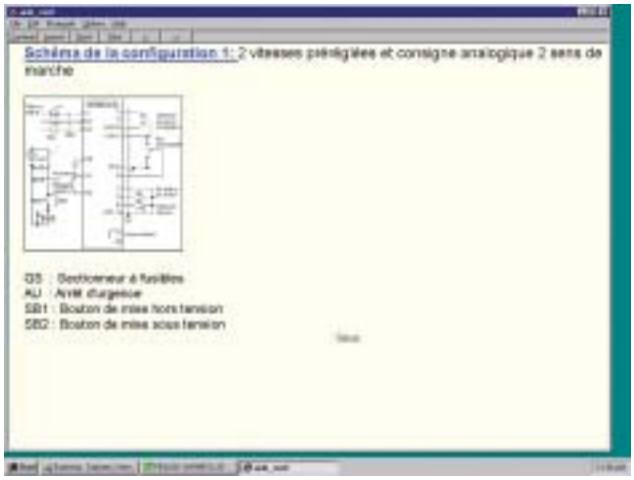
Right-clicking opens the "wiring options" window



Left-clicking opens the window on the next page

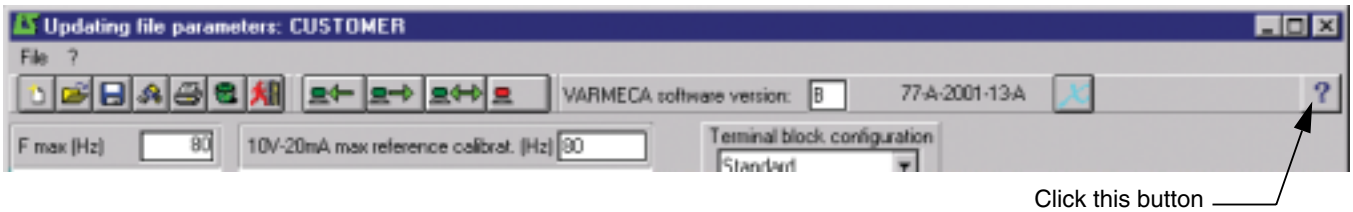


Position the "hand" on the chosen option and click on it

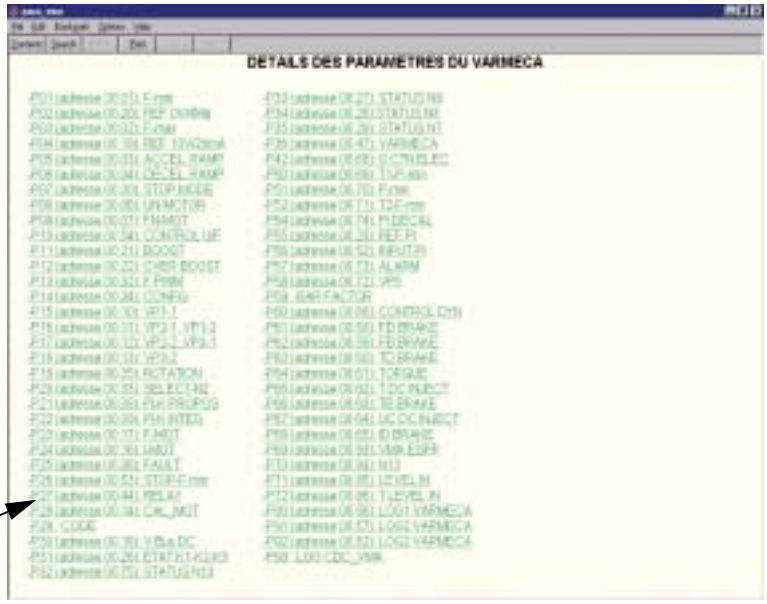


The above window appears, indicating the type of wiring to be installed

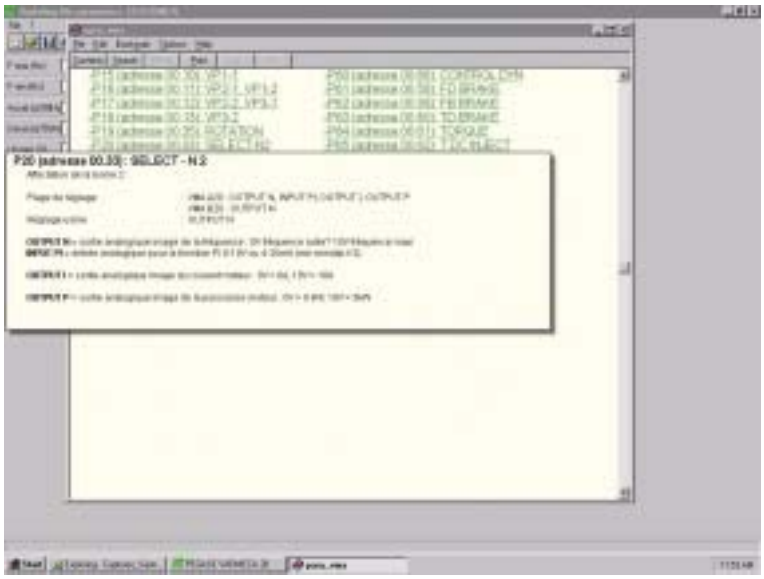
3.3.2.3 - Parameter definitions



The following window appears:

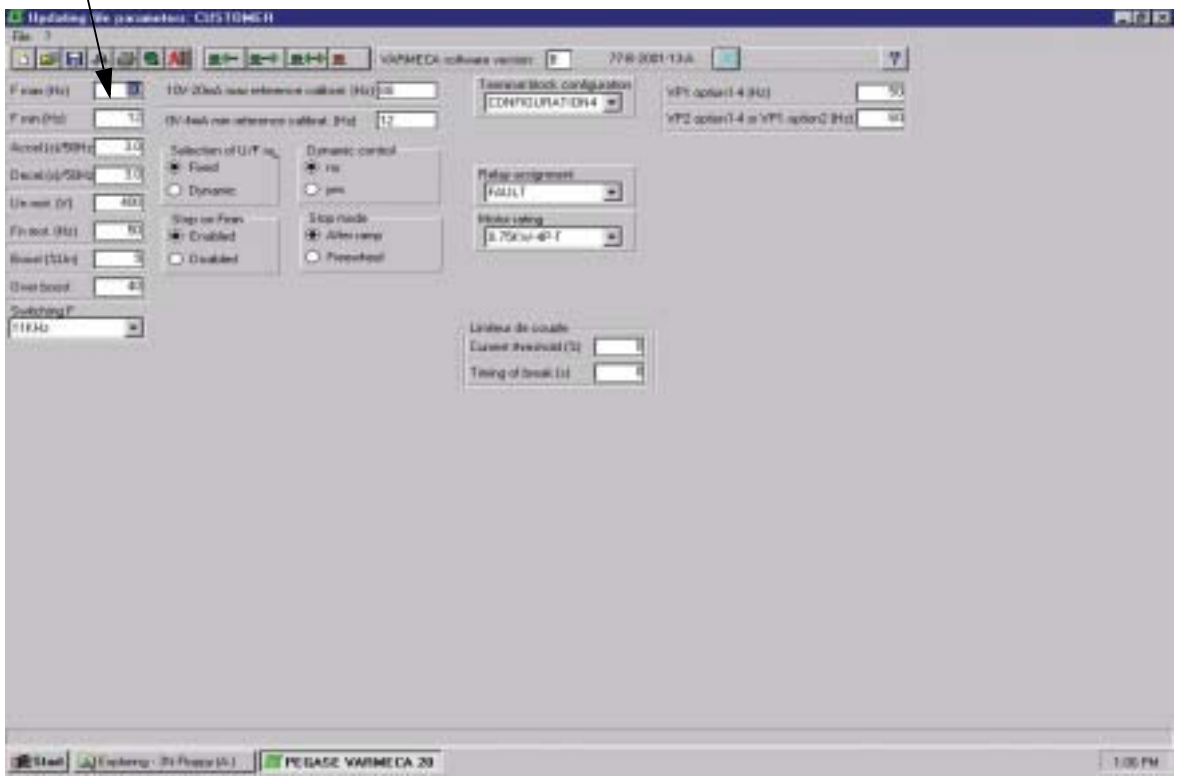


Next, click on the chosen parameter (Eg: P20), and a window opens where the parameter description and its function appear

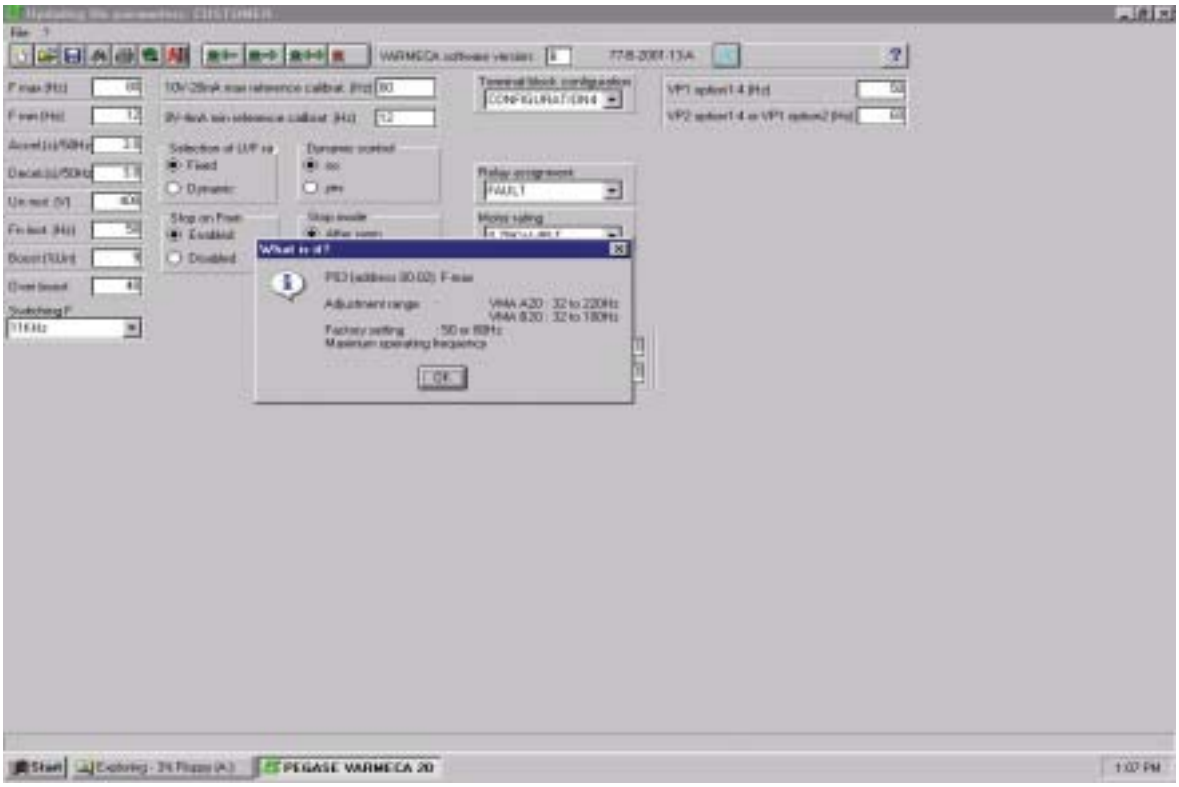


Another way of defining parameters:

Click in the settings window of the parameter to be defined, eg: Fmax

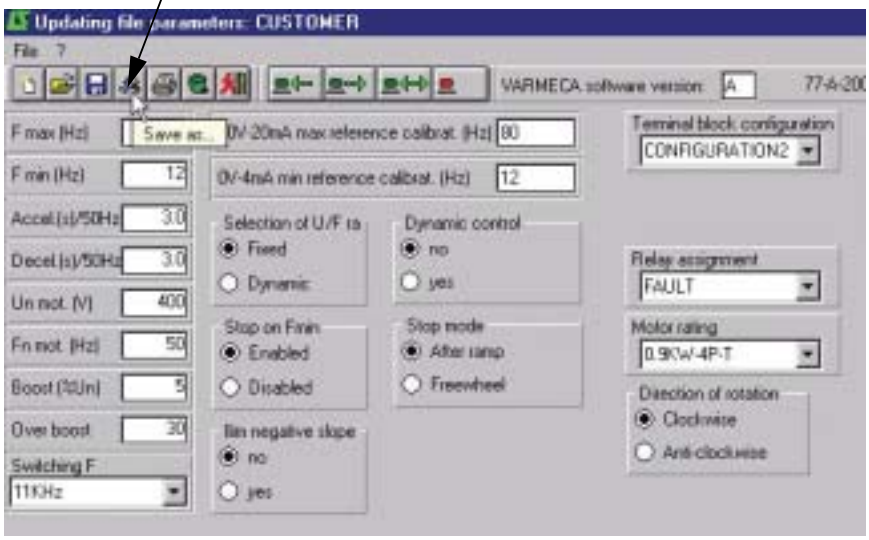


- Press the F1 key on the keypad. A window then opens where the parameter description and its function appear:

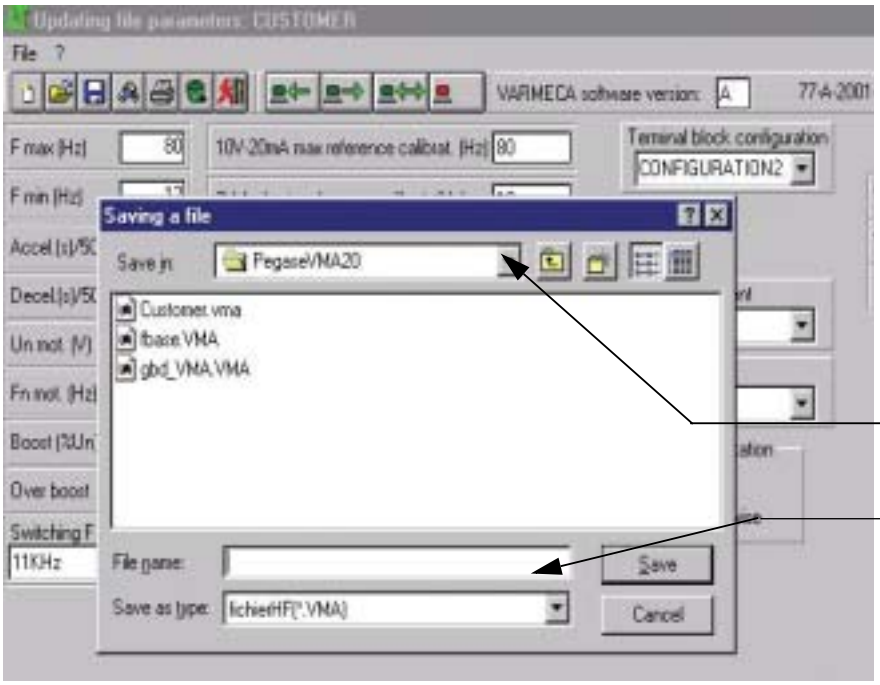


3.3.2.4 - Creating a settings file

After modifying the parameters required for your application, click the "Save as..." button



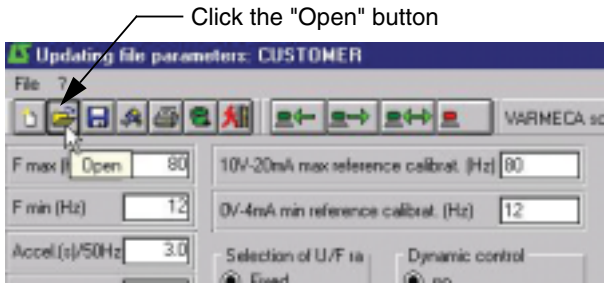
The following window appears:



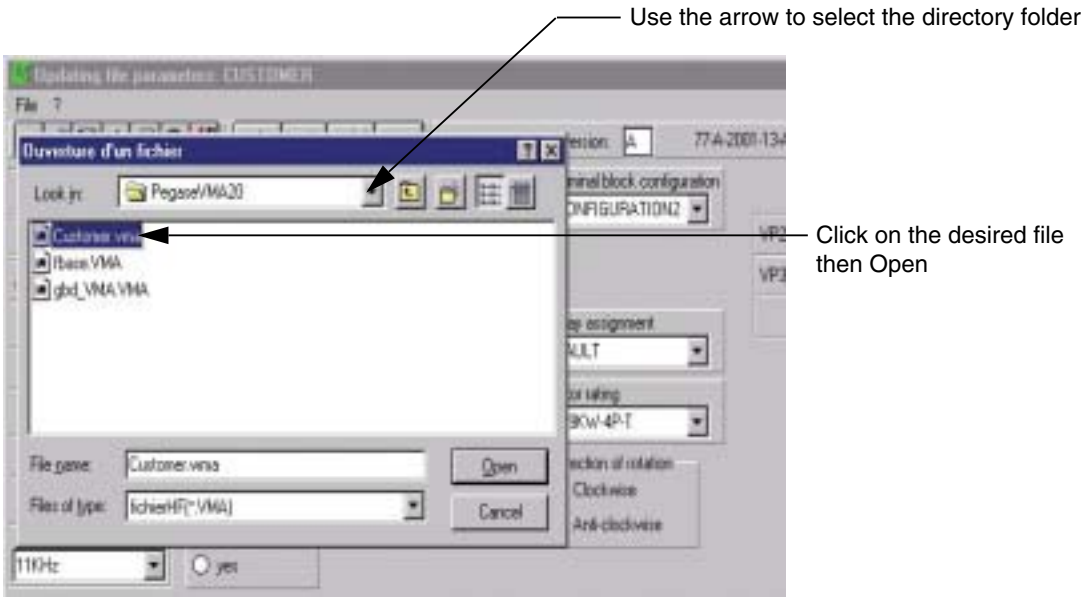
Use the arrow to select the folder where you wish to save this new file.

Name the file, then click "Save"

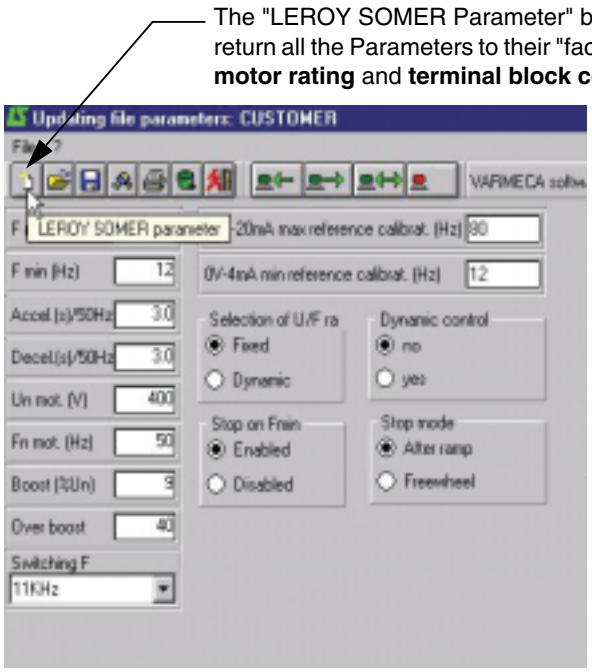
3.3.2.5 - Open a settings file



The following window appears:



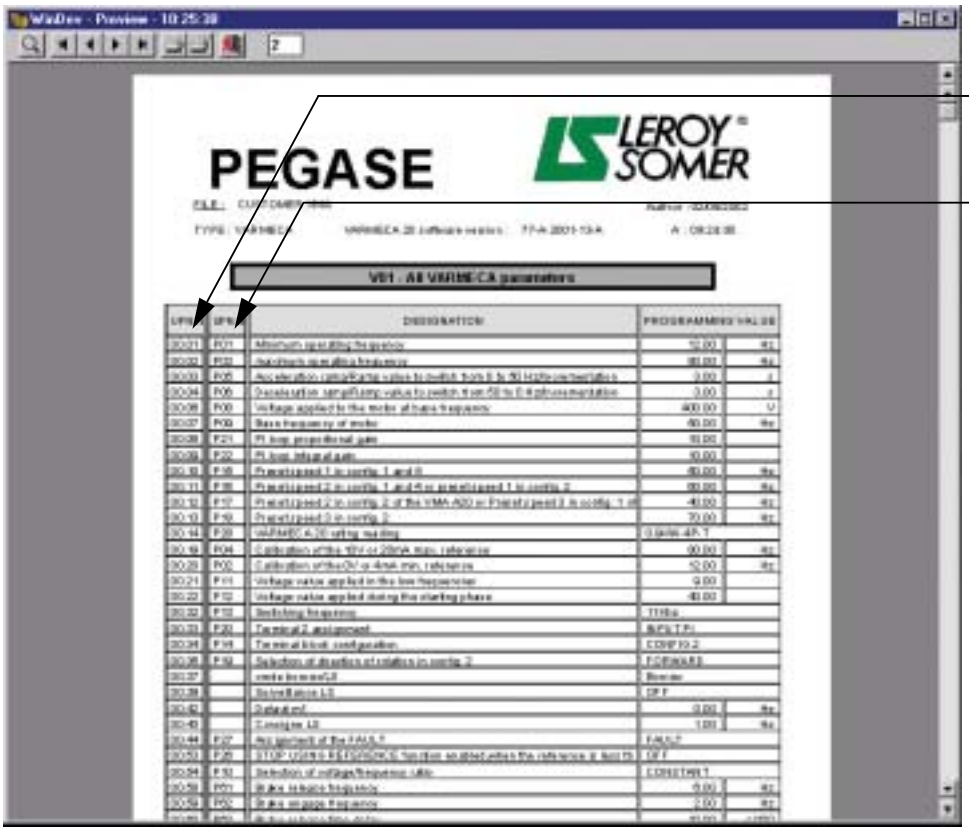
3.3.2.6 - Return to "factory" settings



3.3.2.7 - Printing the settings

Click the  button

The settings appear in the form of a table:



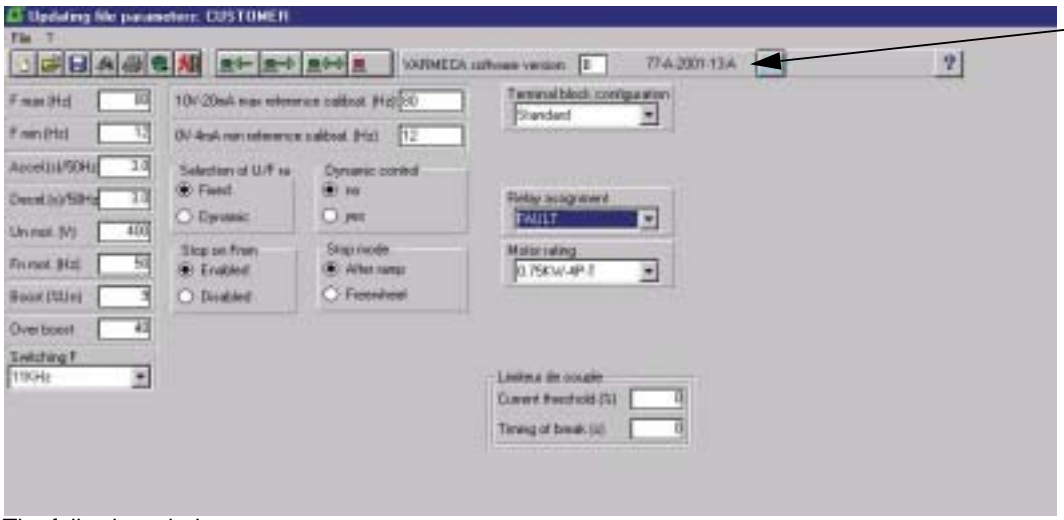
Note: in the "Print" menu, parameters cannot be modified.

3.3.2.8 - Using the settings tables

The settings table in the "Print" menu can only be used in the PEGASE software.

The  key will allow the parameters to be saved to an EXCEL file.

Note: it will not be possible to use this file to set the parameters on a VARMECA 20. To do this it will be essential to return to the file saved in PEGASE (section 3.3.2.5).



The following window appears:

VARMECA 20
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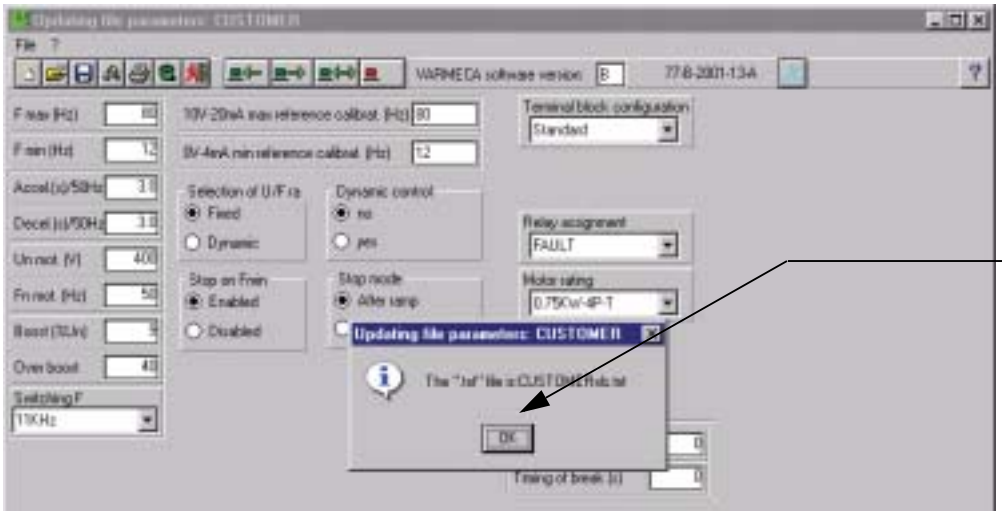
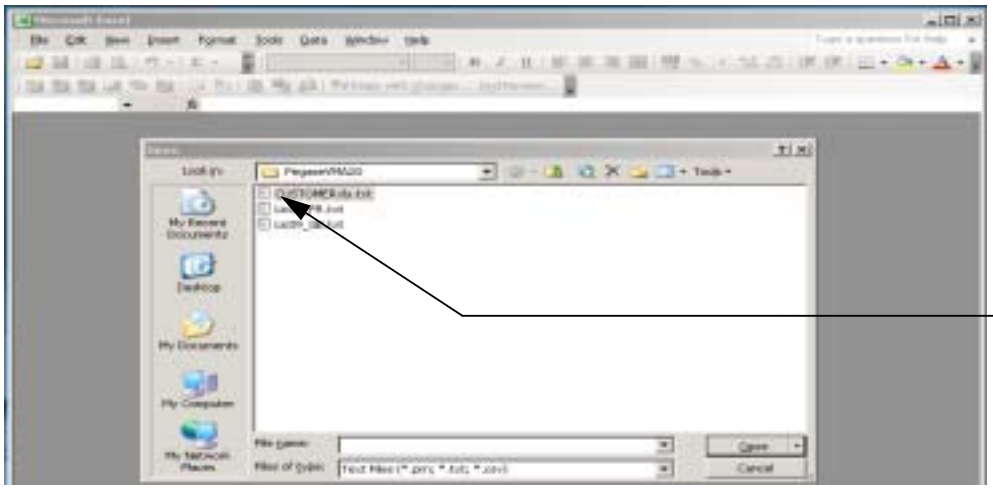
COMMISSIONING THE PEGASE VMA 20 PC PARAMETER SOFTWARE



Press OK to confirm

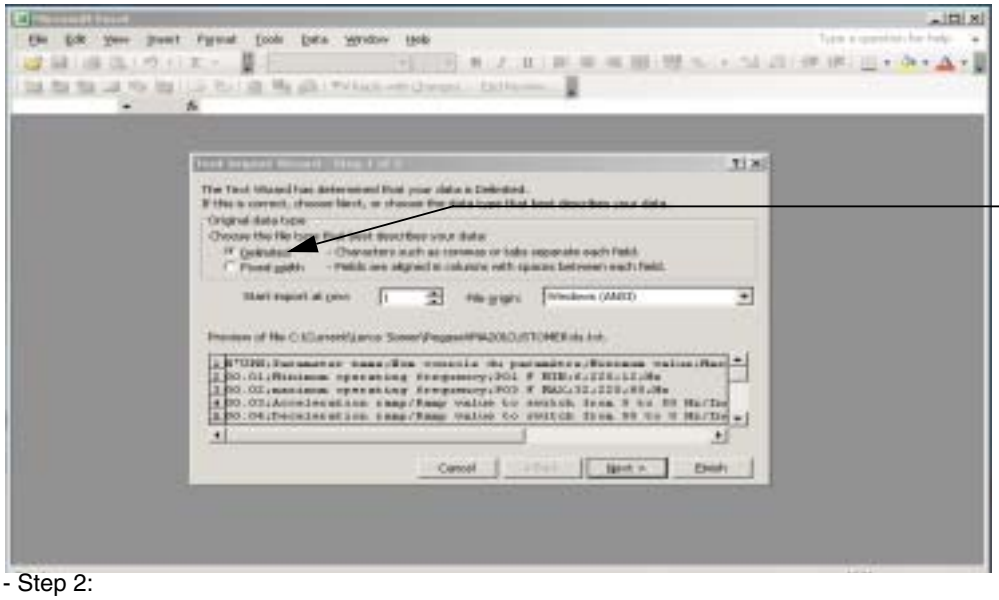
A text file has been created in the PEGASE folder.

- Open EXCEL.



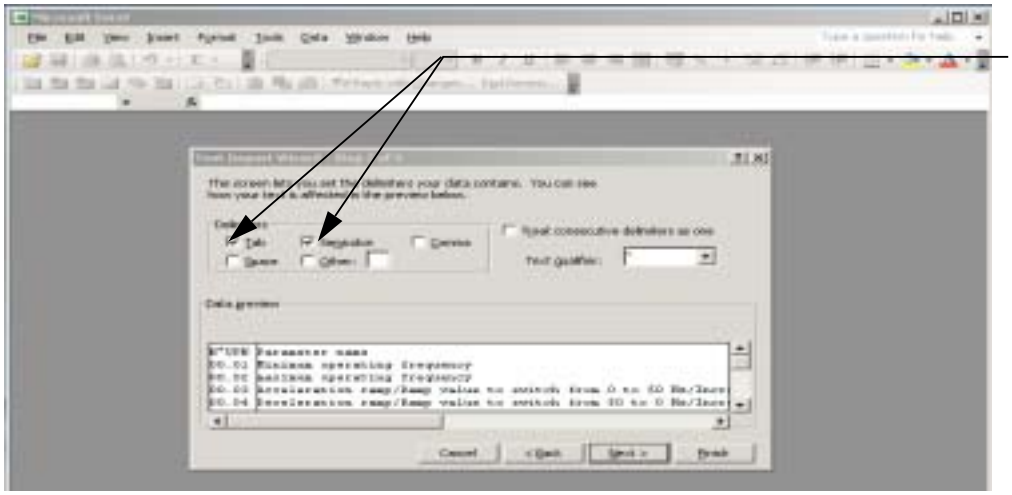
Search for the created text file in the PEGASE folder and open it

- Step 1:



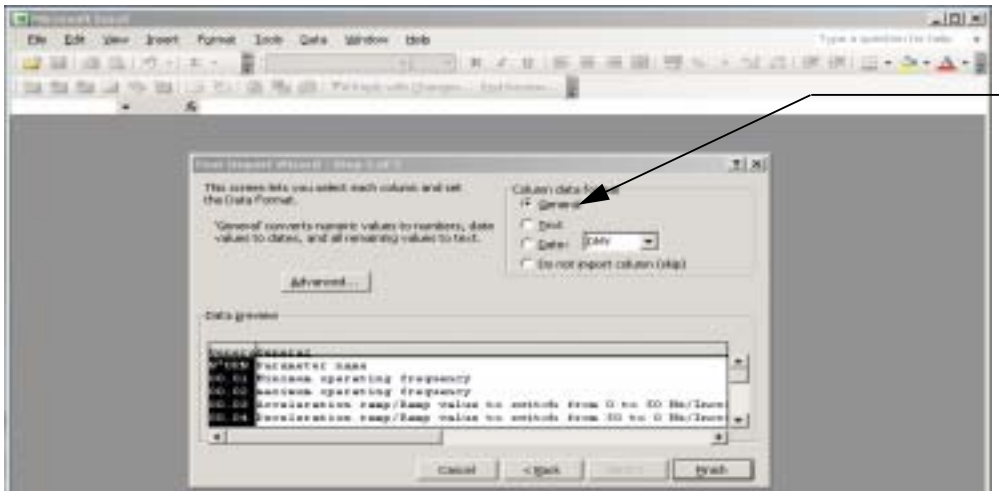
Click "Delimited" then "Next"

- Step 2:



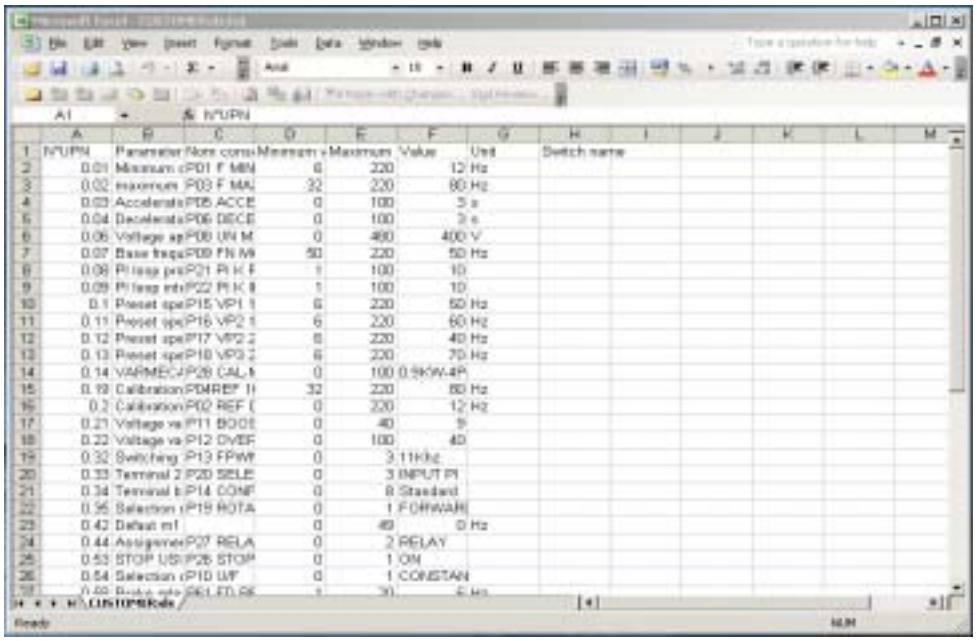
Select both separators then click "Next"

- Step 3:



Select "General" format then click "Finish"

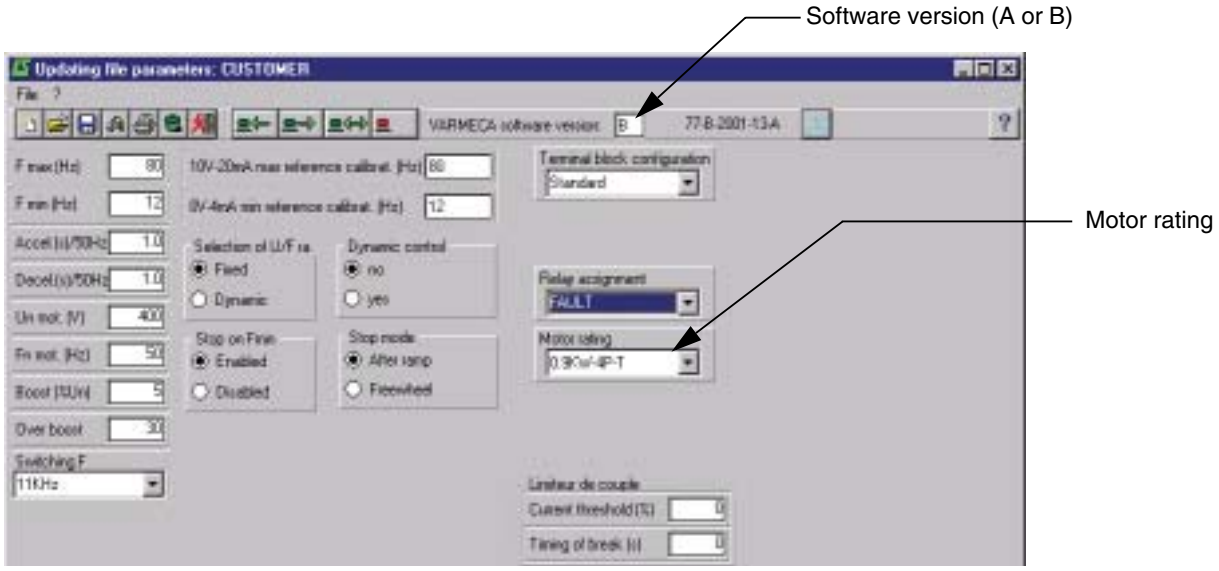
- The final settings table appears:



It can now be used in the same way as any EXCEL file.

3.3.3 - Setting the VARMECA parameters

The VARMECA parameters are set from the following screen:



1) First you should enter the VARMECA software version (A or B) and the motor rating.

To be able to export the PC parameters to the VARMECA, both these parameters MUST correspond to those set in the factory.

If you do not know either of these parameters, you can find them as follows:

- Connect the VARMECA to the PC (section 3.1.3 on connection).
- Switch on the VARMECA.
- Click the "import" key  .
- The PC reads the VARMECA parameters and updates the above settings page and in particular the "software version" and "motor rating" windows.

2) Modify the settings required for your application.

3) Save these settings in a special file if necessary (parameter backup, etc) (section 3.3.2.5).

4) Transfer the settings from the PC to the VARMECA:

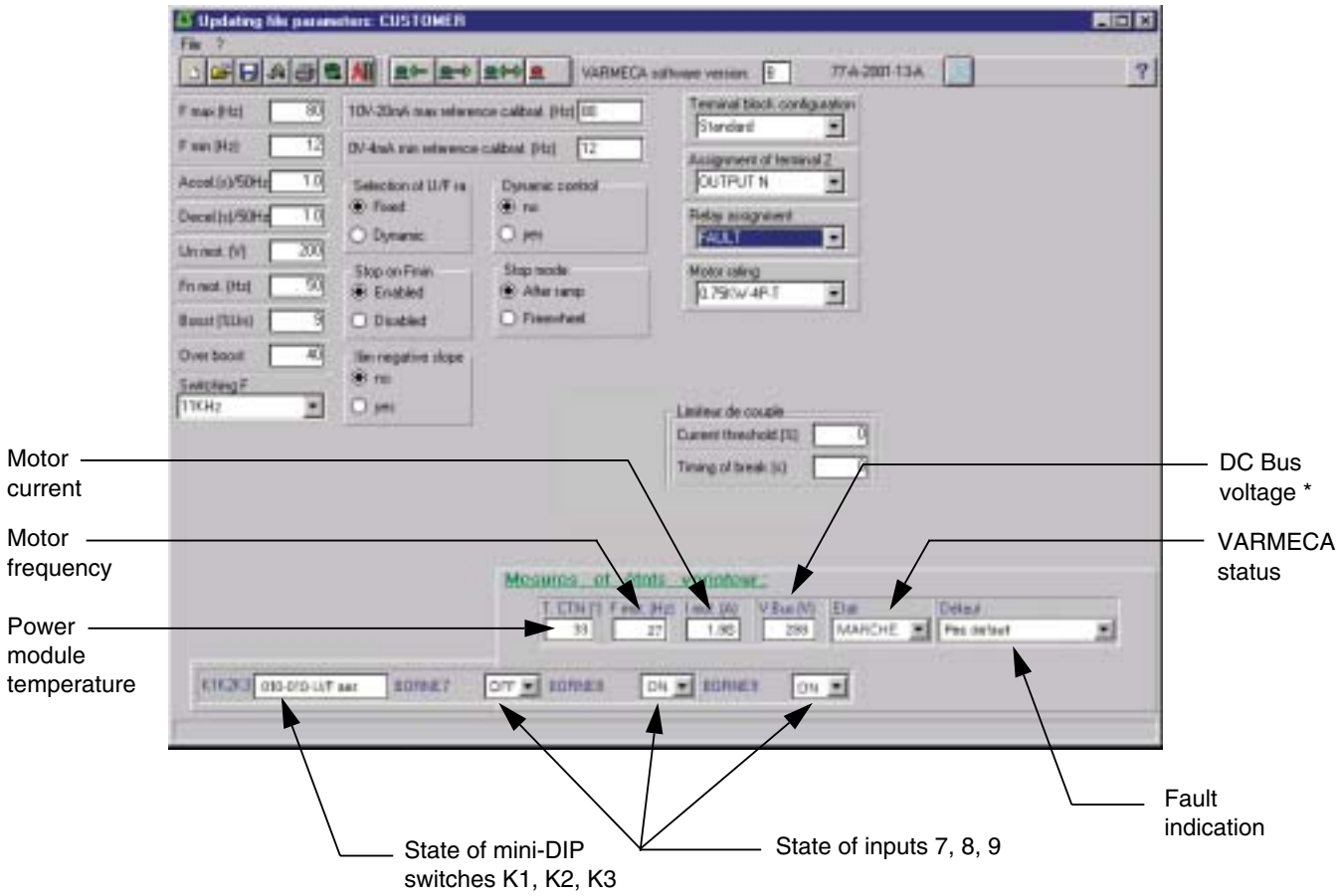
- Connect the VARMECA to the PC (section 3.1.3 on connection).
- Switch on the VARMECA (run command disabled)
- Click the  key.

A red arrow appears at the top right of the screen for a few seconds. When this arrow disappears, parameter loading is complete.

3.3.4 - Display during operation

- Connect the PC to the VARMECA.
- Switch on the VARMECA.
- Click the  key.

An additional window appears which can be used to display certain parameters during operation.

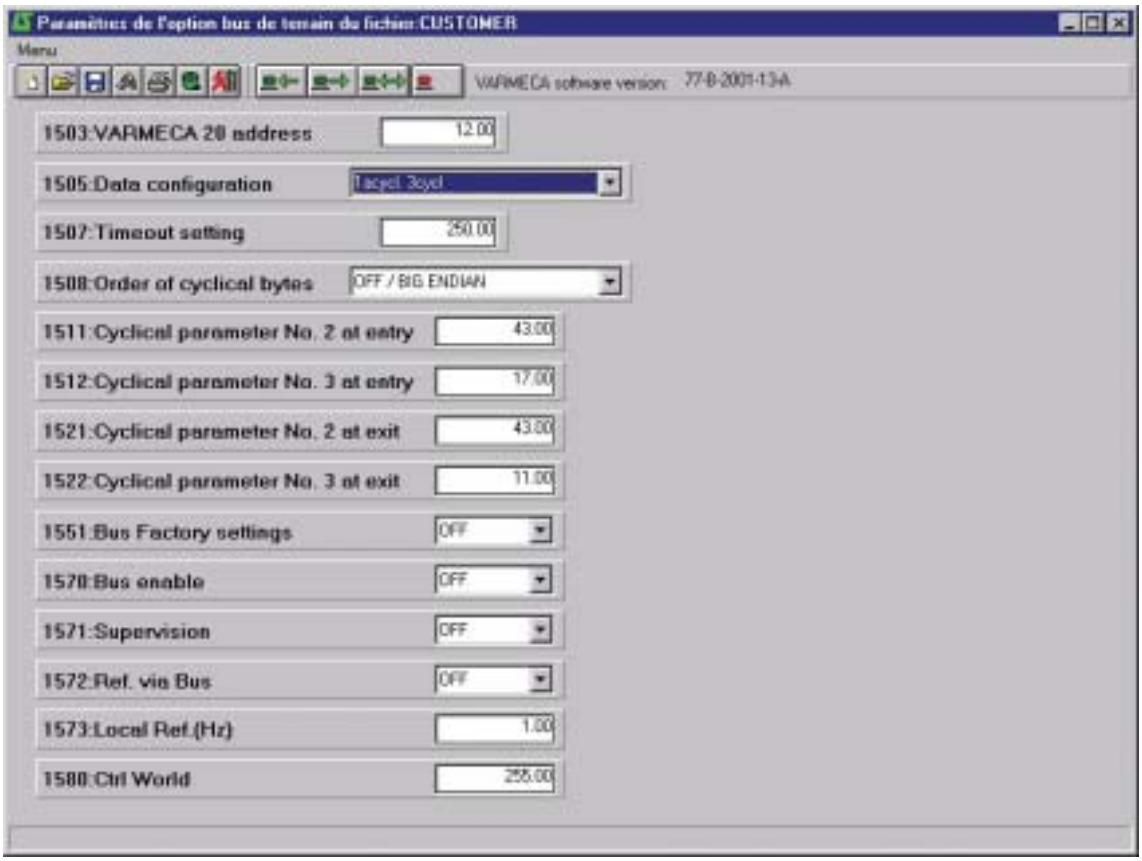


* DC Bus voltage: rectified filtered VARMECA supply voltage (VBus = Vmains x $\sqrt{2}$).

3.3.5 - Detail of the optional fieldbus parameters window

- Click on the "optional fieldbus parameters" window.

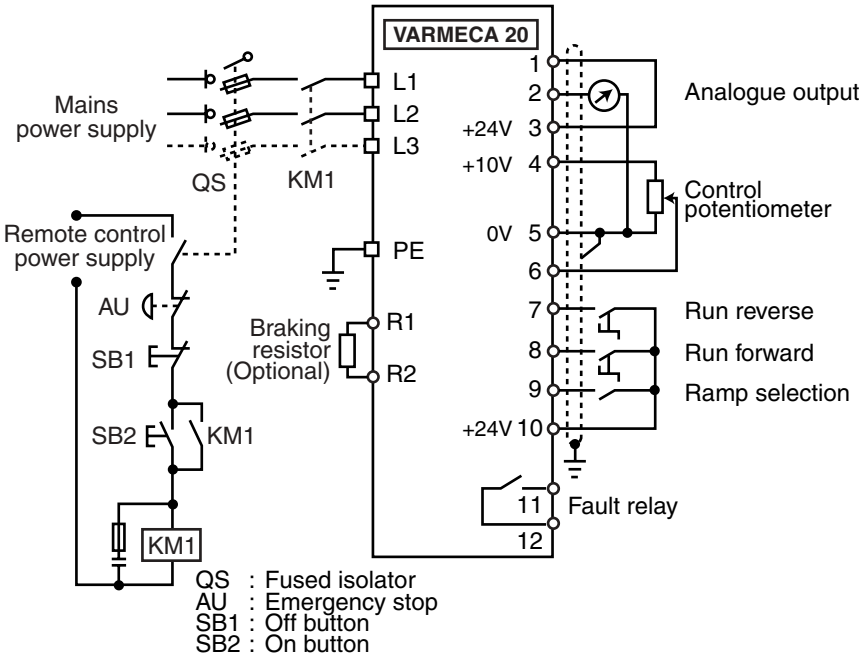
This window can be used to access the special parameters for the optional fieldbus.



For this page, the software is used in an identical way to the "VARMECA 20 parameters" window.
All functions: import, export, dynamic display are active.

4 - WIRING DIAGRAMS

4.1 - Standard configuration (factory setting)



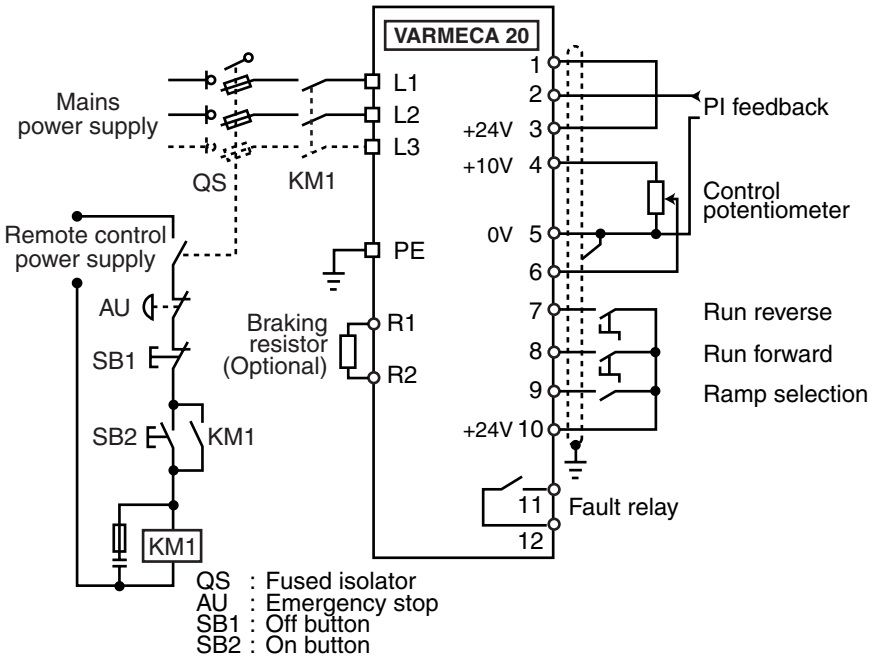
Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Speed analogue output 0 to +10V, 3mA 0V = zero speed 10V = maximum speed
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Ramp selection or external fault logic input (see page 53: **P87**) 1s (for 0 to 50Hz): terminals 9 and 10 not connected 3s (for 0 to 50Hz): terminals 9 and 10 connected
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Reference	MINI DIP K1
0 -10V	ON
4 -20mA	OFF

VARMECA 20
Variable speed motors and geared motors
WIRING DIAGRAMS

4.2 - Standard configuration: regulation with integrated PI loop (VMA A20)

PI reference using local control knob or external reference - 2 running directions (VMA A20 only).
Note: PI regulation is also accessible in configurations 5 and 6 (VMA A20 only).



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	0-10V or 4-20mA sensor feedback analogue input
3	Source +24VDC, 30mA (Sensor power supply) Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Ramp selection logic input 1s (for 0 to 50Hz): terminals 9 and 10 not connected 3s (for 0 to 50Hz): terminals 9 and 10 connected
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

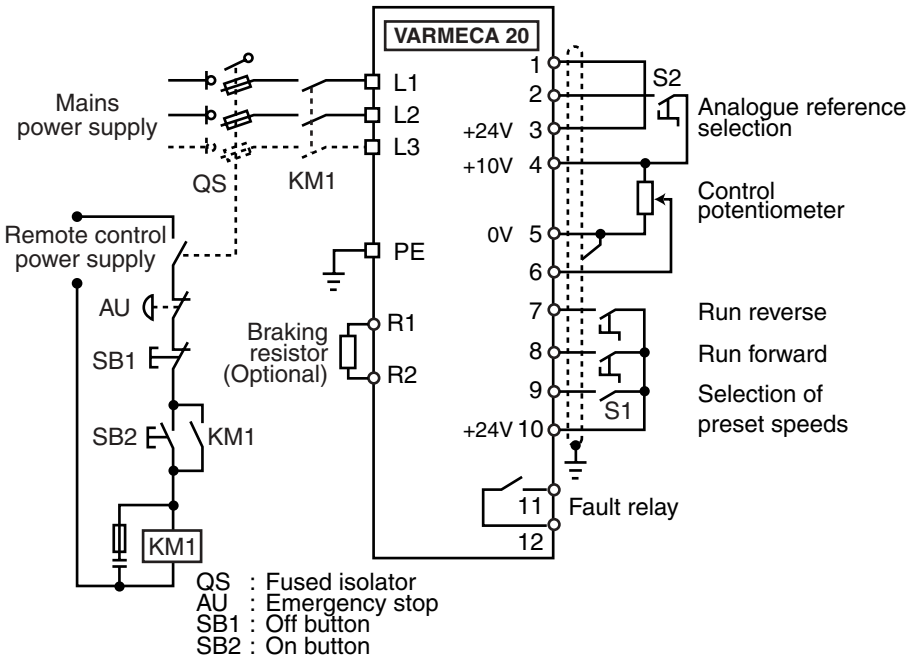
Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P20 = INPUT PI	Terminal No. 2 assignment = PI INPUT
P21 = PI - K PROPOR.	PI = K PROPOR.
P22 = PI - K INTEGR.	PI = K INTEGR.

Feedback	Mini Dip K2
0 -10V	ON
4 -20mA	OFF

Reference	Mini Dip K1
0 -10V	ON
4 -20mA	OFF

4.3 - Configuration 1: 2 preset speeds and analogue reference - 2 running directions



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Reference selection logic input
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Reference selection logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 1	Terminal block configuration = Config. 1
P15 = VP1-1(Hz)	VP1 = option 1-4
P16 = VP2-1(Hz)	VP2 option 1-4 or VP1 option 2
P60 = ON for materials handling applications	Dynamic control = YES for materials handling applications

Reference	S1	S2
VP1-1	1	0
VP2-1	0	0
Analogue reference	-	1

For other parameter settings see sections 2 and 3.

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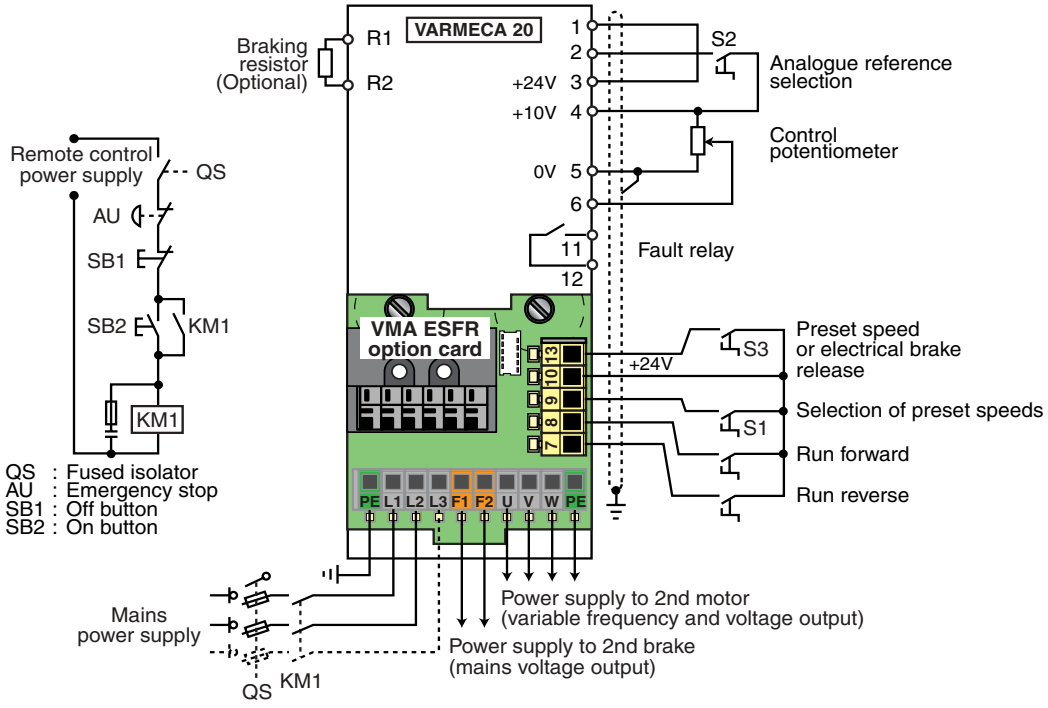
4.4 - Configuration 1: with VMA ESFR option card (VMA B20 only)
3 preset speeds and analogue reference or 2 preset speeds + electrical brake release and analogue reference



Marking	Functions - Characteristics
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Reference selection logic input
3	Source +24VDC, 30mA (Sensor power supply) Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running
On ESFR option	
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Reference selection logic input
10	Source +24VDC, 30mA Common at terminal 3
13	Logic input = selection of a 3rd speed preset or electrical brake release (P70)

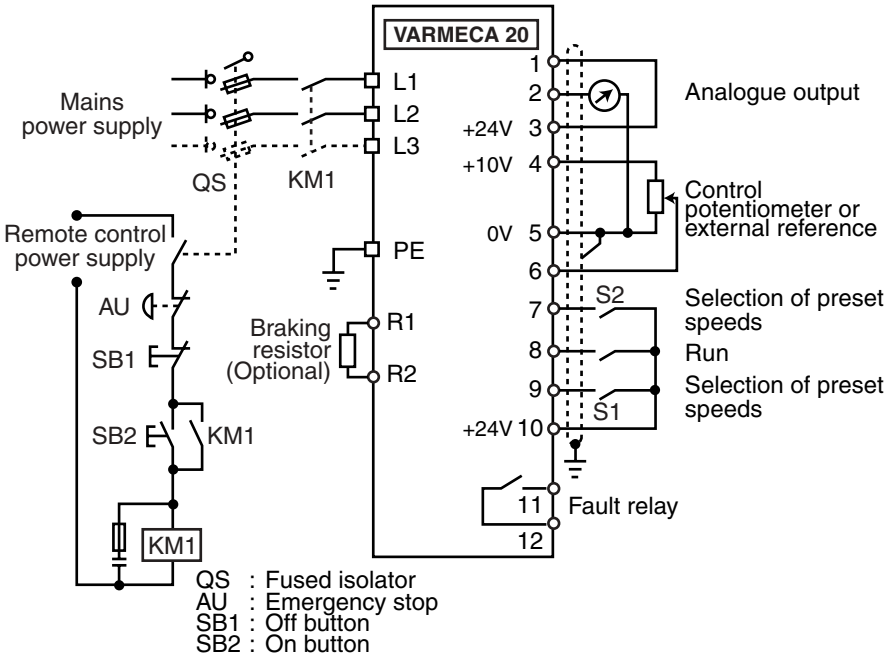
Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = config.1	Terminal block configuration = Config. 1
P15 = VP1 (Hz)	VP1 option 1-4
P16 = VP2 (Hz)	VP2 option 1-4
P17 = VP3 (Hz)	VP3 option 1
P60 = ON	Dynamic control = YES
P61 = dep. on application	Brake release F
P62 = dep. on application	Brake engage F
P63 = dep. on application	T1 release
P64 = dep. on application	T2 magnetisation
P65 = dep. on application	DC injection time delay
P66 = dep. on application	T4 brake engage
P67 = dep. on application	DC injection level
P68 = dep. on application	I threshold before brake release
P69 = ON	VMA ESFR = YES
P70 = VP3-1 or D. BRAKE	Terminal 13 = VP3-1 or D. BRAKE

Reference	S1	S2	S3
VP1-1	1	0	0
VP2-1	0	0	0
VP3-1 or D.BRAKE	0	0	1
Analogue reference	0	1	0

For other parameter settings see sections 2 and 3.

4.5 - Configuration 2: Analogue reference and 3 preset speeds - 1 running direction (VMA A20 only)



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Speed analogue output 0 to +10V, 3mA 0V = zero speed 10V = maximum speed
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Selection of preset speeds logic input
8	Run/Stop logic input
9	Selection of preset speeds logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 2	Terminal block configuration = Config. 2
P16 = VP1-2(Hz)	VP1 option 2
P17 = VP2-2(Hz)	VP2 option 2
P18 = VP3-2(Hz)	VP3 option 2
P19 = Forward/Reverse	Direction of rotation: Clockwise/ Anticlockwise

Reference	Mini Dip K1
0 -10V	ON
4 -20mA	OFF

Reference	S1	S2
VP1-2	0	1
VP2-2	1	0
VP3-2	0	0
Analogue reference	1	1

For other parameter settings see sections 2 and 3.

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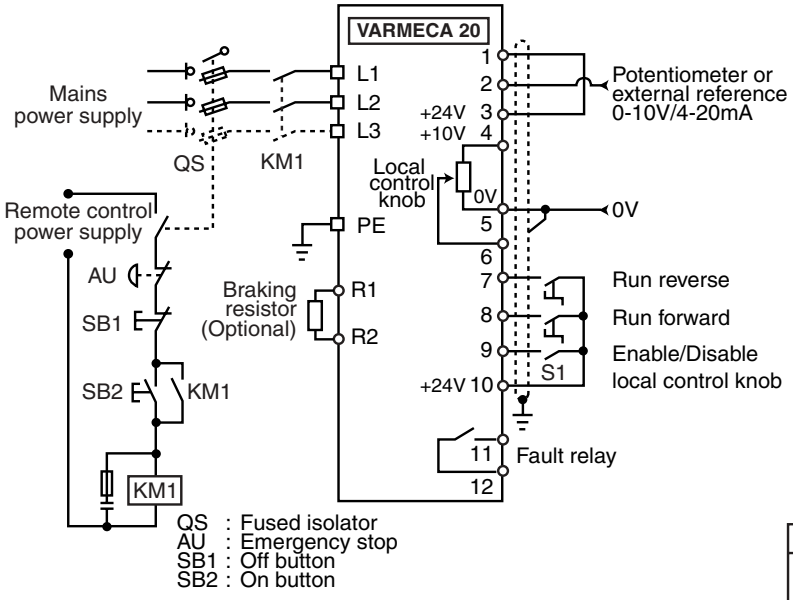
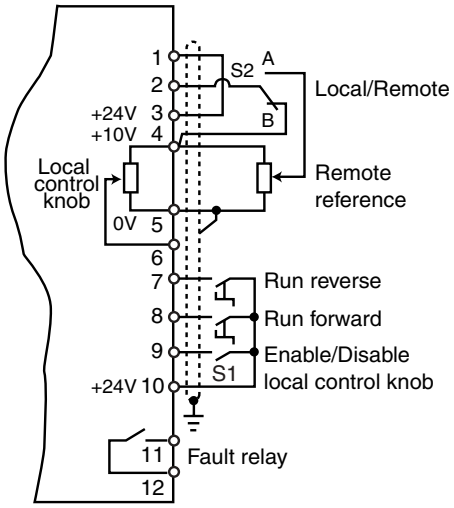
4.6 - Configuration 3: Correction of an external reference using the speed control knob or Local/Remote command

Correction of an external reference via the local control knob



Local/Remote speed control



Type of operation		S1	S2
Correction of a reference	Correction possible	0	
	No correction	1	
Local/ Remote	Local control	0	B
	Remote control	1	A

Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	External reference analogue input 0-10V, 4-20mA
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Logic input - Enable/Disable - Correction S1 open: correction possible S1 closed: no correction
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

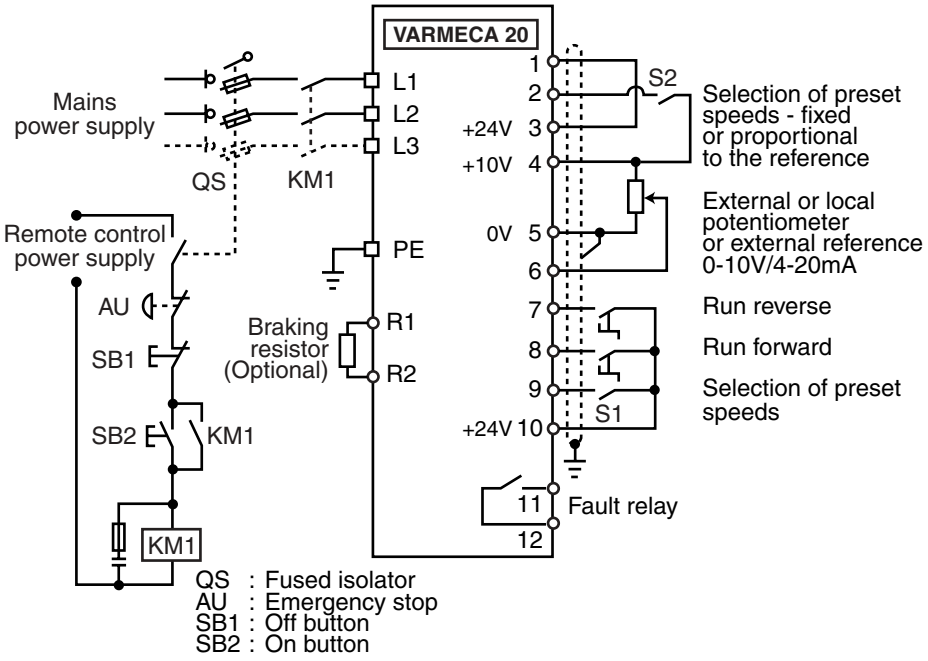
Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 3	Terminal block configuration = Config. 3

Reference	Mini Dip K2
0 -10V	ON
4 -20mA	OFF

For other parameter settings see sections 2 and 3.

4.7 - Configuration 4: 2 preset speeds, fixed or proportional to the reference - 2 running directions



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Fixed or proportional preset speed logic input
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Selection of preset speeds logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 4	Terminal block configuration = Config. 4
P15 = VP1-1(Hz)	VP1 option 1-4
P16 = VP2-1(Hz)	VP2 option 1-4

VP1-1 and VP2-1	S2
Fixed	0
Proportional	1

Reference	Mini Dip K1
0 -10V	ON
4 -20mA	OFF

Reference	S1
VP1-1	1
VP2-1	0

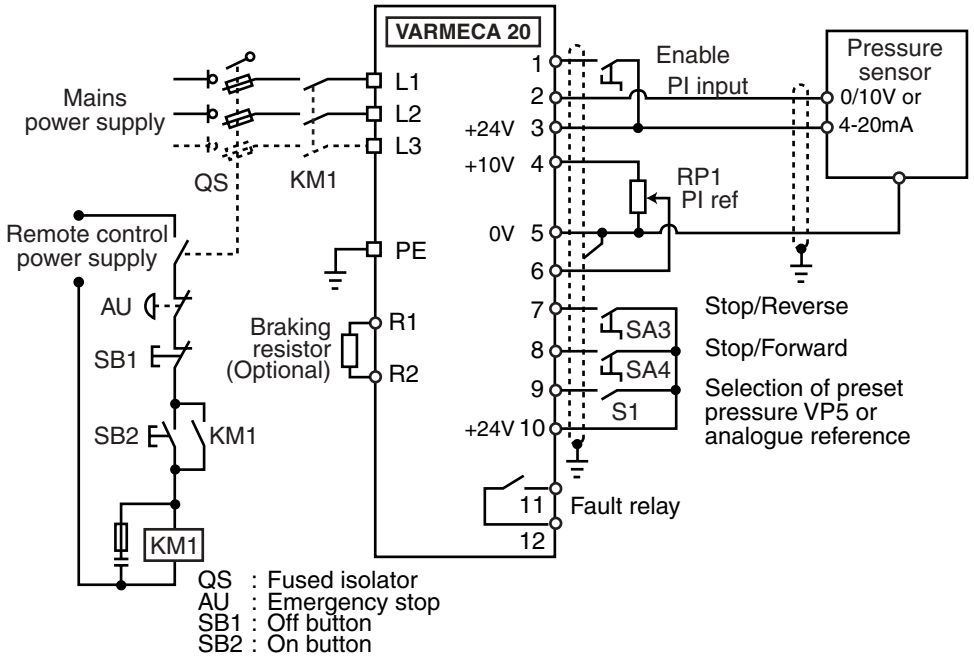
For other parameter settings see sections 2 and 3.

VARMECA 20

Variable speed motors and geared motors

WIRING DIAGRAMS

4.8 - Configuration 5: Regulation of a pressure with the integrated PI loop - PI reference using local or external reference - 2 running directions (VMA A20 only)



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Analogue input = pressure sensor feedback 0-10V or 4-20mA
3	Source +24VDC, 30mA - Sensor power supply Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Reverse/Stop logic input
8	Forward/Stop logic input
9	Selection of preset analogue reference or digital reference logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting (other indications Page 34)

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 5	Terminal block configuration = Config. 5
P21 = PI - K PROPOR.	PI = K PROPOR.
P22 = PI - K INTEGR.	PI = K INTEGR.
P50 = T1 - P min	T1 pump draining
P51 = P - min	P1 pump draining
P52 = T2-F - min	T2 pump stop on Fmin
P54 = PI DECAL	Instability
P55 = REF.PI	Sensor reference
P56 = INPUT PI	Sensor feedback
P57 = ALARM	Alarm
P58 = VP5	VP5
P59 = BAR FACTOR	K

Sensor feedback	Mini Dip K2
0 -10V	ON
4 -20mA	OFF

Analogue reference	K1
0 -10V	ON
4 -20mA	OFF

Reference selection	S1
Analogue	ON
Digital VP5	OFF

For other parameter settings see sections 2 and 3.

4.8.1 - Description of operation with configuration 5

Sensor
0-10V or 4-20mA type (selection via mini dip K2).
The sensor PI feedback is expressed on a scale of 0 to 1000 pts:
- for the 0-10V sensor
eg: 0-10 bar sensor, for 5 bars it will read 500 pts.
- for the 4-20mA sensor
4mA ⟶ 0 pts
20mA ⟶ 1000pts

Operation on start-up
P1 draining pressure (% of sensor)
T1 draining time delay (in seconds T1 ≤ 120s)

This time delay is sufficient for starting; if P1 is not reached during time T1 the underpressure fault (UNDER P1) appears (P57 stored fault).
If the pump runs dry during operation
(P < P1) regulation will bring the motor up to maximum speed after time T1; the underpressure fault appears.
Similarly, if there is a break in sensor feedback (0-10V or 4-20mA) the VARMECA 20 will trigger an underpressure fault.

Automatic Run/Stop
T2 stop on minimum frequency time delay (in seconds T2 ≤ 120s).
If the motor speed is around Fmin. during time delay T2, the VARMECA 20 will cause the pump to stop.
During this period the VARMECA monitors the pressure and restarts at 0.95 Pc (reference pressure) without a time delay.

Indication of operation (P57)
If the motor speed is at maximum for longer than 120s, the red LED flashes to indicate operation at maximum flow.
"**ALARM Q**" is displayed.
If the motor is stopped during automatic operation, the flashing red LED indicates that there is zero flow from the pump.
"**ALARM Q**" is displayed.

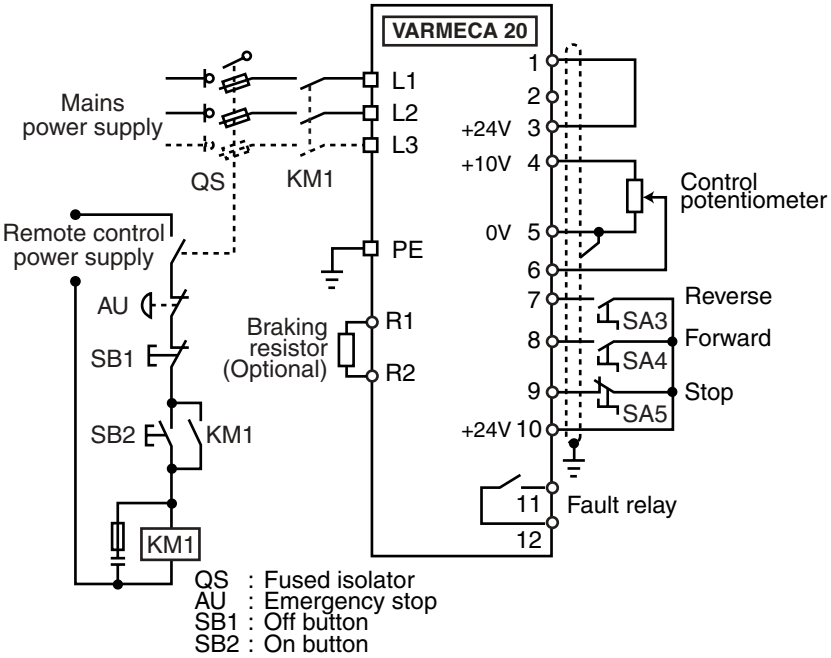
Flow regulation at the maximum operating point
During operation while overloaded, the VARMECA will automatically regulate itself around the rated current by lowering the output frequency, but will not switch to fault mode.

Special parameters for configuration 5 (level 50)
- P59 K coefficient for direct reading of the pressure and the reference.
Eg: 0-10 bar sensor K = 10, it will read 10000 mbars etc
- P54 instability factor enables detection with the valve closed.
- P58 digital value of the pressure reference (0 to 100% of the reference sensor).

Regulation references
- External 0-10V or 4-20mA type (selection via mini dip K1).
- Local mini-dip button K1 ON (0-10V).
- CVI VMA internal control card mini dip K1 ON (0-10V).
- Preset reference (P58: VP5) S1 contact on OFF express as a % of the reference sensor.

en

4.9 - Configuration 6: Jog operation command



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Speed analogue output 0 to +10V, 3mA or analogue input 0-10V - 4-20mA 0V = zero speed 10V = maximum speed
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Run Reverse logic input
8	Run Forward logic input
9	Stop and run authorisation logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P14 = Config. 6	Terminal block configuration = Config. 6

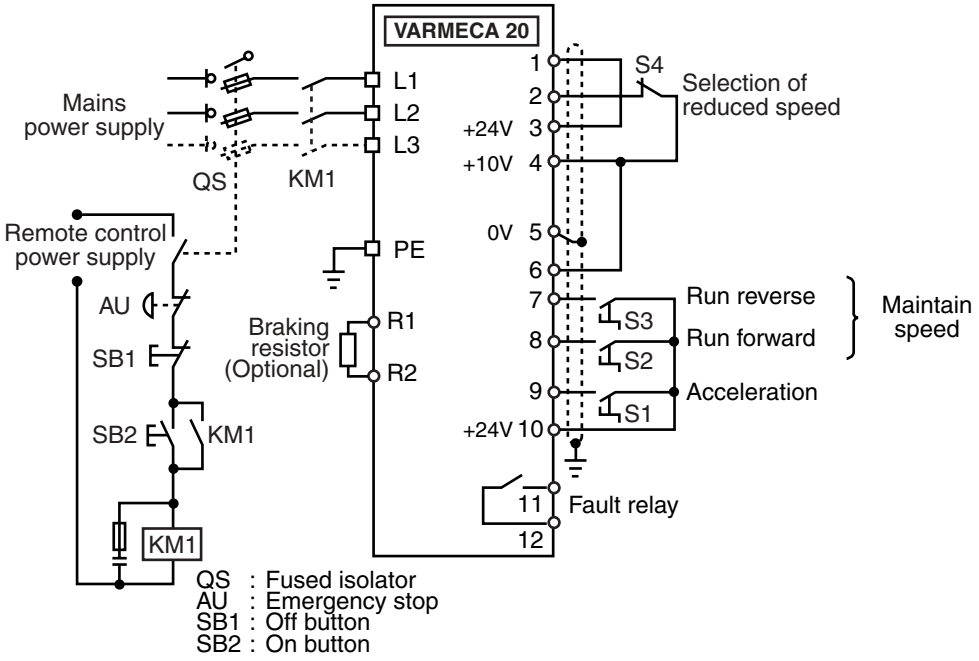
Reference	Mini Dip K1
0 -10V	ON
4 -20mA	OFF

VARMECA 20

Variable speed motors and geared motors

WIRING DIAGRAMS

4.10 - Configuration 7: "Faster/slower command" (VMA B20 only)



Marking	Functions - Characteristics
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Logic input: Enabling of reduced speed S4 Open: Operation at reduced speed (VP1-1) S4 Closed: Operation at max. speed
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
7	Run Reverse/Maintain speed logic input
8	Run Forward/Maintain speed logic input
9	Acceleration up to F max. logic input
10	Source +24VDC, 30mA Common at terminal 3
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running

Associated parameter setting

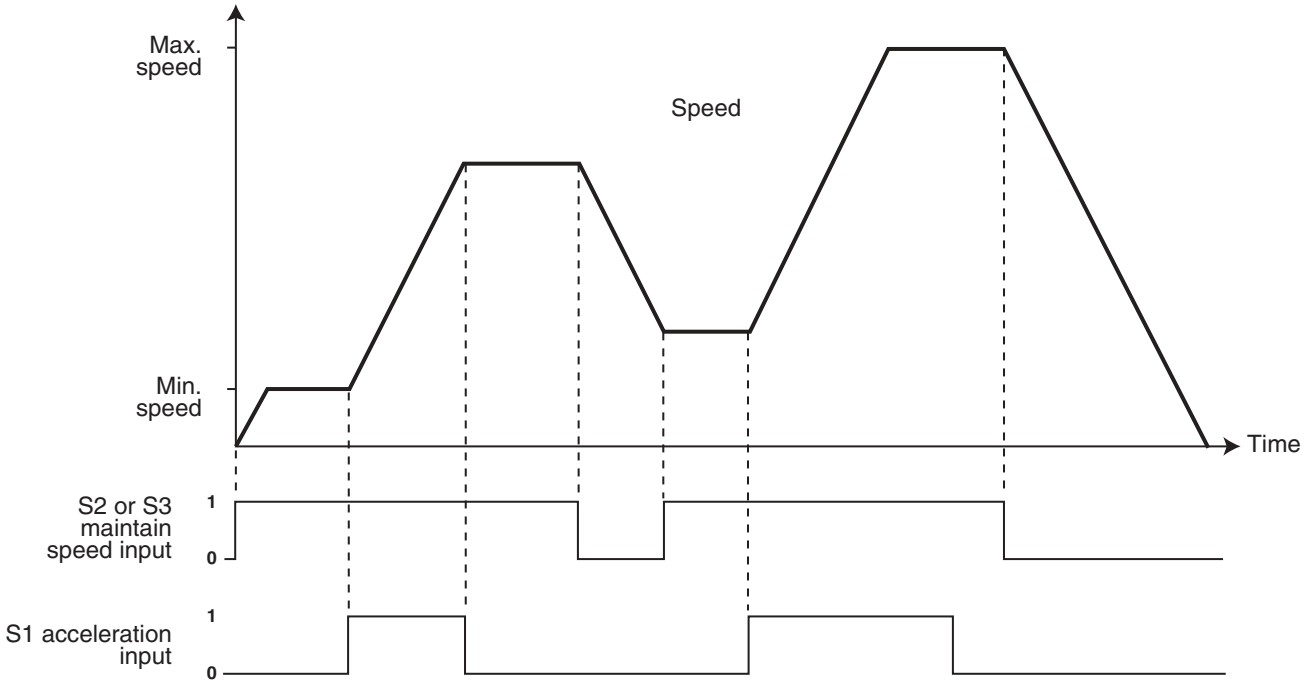
CDC-VMA 20	PEGASE VMA 20
P60 = ON	Dynamic control = YES
P14 = Config. 7	Terminal block configuration = Config. 7
P15 = VP1-1	VP1 option 1-4
P61 = dep. on application	Brake release F
P62 = dep. on application	Brake engage F
P63 = dep. on application	T1 release
P64 = dep. on application	T2 magnetisation
P65 = dep. on application	DC injection time delay
P66 = dep. on application	T4 brake engage
P67 = dep. on application	DC injection level
P68 = dep. on application	I threshold before brake release

4.10.1 - Description of operation of the faster/slower command: Configuration 7

This function is used to stabilise the speed at all levels between min. speed and max. speed.
The command operates by means of two contacts:
- a Run/Stop, Forward or Reverse contact which is used for starting up to a min. speed, and for maintaining intermediate speeds
- an acceleration contact which is used to reach the max. speed.

An additional input on terminal 2 is used to reduce the max. speed. The faster/slower function can be used at any point down to min. speed.

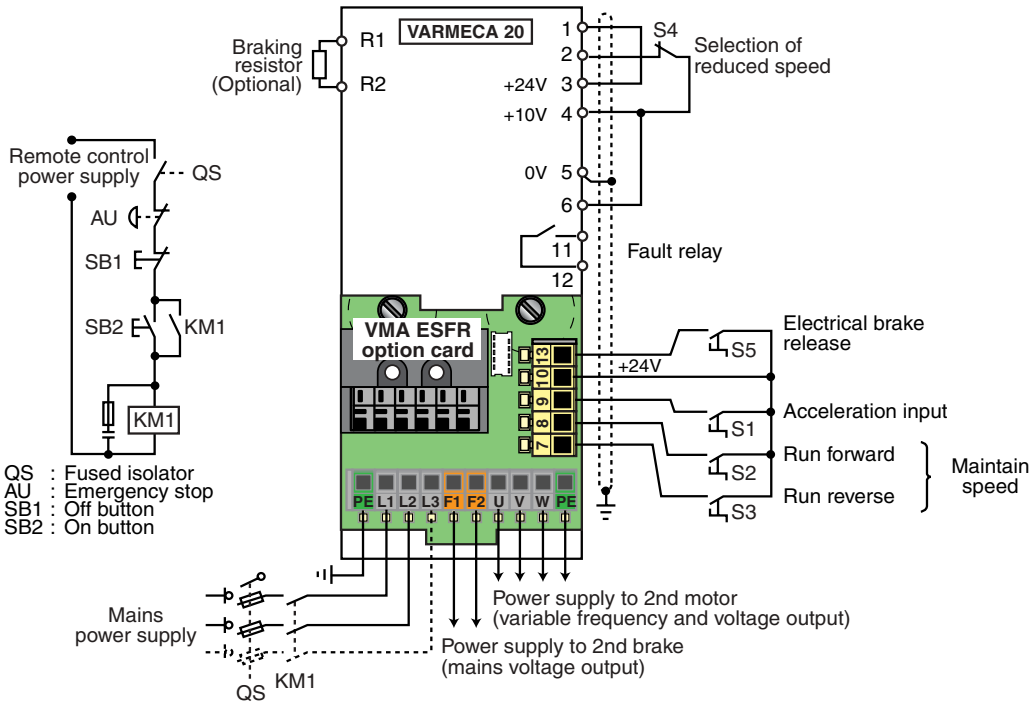
Diagram:



Parameter settings:

	CDC - VMA 20 parameters	PEGASE VMA 20	Setting
Enable dynamic control	P60 = ON	Dynamic control	ON / OFF
Configuration	P14 = Config. 7	Terminal block configuration = config. 7	
Min. speed	P01 Fmin	Fmin	6 to Fmax
	P02 Ref 0V	Min. reference calibration	0 to Fmin
Max. speed	P03 Fmax	Fmax	32 to 100 Hz
	P04 Ref 10V	Max. reference calibration	Equals Fmax
Acceleration ramps	P05 accel ramp	Accel	0 to 40s
Deceleration ramp	P06 decel ramp	Decel	0 to 40s
Reduction of max. speed	P15 VP1-1	VP1 option 1-4	6 to Fmax

4.11 - Configuration 7: With VMA ESFR option card (VMA B20 only) "Faster/slower" command and electrical brake release



Marking	Functions - Characteristics
R1, R2	Connection of the braking resistor (optional) VMA21 - min. resistance value = 200 Ohms VMA22 - min. resistance value = 200 Ohms
1	Locking logic input Terminals 1 and 3 not connected: drive disabled Terminals 1 and 3 connected: drive enabled
2	Logic input: Enabling of reduced speed S4 Open: Operation at reduced speed (VP1-1) S4 Closed: Operation at max. speed
3	Source +24VDC, 30mA Common at terminal 10
4	Source +10V, 10mA
5	0 V
6	Reference input 0 to +10V or 4-20mA 0-10V: input impedance = 100kOhms 4-20mA: input impedance = 0.5kOhms
11, 12	Fault relay - volt-free contact 250V 1A Contact open: switched off or faulty Contact closed: running
On ESFR option	
L1, L2 or L1, L2, L3	Connection of protected mains supply phases 200V to 240V ± 10% 50-60Hz in single-phase 220V to 480V ± 10%, 50-60Hz in three-phase
PE	Earth connection
7	Run Reverse/Maintain speed logic input
8	Run Forward/Maintain speed logic input
9	Acceleration up to F-max. logic input
10	Source +24VDC, 30mA Common at terminal 3
13	Logic input: Electrical brake release S3 Open: brake engaged when stopped S3 Closed: brake released when stopped

Associated parameter setting

CDC-VMA 20	PEGASE VMA 20
P60 = ON	Dynamic control = YES
P14 = config.7	Terminal block configuration = Config. 7
P15 = VP1	VP1 option 1-4
P61 = dep. on application	Brake release F
P62 = dep. on application	Brake engage F
P63 = dep. on application	T1 release
P64 = dep. on application	T2 magnetisation
P65 = dep. on application	DC injection time delay
P66 = dep. on application	T4 brake engage
P67 = dep. on application	DC injection level
P68 = dep. on application	I threshold before brake release
P69 = ON	VMA ESFR = YES
P70 = D. BRAKE	Terminal 13 = D. BRAKE

For other parameter settings see sections 2 and 3.

5 - FAULTS - DIAGNOSTICS

Faults are indicated on the CDC-VMA console or on the PC/PEGASE VMA 20 software.
With the PEGASE VMA 20 software, faults are indicated in plain text in the fault window.
The table below can be used to analyse faults and specifies any checks which should be performed.

Indication of the fault on CDC-VMA 20	Indication of the fault on PEGASE VMA 20	Checks to make, possible causes
OK	NO FAULT	
I2T MOTOR	MOTOR OVERHEATING	I2t overheating fault - Check whether the motor is overloaded (green LED + red LED flashing). - Check the set rating and the motor power. - Make sure that the boost setting (P11) has not been modified.
LEVEL In	THRESHOLD In	- Current threshold reached for torque limiting.
OVER CURRENT	OVERCURRENT	- Check that there is no short-circuit on a motor winding or on the connections. - Check the voltage balance between the supply phases and earth: check that there is no earth fault. - Check the motor insulation. - Check the earth connection and the voltage balancing between earth and the supply phases. - Check that the deceleration ramp is long enough for applications with high inertia. - Check the set rating and the motor power. - Check that the deceleration ramp is long enough for applications with high inertia. - Internal fault in the product.
LOCKED ROTOR	LOCKED ROTOR	- Check whether the motor is overloaded or has stalled (green LED flashing).
UNDER VOLT.	BUS UNDERVOLTAGE	- Check the mains supply voltage.
EEPROM	EEPROM	- Make sure that the VARMECA 20 is not disturbed by interference. - Internal fault in the product.
RS 232	SERIAL LINK	- Communication fault between the EEPROM and the micro-controller - product
FAULT POSITION K2	FAULT POSITION K2	- Ensure that MINI DIP K2 is the ON position (0-10V)
UNDER P1	UNDER P1	- The pressure is less than pressure P1 (set by P51), check the pressure, or - the sensor feedback is inactive, check that the cable has not been cut, or - the sensor is incorrectly wired up, or - the wrong type of feedback (0/10V or 4/20mA) has been selected.
LIMIT TH	OVERLOAD	- Motor overloaded, ensure that the rated power has not been exceeded.
LIMIT I	CURRENT LIMITING	- Drive in current limiting mode, ensure that the current required for the load is within the drive limits (measured using the motor current clamp as described in the setup manual).
ENABLE	LOCKING	- The drive is disabled, make sure there is a jumper between terminals 1 and 3 to unlock it.
FAULTS CAN ONLY BE CLEARED BY SWITCHING OFF THE VARMECA 20		
CONSOLE LINK FAULT		**FAULT SPECIFIC TO USE OF THE CDC-VMA 20 CONSOLE** - Check the connection cable.
	COMMUNICATION PROBLEM WITH THE VARMECA 20	**FAULT SPECIFIC TO USE OF THE PEGASE VMA 20 SOFTWARE** - Check the connection cable. - Check that the VARMECA 20 is correctly supplied. - Check that the serial port is correctly configured.

6 - SUMMARY OF SETTINGS

The table below can be used to note the settings entered on the VARMECA 20 in order to keep a record should a replacement product be needed.

Settings made using the CDC-VMA 20 console

Parameters		Value set
P01	F-MIN	
P02	REF 0V/4mA	
P03	F-MAX	
P04	REF 10V/20mA	
P05	ACCEL RAMP	
P06	DECEL RAMP	
P07	STOP MODE	
P08	UN-MOT	
P09	FN-MOT	
P10	CONTROL U/F	
P11	BOOST	
P12	OVER BOOST	
P13	F PWM	
P14	CONFIG	
P15	VP1-1	
P16	VP2-1 VP1-2	
P17	VP2-2 VP3-2	
P18	VP3-2	
P19	ROTATION	
P20	SELECT - N 2	
P21	PI - K PROPOR.	
P22	PI - K INTEGR.	
P23	F - MOT	
P24	I - MOT	
P25	FAULT	
P26	STOP-F.min	
P27	RELAY	
P28	CAL_MOT	
P29	CODE	
P30	V Bus DC	
P31	ETAT K1-K2-K3	
P42	O CTN ELEC	
P80	I NEG CTRL	
P81	F_MAX I Lim	
P82	F_min I Lim	
P83	OFFSET I Lim	
P84	STEP F IF I Lim	
P86	LEVEL U P07	
P87	EXT FAULT N9	
P90	LOG1VARMECA	
P91	LOG2VARMECA	
P92	LOG2VARMECA	
P93	LOG CDC_VMA	

Parameters		Value set
P50	T1 - P - min	
P51	P - min	
P52	T2- F - min	
P54	PI DECAL	
P55	REF.PI	
P56	INPUT PI	
P57	ALARM	
P58	VP5	
P59	BAR FACTOR	

Parameters		Value set
P60	CONTROL DYN.	
P61	FD BRAKE	
P62	FB BRAKE	
P63	TD BRAKE	
P64	TORQUE	
P65	T DC INJECT.	
P66	TB BRAKE	
P67	UC DC INJECT.	
P68	ID BRAKE	
P69	VMA ESFR	
P70	N13	
P71	LEVEL IN	
P72	T LEVEL IN	