

# Altivar 08

VVED398035

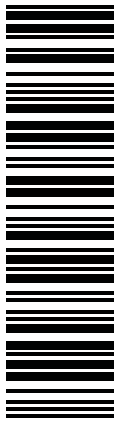
## Telemecanique

English

ATV-08H...M2

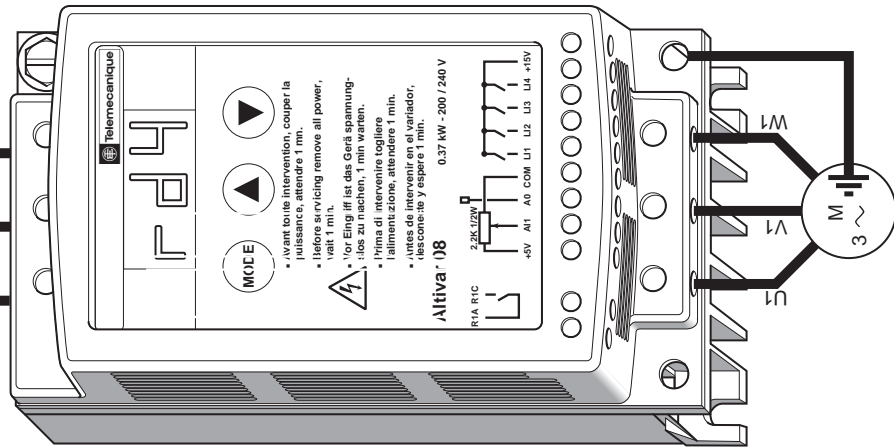
ATV-08H...M2X

W9 1623644 01 12 A03



0 33 89 110 153 12 5

200/240 V  
50/60 Hz

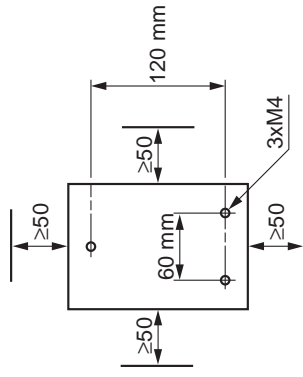


Power terminals	
Max. X-section	Max. torque
mm <sup>2</sup>	mN in.lbf
2.5	1 8.8

Control terminals	
Max. X-section	Max. torque
mm <sup>2</sup>	mN in.lbf
1.5	0.5 4.4

### Installation :

- device vertical,  $\pm 10^\circ$
- minimum clearance for cooling :
- 50 mm around the controller
- 10 mm in front



## Installation stages, "factory setting"



- 1 - Mount the controller
- 2 - Connect according to the circuit diagram below :



- single-phase supply ( $\neq$  - L1 - L2)
- motor (U - V - W -  $\neq$ ) ensuring that it is connected to a 200/240 V supply
- control (1 or 2 operating directions via LI1 and/or LI2)
- speed reference, via LI3/LI4 and/or via a potentiometer on AI1

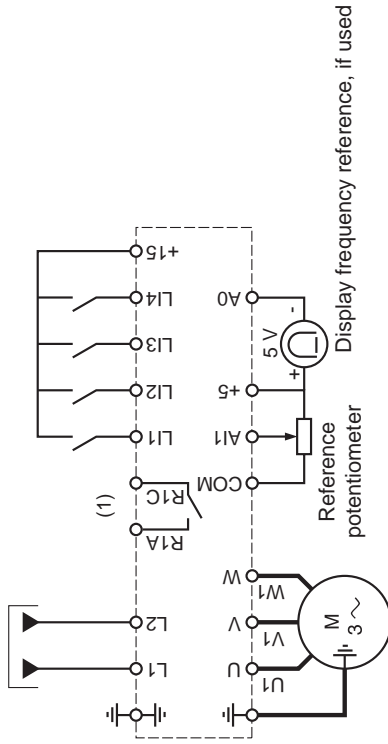


- 3 - Power up without giving a run signal
- 4 - Configure the motor nominal frequency  $b F r$  if it is other than 50 Hz
- 5 - Adjust, if the factory setting is not suitable :
  - minimum  $L 5 P$  and maximum  $H 5 P$  speeds
  - acceleration  $A L C$  and deceleration  $d E L$  ramps
  - $5 P 2$  and  $5 P 3$  speeds if necessary for 4 preset speeds
  - $I L H$  motor thermal protection current
- 6 - Start : the speed is displayed in Hertz (Hz) for example, for a 3000 rpm / 50 Hz motor : 20 Hz = 1200 rpm



## "Factory setting" circuit diagram

200/240 V - 50/60 Hz



- (1) Fault relay contact, signals the state of the controller remotely (open when fault present or powered off)

- LI1 : forward
- LI2 : reverse

- LI3/LI4 : 4 preset speeds :

- 1 = LSP + reference on AI1 (LI3 = 0, LI4 = 0)
- 2 = SP2 (LI3 = 1, LI4 = 0)
- 3 = SP3 (LI3 = 0, LI4 = 1)
- 4 = HSP (LI3 = 1, LI4 = 1)



Merlin Gerin

Modicon

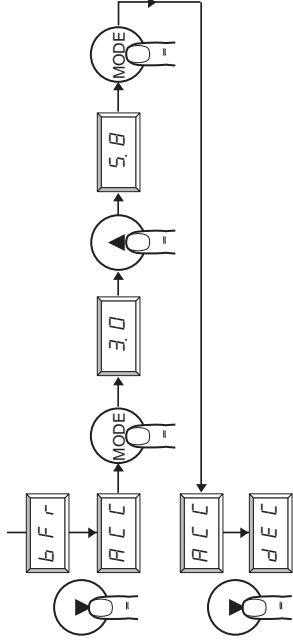
Square D

Telemecanique

## Setup

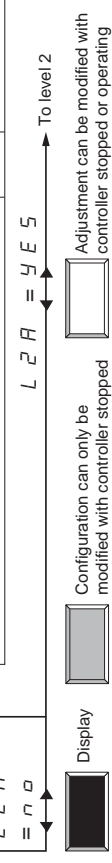
Use the ,  &  keys

Example :



## Level 1 parameters : normal use

Function	Unit	Factory setting
r d H = Stopped : speed controller ready	Hz	
4 5 5 = Operating : estimated rotational frequency	Hz	50
d L b = DC injection braking	s	3
Motor frequency : 50 Hz/60 Hz (or 5 P E by modifying F r 5)	s	3
Acceleration ramp time	Hz	0
Deceleration ramp time	Hz	50
Low speed	Hz	5
High speed	Hz	25
2nd preset speed	A	Controller In
3rd preset speed		n 0
Thermal protection current (= motor rating plate) if I L H is at max. : n L H (protection disabled) is displayed		
Access to level 2 parameters (n 0 / Y E 5)		



## I/O specifications

**R1A/R1C** : Relay contact

- Min. switching power : 10 mA for  $\sim$  24 V
- Max. switching power on inductive load ( $\cos \phi$  0.3 or L/R = 10 ms) : 2 A for  $\sim$  250 V or  $\sim$  30 V

**+5** : 5 V, 10 mA max. supply for 2.2 k $\Omega$  setpoint potentiometer

**A11** : Analogue input 0 + 5 V impedance 50 k $\Omega$  (reconfigurable to 0 + 10 V or, with 500  $\Omega$  resistor in parallel 0/20 mA or 4/20 mA)

**A0** : Open collector PWM type analogue output at 1.2 kHz, 10 mA max., output impedance 1k $\Omega$

**COM** : 0V common for I/O

**L11, L12, L13, L14** : Logic inputs. Impedance 5 k $\Omega$ , 15 V internal supply (11 V to 15 V) or 24 V external supply (11 V to 30 V)

**+15** : Supply for logic inputs : 15 V, 100 mA max.





## Startup Level 2 parameters : function extensions

Function	Unit	Factory setting
Display frequency setpoint	Hz	F r H
Display motor current	A	
Display supply voltage	V	
Display speed controller thermal state (nominal = 100 %, tripping at 118 %)	%	
Display motor thermal state (nominal = 100 %, tripping at 118 %) Not memorized after loss of supply	%	
Nominal motor voltage (rating plate)	V	230
Motor rated frequency (to be modified if other than 50 or 60 Hz; 120 Hz max.)	Hz	= b F r
Minimum motor voltage at low frequency	%	20
IR compensation (adjust the stator resistance of the motor set by lth)	%	20
Frequency loop gain. If FLG > 99, nFL (to disable this function may stall the motor when high torque is demanded) is displayed. Machines with high resistant torque or with high inertia: progressively decrease the gain from 33 to 0%. Machines with fast cycles, low resistant torque or low inertia: progressively increase the gain from 33 to 99%. Again which is set too high may cause instability.	%	33
Slip compensation	Hz	depends on rating
Configuration of logic inputs : <ul style="list-style-type: none"> <li>• L l = 2 C 4 (2-wire control, 2 operating directions, 4 speeds) : <ul style="list-style-type: none"> <li>- LI1 = forward</li> <li>- LI2 = reverse</li> <li>- LI3/LI4 = 4 speeds (1)</li> </ul> </li> <li>• L l = 3 C 4 (3-wire control, 1 operating direction and 4 speeds) : <ul style="list-style-type: none"> <li>- LI1 = stop</li> <li>- LI2 = RUN forward</li> <li>- LI3 = RUN reverse</li> <li>- LI4 = 2 speeds (LI4 to 0 : L 5 P + setpoint AI1, LI4 to 1 : H 5 P)</li> </ul> </li> <li>• L l = 1 C 4 (2-wire control, 1 operating direction and 4 speeds) : <ul style="list-style-type: none"> <li>- LI1 = forward</li> <li>- LI2 = not assigned</li> <li>- LI3/LI4 = 4 speeds (1)</li> </ul> </li> </ul>		2 C 4
Configuration of input AI1 : <ul style="list-style-type: none"> <li>• A l E = 5 U : 0-5 V (internal supply)</li> <li>• A l E = 0 A : 0-20 mA</li> <li>• A l E = 1 0 U : 0-10 V (external supply)</li> <li>• A l E = 4 H : 4-20 mA</li> </ul>		5 U connect a resistor (500 Ω - 0.25 W) between terminals AI1 and COM
Automatic restart after fault (n o / y E 5 / U 5 F). Function reserved for fans, pumps and conveyors. If A l E = U 5 F automatic restart is only available for U F 5 fault		n o
Return to factory settings (n o / y E 5)		n o
Automatic injection braking current on stop	A	0.7 controller In
Automatic injection braking time on stop if E d L = 0 : no braking if E d L = 21 : C n E (continuous braking on stop) is displayed	s	0.5
Locking of parameters (n o / y E 5) if y E 5 : the parameters are visible but cannot be modified except for L 2 H and L D C		n o

- L 5 P + reference A11 if LI3 = 0 and LI4 = 0
- 5 P 3 if LI3 = 0 and LI4 = 1

Configuration can only be modified with controller stopped



Display

- 5 P 2 if LI3 = 1 and LI4 = 0
- H 5 P if LI3 = 1 and LI4 = 1

Adjustment can be modified with controller stopped or operating



## Diagnostic

Display	Fault	Remedy
No fault displayed	Motor doesn't run although run command and speed reference are OK	After powered-up the drive, the motor runs only if run commands have been set to zero. If automatic restart function is enabled (level 2 parameter: Atr), these commands are taken into account without to be reset before. When LI = 1C4 or 2C4, set Atr = YES (or USF)
<b>D S F</b>	Overvoltage	Change the supply voltage and ensure it is stable
<b>U S F</b>	Undervoltage	Change the supply voltage and ensure it is stable
<b>O C F</b>	Overcurrent	Increase the $R L C$ or $d E L$ ramp time Check the sizing of the motor and of the speed controller
<b>S C F</b>	Motor short-circuit	Check the controller output circuit (isolation or short-circuit fault)
<b>I n F</b>	Internal fault	Switch off. Try to return to the factory setting ( F L 5 ) If this is unsuccessful, replace the speed controller
<b>O b F</b>	Overvoltage on braking	Increase the deceleration ramp time
<b>O H F</b>	Speed controller overheating	Check the motor load, the ventilation of the speed controller and the ambient temperature. Allow to cool before restarting
<b>O L F</b>	Motor overload	Check the motor load and the adjustment of parameter $I L H$ . Allow to cool before restarting

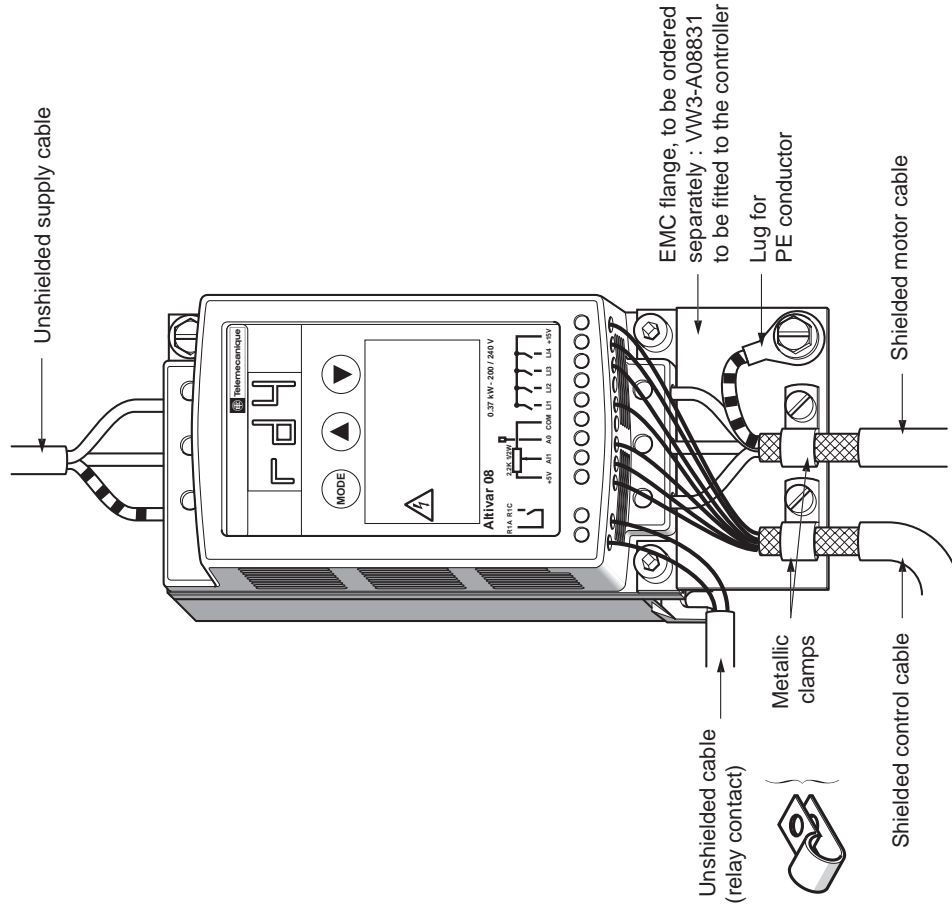
Switch the speed controller off before restarting



Automatic restart after the drive trips and coasts to stop, if fault has disappeared and if  $R L r = 5 E 5$  (and  $R L r = U 5 F$ , for  $U 5 F$  fault ONLY).



In case of fault is still present, after 6 attempts of resetting in less than 6 minutes, the 6th attempt will stop the drive in freewheel, and fault code display will flash.  
The fault has to be reset by cycling power on the drive.



- For standard EN5011 class A :  
If the speed controller is fixed to machine ground wiring the VW3-A08831 flange is not required, fix the metallic clamps to the machine ground wiring to connect the shielding.