OEM AUTOMATIC

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ELECTROMEN - EM-239

Parallel drive for 2 x DC motors 12-24 V dc,
2x10A

ELECTROMEN

EM-239
Parallel drive for 2 x DC motors 12-24 V dc, 2x10A,
pulse FB

- 12-24Vdc, 2x10A continuous, 2x20A 25% duty
- Synchronized parallel driving
- Operates with pulse feedback from motors
- Programmable with wide range of motor control functions
- ** New projects see EM-339-PLI **

PRODUCT DESCRIPTION

EM-239 is designed for driving two actuators in parallel. The drive is done as synchronized according actuators pulse feedback signal. The synchronization is achieved by adjusting actuator speed during drive. If the adjustment cannot compensate the unbalance between actuators, the motors will be stopped. This way the mechanical stress and breakage can be avoided. Additively the driver includes current limit and power stage temperature limit. Driver works with actuators that can offer pulse feedback signal. Pulses can be derived from Hall-sensors, reed or other kind of switches. Driver can be set to read negative or positive pulses and also there can be selected two or one pulse line/motor mode. Driver power stage operates with PWM (pulse width modulation), that enables the high efficiency and low losses
of power stage. The basic control is done with FORWARD-, BACKWARD- and STOP-commands. FORWARD and BACKWARD can be done in continuous or in impulse control mode. In continuous mode the drive is done as long the command is on. In impulse mode the command impulses start and stop the driving. For help in assembly and in other special situations, driver has TRIM-inputs for controlling both actuators individually. With these control inputs the user can override most of the limits of normal use and balance the actuators or restore the normal driving position after some unexpected occurrences like equipment failure or user in danger situation. HOME-command input is for driving the system in to its initial position. This driving is done with low speed and in to the end (in to the initial position). The counters are reset to zero. Wide range of parameters can be set to suit to different demands and different applications. In most cases the driver is ready to work with default parameters but some special features and behaviour can be accomplished with further parameter setting. One new feature is SAFETY REVERSE function, which automatically reversing when motors meet obstacle and will be overloaded
The parameters are set with a handy interface unit EM-236. There is also possibility to use EmenTool Lite PC-software with EM-268 and EmenTool App with smartphones for parameter setting.

FEATURES (program version 1.4 or later)
- synchronized parallel driving
- operates with pulse feedback
- input for negative or positive pulses
- current and temperature limit
- settable drive speed
- acceleration and deceleration ramps
- different control modes
- wide range of parameters
- easy setting with serial interface
- good repeatability of settings
- autobalance feature
- one or double pulse mode
- safety reverse function (only prog. v2.4)

TECHNICAL DATA

CanOpen	No
Change direction of rotation (CW/CCW)	Yes

Control type	Speed, Direction, Torque, Soft start / stop
Current limit adjustable	Yes
Current setting range	1-25 A
Currenttrip autoreveice	Yes
Dimensions length x width x height	78x73x25mm
Ethercat	No
Functions	Currenttrip autoreversing, Speed settings, Impulse/continuous mode, Softstart/stop, Parallel driver two motors, Positioning, Speedregulator, Change direction of rotation (CW/CCW)
Impulse/continuous mode	Yes
Joystick analog input	No
Logic input high	>4V = ON
Logic input low	<1V = OFF
Max continuous current	2x10 A
Mounting	DIN rail
Operating temperature	-20°C...+60°C
Parallel driver four motors	No
Parallel driver two motors	Yes
Peak current	2 x 20A (at 25% duty)
Position with potentiometer	No
Positioning	Yes
Potentiometer adjustable speed	No
PWM frequency	2kHz
RS232	No
RS485/Modbus	No
Softstart/stop	Yes
Speed settings	Yes
Speedregulator	Yes
Stop at limit position	No
Suitable engine	DC
Supplier	Electromen
Supply voltage	12 V DC, 24 V DC
Weight	110 g

EM-239 BLOCK DIAGRAM (PCB. v.6)

5V/ 20mA   22R
SUPPLY
12-24Vdc
POWER REGULATION
SETTING INTERFACE
rx
tx
10k
MOTOR DRIVER
CURRENT MEAS.
A
MOTOR
hall
FW
BW
MOTOR SYNC.
DRIVING LOGIC
CURRENT CONTROL
TEMP. LIMIT
PULSE LOGIC
5V
10k
PULSE IN
PULSE IN
TRIM-A
TRIM-B
STOP/ SAFETY SW.
HOME
10k
FAULT IND.
100R
FAULT-OUT
MOTOR DRIVER
CURRENT MEAS.
B
MOTOR
hall
5V
10k
PULSE IN   PULSE / TRIM LOGIC
PULSE IN

EM-236
menu save select

HEIGHT 25mm
Ø 3.2mm
EM-239 pcb v.6
FAULT
PULSE LOGIC Ch. A pins 7&8
CONTROL
PULSE LOGIC ch. B or TRIM IN LOGIC pins 11&12
pos. mem.

5V
12-24V
SUPPLY
A   B
PULSE-A/PULSE-A
PULSE-B/PULSE-B
TRIM A/PULSE-A/90°
TRIM B/PULSE-B/90°
STOP/ SAFETY SWITCH
5V
FAULT
HOME
COMMANDS FW/BW
PULSE SWITCHES HALL / REED