RECTIVAR® 4 séries 74-84
Cartouche option mouvement vertical
Vertical movement option cartridge

VW2-RLD221

guide d'exploitation
user's manual

Telemecanique
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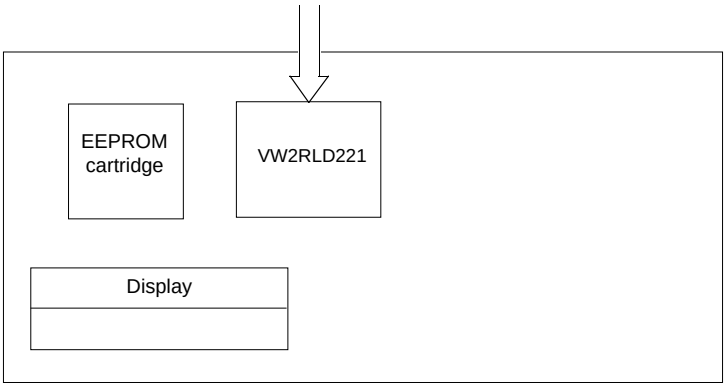
Function

Designed as an option for the RECTIVAR 4 series 84 digital variable speed controllers, the vertical movement option board is intended to extend the basic RTV 84 software while assuring a second possible motor configuration and/or the logic control for a mechanical brake for vertical movements (or, by extension, any movement where the load provides a torque which is always in the same direction, whatever the direction of motor rotation). This option cannot be combined with the other special application cartridges. It requires version V3.1 of the RTV 84 software, minimum. It can be combined with the VW1-RZD101 option board…

Mounting

The cartridge, supplied separately, should be plugged into the connector reserved for this purpose on the VX4-RZD103 display board, with the speed controller switched off. The fitting (or removal) of this cartridge is monitored by the speed controller's microprocessors : change to "Option factory setting" and to configuration occurs, therefore, when the speed controller is switched back on.



Note : the optional configuration record form provided in the Rectivar series 74/84 user's manual, enables the presence of the cartridge in question to be noted, together with the corresponding additional configurations.
This manual is purely an addition to the user's manual n° 42085 mentioned above, and the latter publication should also be referred to.

The fitting of the option cartridge with a speed controller software of an earlier date than the V2.1 has no effect : the cartridge is totally ignored; no fault is displayed.

Incompatibility

If a later version than software V3.1 is installed in the speed controller and it is incompatible with the software contained in the cartridge and in the case of a software V2.1, the procedures described below will not occur. Instead, an initial fault will appear on the display, requiring the matching of the software references :

Proms / option

Consult your local Telemecanique office to have the softwares matched.

Optional factory setting

From speed controller software V3.1 onwards, the cartridge software forces, on the first occasion that the speed controller is switched on after the board has been fitted, changeover to an restricted Factory settings procedure, which occurs when the following appears on the display :

Option fact. sett.
< ENTER >

Enter is the only answer possible.
This initialisation only concerns the data specifically related to the option cartridge. The speed controller changes over to the configuration procedure, extended as follows.

Extended configuration

Via the cartridge, it becomes possible to configure new parameters relating to a second motor (or group of motors) which must also be switched by contactors and relays, paying special attention to the different input/output assignments.
The two configurations, once defined, are put into effect by the exclusive selection of A or B, carried out either using the LI4 input, or by bit W24,9 of the serial link logic control word (see later). The first configuration, known as A, always has priority in the absence of a selection command.
One of the two basic setting and option values corresponds to one of the configurations A and B.This is transparent for the user. Once one of these configurations is in use, only the corresponding setting values are available via the keyboard "Adjustment" procedure, or in read/write with serial link. Any change in configuration from A to B or B to A is taken into account only if the speed controller is locked (RUN = 0) ***and if the speed controller is not in stop fault*** (so that the fault can be analysed in the configuration in which it occurred).

CAUTION : A change in configuration leads to changes in : settings, inputs and outputs, functions, fault processing.

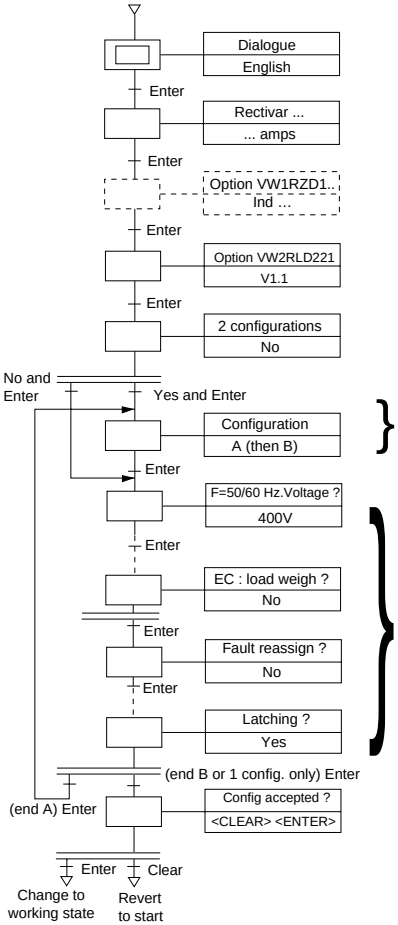
Double configuration

The fitting of the cartridge does not make double configuration obligatory, but does make the choice available. If double configuration is validated, input LI4 is assigned to "configuration B" function. If this input is supplied (in local mode, if using serial link), configuration B is activated, with all its effects :
settings, inputs and outputs, faults, functions. In logic line mode (serial link), bit W24,9 activates configuration B.

NB : • "Past faults" does not distinguish between the two configurations. This distinction should be made via a serial link reading in the "current faults" zone.

• The configuration extensions resulting from the presence of the VW1-RZD101 board (when present), are doubled, including those concerning the serial link protocol.

Double configuration



Standard configuration access and start according to manual 42085

Recognition of the option board, where appropriate, and its update index

Recognition of the option cartridge, and its software version

Yes or No decision for the taking into account of the Double configuration function.

If the answer is Yes, input LI4 and bit W24,9 are assigned to configuration B control. The assignment menu for LI4 is therefore no longer available.

Configuration described in user's manual 41248, modified by the specific brake logic function and, where appropriate, by the option board VW1-RZD101.

Validation of the complete configuration or configurations

NOTE:

- Carry out the adjustments for each configuration, and validate the configuration either via LI4, or via W24,9.
- In the adjustment procedure, configuration A or B is shown at the beginning of the second line of the display (DATA) for each parameter.

Example

Acceleration
B 9,9 seconds

CAUTION: It is not possible to configurate two armature voltages which are not in the same limits as forced by the insulating board VW2-RZD207 link position; ie: 0 to 260V, 261V to 460V, 461V to 570 volts. 571 to 750 volts

Brake logic

Special aspects of configuration

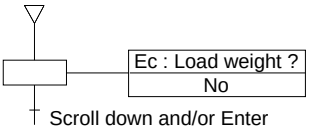
The purpose of the brake logic is to ensure that the machine exerts a torque in the raising direction, by convention "forward", capable of holding the load during the transient brake release phase, whatever the direction commanded. In addition, it checks that the speed controller and the mechanical brake are operating before validating each movement.
During the transient brake actuation phase, the setting is again maintained after dynamic braking, at zero speed reference for a fixed time of 1 second.

The fitting of the option cartridge modifies configurations A and B as follows :
- Special assignment of relay K1:
  The assignment menu is not available : relay K1 is assigned systematically to control of the mechanical brake contactor. It is de-energized with priority when the speed controller locks due to a stop fault or RUN = 0

- Special assignment of input LI2 :
  The faster/slower function cannot be used. The LI2 assignment menu is not available : logic input LI2 is systematically assigned to the mechanical brake data feedback : auxiliary contact of the contactor or brake release control contact.

- Special assignment of input Ec :
  an additional question (see previous page) is asked for each configuration

After LI3 or LI4



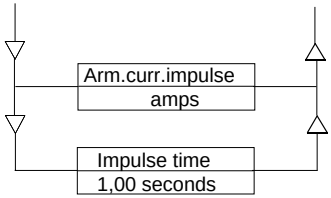
Answer No or Yes or Not assigned
- if the answer is No, input Ec remains a summing speed reference
- if the answer is Yes, input Ec is assigned to load weighing, which must be equalled when the initial current impulse occurs. Ec remains assignable at 0-20 mA or 4-20 mA as usual, but 20 mA is considered equivalent to the maximum armature current configuration value : the weighing output must be scaled accordingly.
- when the answer is Not assigned, input Ec is not taken into account. This can be used, particularly with configuration B.

Caution : Do not use the speed variator in speed write by armature curent, the imprecision of this kind of regulation is incompabible with the brake command.

Brake logic

Extension of the settings

One or two settings are added at the end of the list of usual settings :



- If the above answer is Yes, this setting is not displayed. The current value sufficient to hold the load at the moment the brake is released is indicated. From 0 to 100 %, by default 75 %, of the maximum armature current configuration.

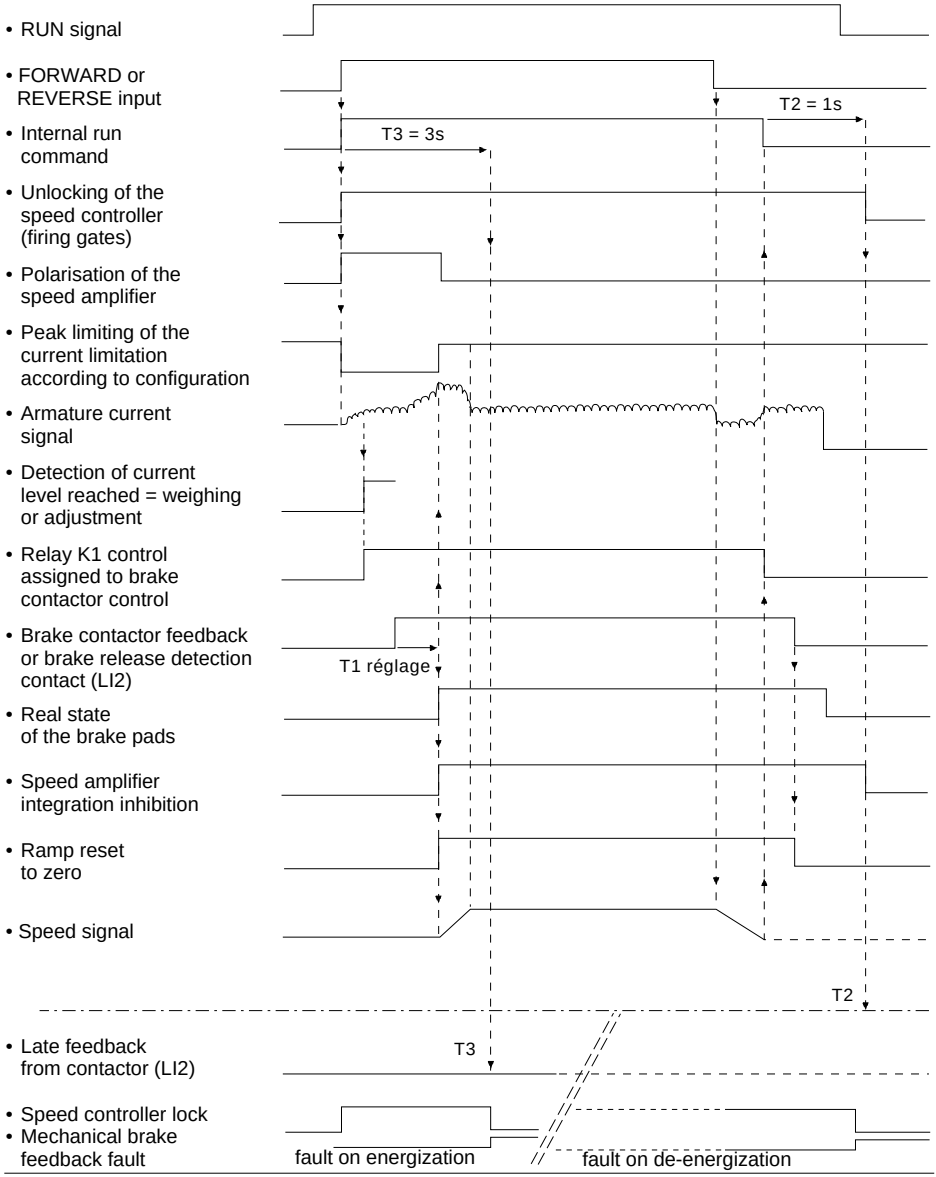
Indication of time T1 on the timing diagram.
From 0,00 to 2,50 seconds, so that the start of the speed increase is synchronised with the effective mechanical brake release. By default, 1,00 second.
In the event of the brake control at LI2 being carried out by a normally closed contact on the brake, this time delay must be adjusted to a very low value, or to 0.

NOTE : • In the event of configuration for a horizontal movement, adjust "Arm. curr. impulse" to zero.

Brake logic

Timing diagram

- Operation is shown on the following timing diagram, which represents a normal start and stop in the "raise" direction.



Other extensions

Additional fault

"Mechanical brake"
This fault is generated in accordance with the timing diagram on the previous page : if after the run command the brake response time is longer than 3 seconds or if after the stop command the brake response time is longer than 1 second. The fault is a latching stop external dynamic type. By serial link, it is available on bits W34,B as a stop fault and W64,B as an actual fault.

Serial link

In addition to the bits already given above :
- W24,9 : second configuration command
- W34,B :
- W64,B : } mechanical brake fault

other word addresses become accessible via serial link :

Adjustment words accessible in read and write

Writing possible if PLI = 1				
Number	Name	Description	Definition	Condition
WO	IMP.I	Armature I impulse value	0,1 A for cal < 72A 1A for cal > 72A	According to configuration
W1	T.IMP	Impulse time	0,01 s	

*** IMPORTANT REMINDER**

In read and write modes, access is only possible to the values corresponding to whichever of the configurations, A or B, is operational.

Configuration of the inputs/outputs

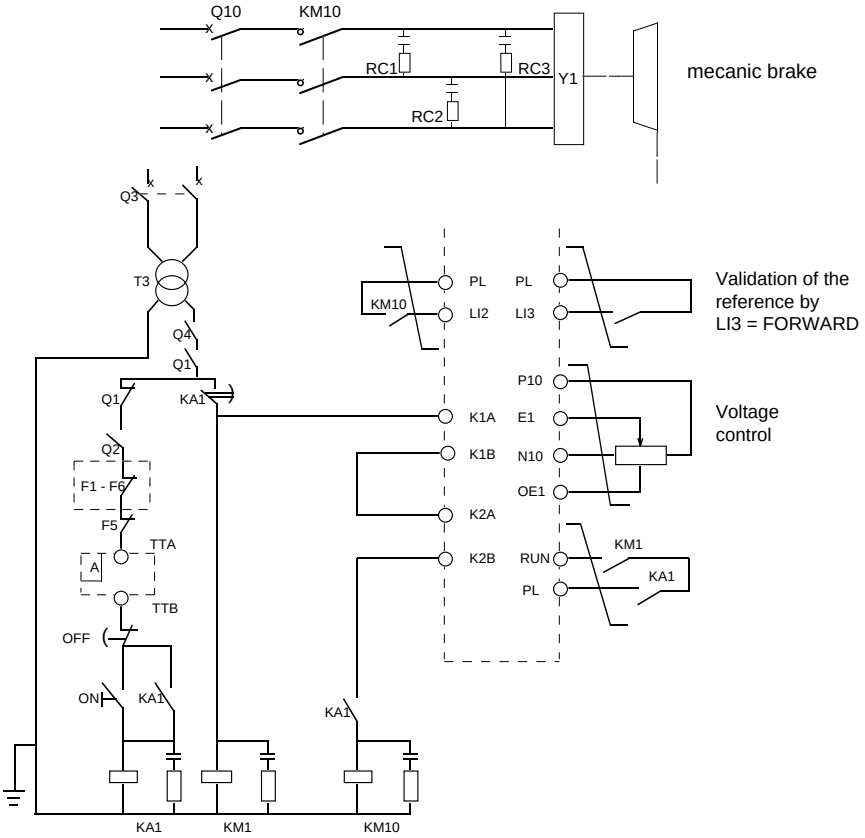
- K1 relay
  The relay override configuration can be read on bits W57,0 to W57,3 at the decimal value 2 = Brake control.

- LI2 input
  The override configuration of logic input LI2 can be read on bits W58,4 to W58,7 at the decimal value 13 = Brake feedback.

* Testing of these decimal values can comprise an option cartridge presence check, which gives the same overrides in both configurations.

Example of sequence diagram with hoisting option : additions to standard diagrams with minimum use of the inputs and outputs.

***Note* :** Fit protection circuits on the brake control coils and the relay and contactor coils.



Special assignments corresponding to this diagram:
- K1 and LI2 : automatic assignment
- LI3 : FORWARD
- K2 : Variable speed controller ready

The operating direction is controlled by the polarity of the reference; however, logic inputs (FORWARD and REVERSE) can also be used with a single reference polarity.