ENCORE

**24V DC MOTOR CONTROLLER
MODEL 2410LPB**

**USER MANUAL**

SPECIFICATIONS:

INPUT POWER	: 24V AC OR DC 10.5 A MAX.
	: 18V AC 250Ma Max.
MOTOR RATING	: 12 TO 24V DC, 10 A MAX.
TACHO RATING	: 6 to 10V / KRPM
SWITCHING FREQUENCY	: 12.5 KHZ
MAX.SPEED RANGE	: 50 TO 100% OF FULL SPEED
SPEED RANGE	: 25 : 1
SPEED REGULATION	: 0.2% WITH TACH FEEDBACK
OVERLOAD CAPACITY	: 130% FOR 1 MIN.
SERVICE FACTOR	: 1.0 (CONTINUOUS DUTY)
EFFICIENCY	: 85%
MIN. MOTOR INDUCTANCE	: 0 mH
TEMP. RANGE	: 0 TO 50 ^{o}C AMB.
SIZE	: 125 X 135 X 35 mm
WEIGHT	: 0.25 Kg

FEATURES:

- CAN BE CONTROLLED THROUGH PLC OR AXIS CONTROLLER
- DIRECLY COMPATIBLE WITH 'ABACUS MC' CONTROLLERS
- BUILT-IN BRAKING THROUGH MOSFET
- IDEAL FOR POSITION & SPEED CONTROL APPLICATIONS
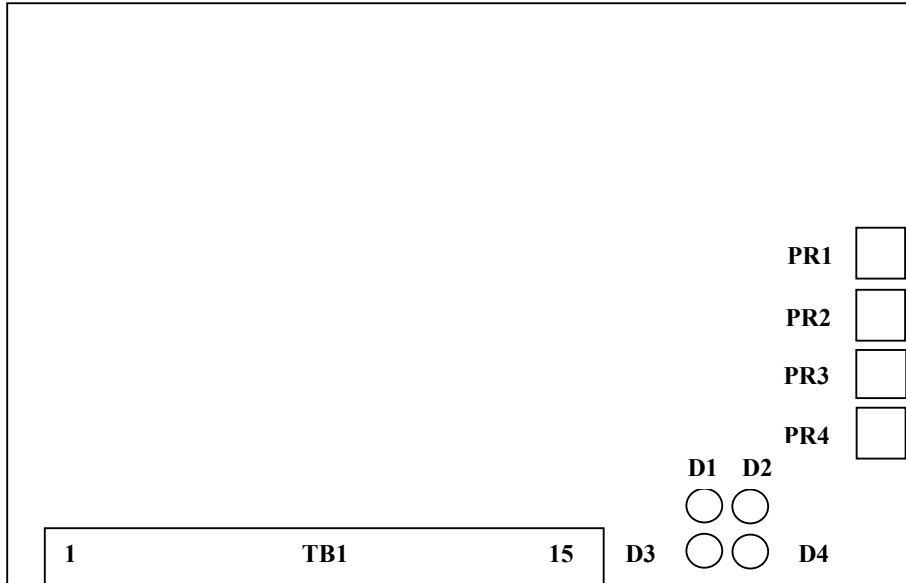
MOTOR CONTROLLER LAYOUT

TERMINAL & PRESET DETAILS:

TB1 - 15 Pin Terminal Block

    Pin 1: 24V AC
    Pin 2: 24V AC
    Pin 3: 18V AC
    Pin 4: 18V AC
    Pin 5: 24V DC OUT
    Pin 6: GROUND
    Pin 7: MOTOR +
    Pin 8: MOTOR -
    Pin 9: TACHO -
    Pin 10: TACHO +
    Pin 11: ANALOG INPUT (0-10V DC)
    Pin 12: GROUND
    Pin 13: DRIVE RUN (24V DC)
    Pin 14: SPEED NOK (PNP, 24V DC)
    Pin 15: +15V DC

LED Indicators

    D1 :   +15V DC
    D2 :   -15V DC
    D3:   DRIVE ON
    D4:   SPEED OK / NOK
         (Green / Red)

PRESETS

    PR1 - Current Limit
    PR2 - IR Comp.
    PR3 - Max. Speed.
    PR4 - Speed NOK Adj.

CONTROLS AND FUNCTIONS:

Refer to the diagram for pin details. The 24V AC or DC power is applied to Pins 1 & 2 of the TB1. Also a supply of 18V AC is to be connected between Pins 3 & 4. The rectified 24V DC output is available on Pins 5 & 6. The motor terminals are connected between Pins 7 & 8 of the TB1 and the tacho terminals are connected between Pins 9 & 10 of TB1. The external analog signal (0-10V DC) to control the motor speed is to be connected between Pins 11 & 12 of TB1.

To control the stop and start of the motor a switch or control is to be connected between Pins 5 & 13 of TB1. When the switch is open the motor would stop and when it is closed the motor would run. The SPEED NOK signal is a PNP type output, i.e., when the drive is NOT OK, a +24V DC appears on Pin 14. This indicates that the Set reference voltage and the tacho feedback voltage do not match.

There are four preset on the controller.

CL : This is for setting the current limit. Connect an ammeter in series with the motor, and apply a signal so that the speed is at midway. Apply friction braking till the motor stalls, and adjust the CL preset till the ammeter reads the motor's rated current.

IR : This is for setting IR compensation for optimum speed regulation. Remove all load from the motor and set the speed control midway. Measure the motor speed with a tacho. Now connect the load to the motor, and adjust the IR preset till the tacho indicates the original no-load speed. When the controller is used in the tacho mode, this preset does not have any effect.

MAX : This is for setting the maximum speed. Apply full +10V DC signal, and then adjust the MAX preset till the desired maximum speed is obtained.

SPEED NOK: This preset is used to control the SPEED NOK output. Adjust this preset so that the SPEED NOK output goes off at the required level. This is done by measuring the tacho voltage at a set speed under no load and applying the rated load and measuring the tacho voltage.

TROUBLE SHOOTING:

MOTOR DOES NOT RUN:

a) Check for 24V AC power input between Pins 1 & 2 of TB1.
b) Check for 18V AC power input between Pins 3 & 4 of TB1.
c) Check if D1 & D2 LEDs are On for +15V & -15V supplies.
d) If D1 or D2 LEDs are not on, check the +15V & -15V regulators.
e) Make sure Pins the analog signal input is connected between Pins 11 & 12 of TB1 and is not zero.
f) Make sure Pin 13 of TB1 is not at 24V DC.If OK, check for proper functioning of the relay K1.
g) If the problem still persists contact the manufacturer.

MOTOR DOES RUN PROPERLY AT LOAD:

a) Run the motor at no load at a set speed and measure the speed. Apply the load and measure the speed. Adjust the Current Limit (CL) preset and set the current to the rated motor current.

SPEED NOK SIGNAL OUTPUT NOT PROPER:

a) Run the motor at no load. Measure the tacho voltage. Apply the rated load and measure the tacho voltage. Now adjust the Preset PR4 such that the SPEED NOK signal goes off.