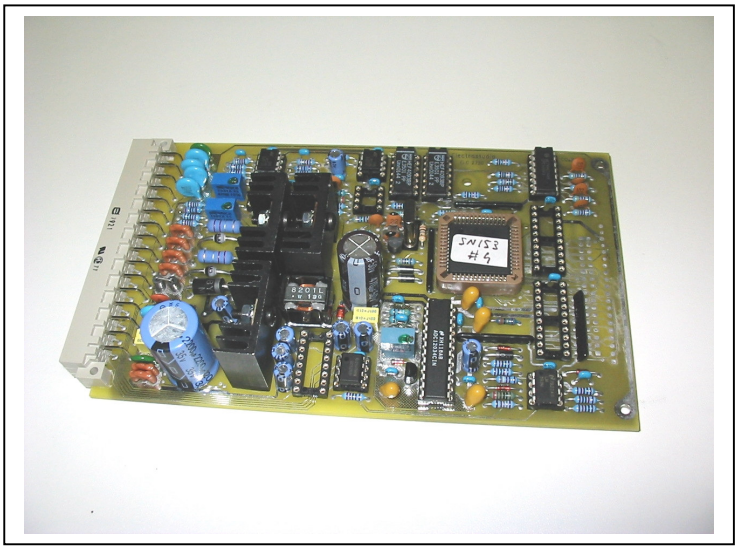
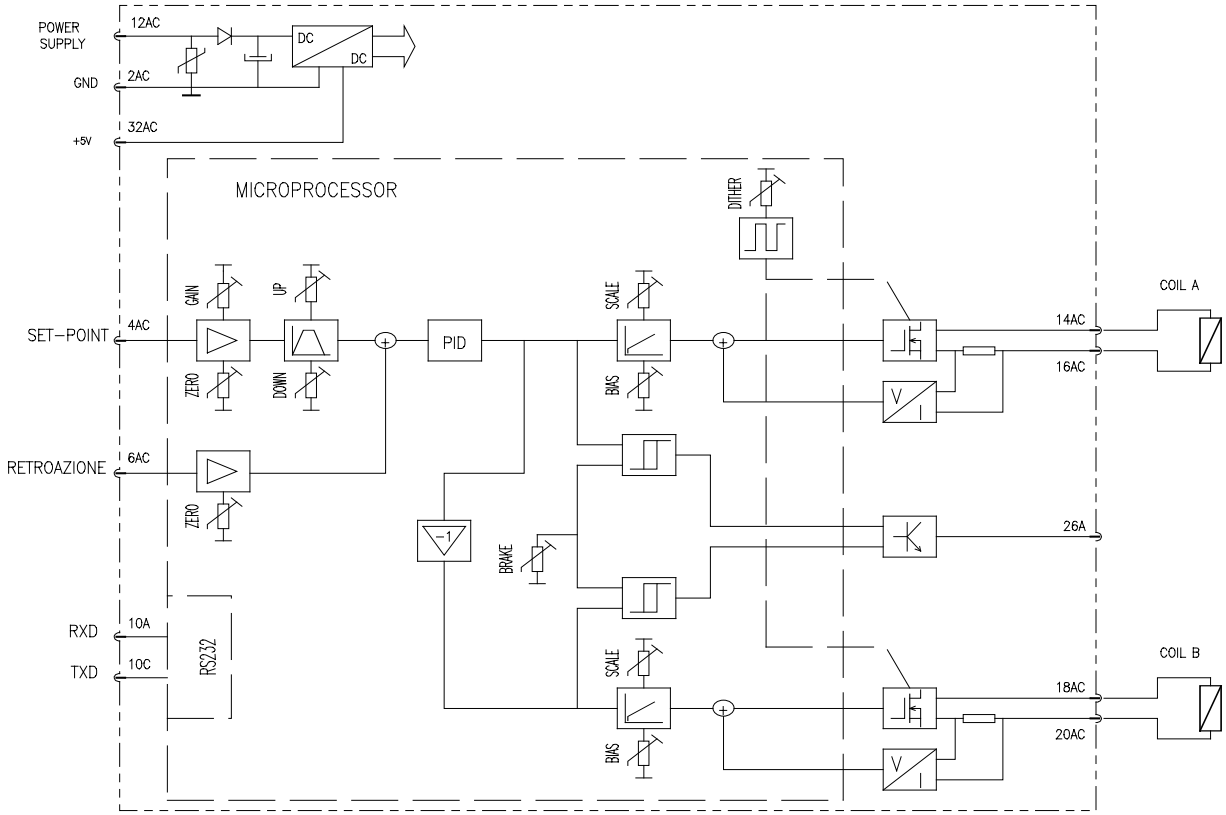
ELECTROSTUDIO s.r.l.
Studio – progettazione – controlli industriali

Digital amplifiers for proportional valves



SCHEMATIC



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Technical data

Operating voltage	11..33 Vdc
Output Current	2x 2.7 A
Digital inputs	4x Low = 0 to 5 V High = 8 V to supply
Digital Output	2x NPN 50mA
Analog Input Signal	2x 0..5V, with resolution 12 bit
Reference output	+5V (max. 10mA)
Dither (PWM)	65..500Hz
Serial interface	RS 232 or RS485
Card dimensions	Eurocard 100x160 mm
Type of connection	32-pin male connector, DIN 41612
Permissible operating temperature range	0..50°C
Storage temperature range	-40..+80°C
Protection	reverse polarity

Microprocessor

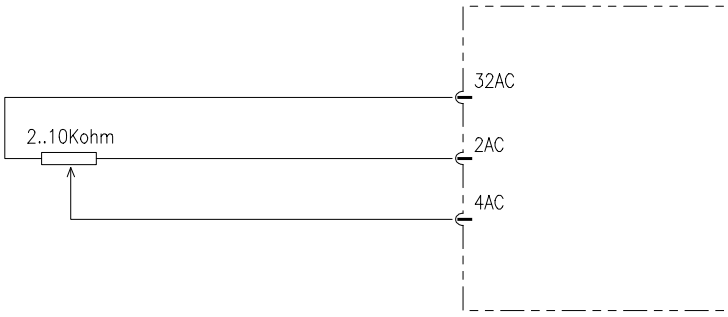
- Cpu 8 Bit, 16 Mips;
- 62 KBytes program memory (flash), upgrade through serial port
- 4 KBytes flash memory (maintenance parameters)
- 2 analog inputs 0..5V solution 12 bits (position transducer, command signal, …)
- 4 digital inputs (START/STOP, speed measure)
- 2 digital output (Error, …)
- 1 interfaces serial RS232/RS485

Applications

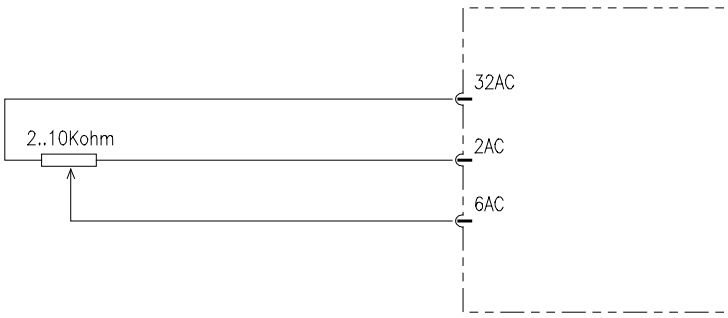
- Control in closed loop PID of pressure or flow. Acquisition feedback signal from pressure or flow transducer, control proportional valve or pump.
- Control in closed loop PID speed of hydraulic motor. Acquisition feedback signal from encoder or pick-up, control proportional valve.
- Control in closed loop PID of the position of a hydraulic cylinder. Feedback Signal from encoder, control proportional valve.
- Custom software

Connection references

Control signal:



Feedback signal:



Note:
To use shielded cables in order to connect the references and the coils with the connected stocking to earth.
To use in order to connect the coils and supply cables with section 2x1mm² until 20 meter, 2x1.5mm² beyond 20 meter

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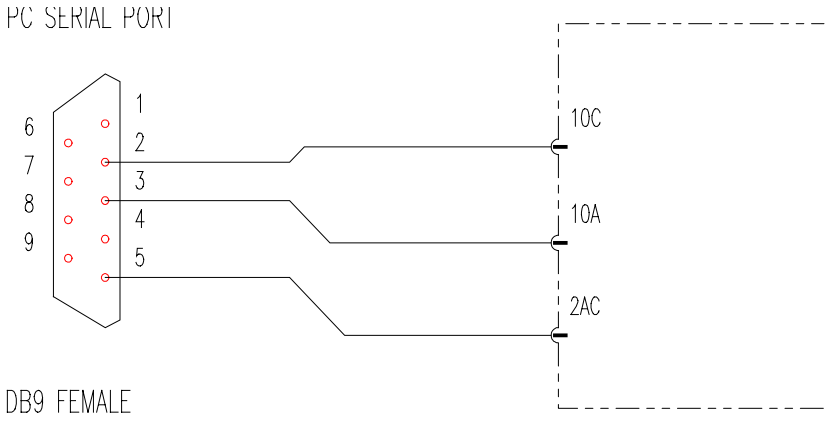
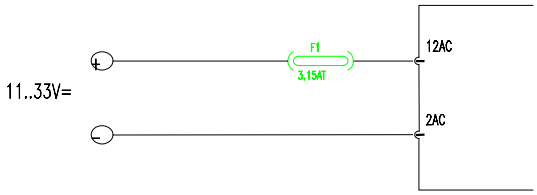
Connection RS232

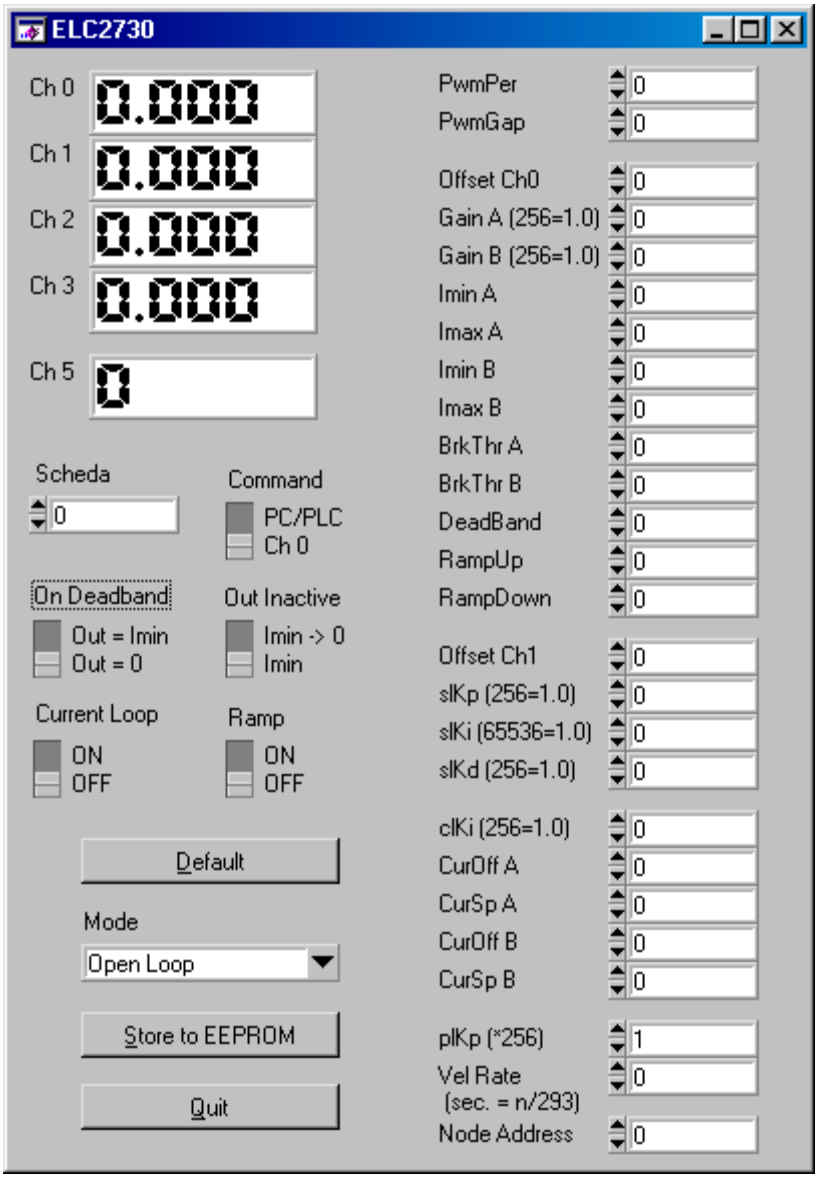


Supply

Power supply:



Software of remote control



PwmPer

Frequency PWM. The value is given by the formula n = 2000000 / frequency _in_HZ (es. 110 Hz = 18182)

PwmGap

I fix to 150

Offset Ch0

Zero command signal. Range –2048.. 0..2047 = 0 .. 2,5 .. 5V

GAIN A (256=1.0)

Gain command signal positive part.

GAIN B (256=1.0)

Gain command signal negative part.

IMIN A

Output A, Current minimum. Range 0.. 2047 == 0 .. 2,9A

IMAX A

Output A, Current maximum. Range 0.. 2047 == 0 .. 2,9A

IMIN B

Output B, Current minimum. Range 0.. 2047 == 0 .. 2,9A

IMAX B

Output A, Current maximum. Range 0.. 2047 == 0 .. 2,9A

BRKTHR A

Output A, Threshold brake. Range 0.. 2047 == 0 .. 2,9A

BRKTHR B

Output B, Threshold brake. Range 0.. 2047 == 0 .. 2,9A

DeadBand

Dead band. Range 0.. 2047 = 0 .. 2,9A

RampUp

It ramps slope signal of command. Range 10000.. 1 = 0 .. 10 seconds

RampDown

It ramps descent signal of command. Range 10000.. 1 = 0 .. 10 seconds

Offset Ch1

Offset feedback signal. Range –2048.. 0..2047 = 0 .. 2,5 .. 5V

slKp (256=1.0)

Proportional gain for control in closed loop

slKi (65536=1.0)

Integral gan for control in closed loop

slKd (256=1.0)

Derivative gain for control in closed loop

plKp (*256)

Proportional gain for control of position

Vel Rate

Interval of time for the calculation of the speed (derived by the position)

Operation mode

Selection way of operation:
- Open Loop, Control in open loop (Output current proportional command signal).
- PID WITH FREQUENCY
- PID with CH1, Control in closed loop between command and feedback signal
- PID WITH ABSOLUTE CH1
- Position Loop
- Power limiter
- Automotive

Ramp

Enable/Disable ramps on the command signal

Out Inactive

To leave on Imin

On Deadband

To leave in OFF

Command

To leave on CH0

Card

I number card 1.. 32.

After having planned the values, por to memorize needs them to press the button [Store to EEPROM]. Otherwise when it removes the supply the new values they will be lost.