

SUPRA 8

PROGRAMMABLE REGULATOR

software version C1

Product description

SUPRA 8 regulator is the microprocessor controlled programmable unidirectional regulator, intended for models, powered by 6 to 8 NiCd / NiMH power cells, or by 2 to 3 Li-Ion power cells. There are BEC circuits built in regulator (intended for feeding of receiver and servos from power cells), as well as PCO circuit, while switching voltage is set up automatically after energizing the regulator, in dependence on value of initial accumulator voltage. The regulator is also provided with current protection. Under operation, the signal from receiver is controlled and such control ensures the bypass of short-term signal dropouts (approximately up to 1,5 second) and increases the immunity of regulator against the disturbances and prevents the possibility of motor switch-on after receipt of incorrect signal.

Basic technical information for SUPRA 8 programmable regulator

Operational voltage	5,5 ... 13 V; 6 to 8 NiCd / NiMH power cells, or by 2 to 3 Li-Ion power cells
Output for receiver and servos power supply – BEC circuit	5 V with maximum current limit 1,5 A (maximum 2 standard servos or 3 servos Graupner C261)
Maximum permanent current of regulator (under accumulator 700 mAh power supply)	8 A (10A, 1 min.)
Current fuse	Automatic
Resistance of on-state terminal transistors (maximum / type)	11 / 8 mΩ
Switch-off voltage of PCO circuit	Variable
Power supply current without receiver being connected	Approximately 18 mA
Weight, including all feeding cables	Approximately 5,5 g
Length of feeding cables	To receiver – 100 mm, to motor – 80 mm, to accumulator – 110 mm
Cross-section of power supply conductors	0,5 mm ²
Dimensions	12,5 x 16,5 x 5,5 mm
Time required for run-up of motor from still state to full power	Approximately 550 ms
Frequency for motor switching	Approximately 6,25 kHz
Value of receiver pulses	Minimum 3 volts
Width of receiver pulses	0,9 ... 2,2 ms; pulses outside of given range are evaluated as incorrect
Change of pulse width for regulation purposes	Programmable (minimum 0,2 ms)
Operational environment temperature	–25 ... 55 °C
Manufacturing setup	Resulting range for Hitec Prism 7 and engaged brake

For larger size motors (*for example SPEED 300 and 400*), the motor must be connected together with included diode, according to wiring diagram.

!!!! WHEN DIODE POLARITY IS NOT OBSERVED, THE REGULATOR WILL BE DAMAGED !!!!



Technika pro měření a automatizaci s.r.o.
Tehovska 64, 100 00, Prague 10, CZECH REPUBLIC
Telephone/Fax: +420-2-7478 3375
Email: tema_sro@iol.cz
Internet: www.volweb.cz/tema_sro

Programming

For proper function of the regulator, the narrower control pulse must be set into STOP position, while wider control pulse must be set to MAX position. The STOP position means the motor switched off and MAX position means the full power of the motor applied.

The regulating range and brake can be programmed (brake can be engaged or disengaged). The programmed values are stored also after switching the regulator off, but they can be always re-programmed. During the programming, the individual steps are signaled by “beeps” of the motor.

Programming takes place in the following steps:

- 1. Switch on the transmitter and adjust the motor controlled to upper backstop.**
(Control pulse must be wider than 1,6 ms)
- 2. Connect the power supply accumulators (power cells).**
After 1 second, the beep signals the brake setup (1 beep signals brake engaged, 2 beeps signal brake disengaged). Wait until motor beeps 4 times. This signals the condition, in which the programming mode is activated.
- 3. Adjusting MAX position**
Leave the controller in upper backstop position, or within the time of 4 seconds, adjust such motor controller position, where you wish to have the full power of the motor (control pulse must be wider than 1,3 ms) and wait, until motor beeps 3 times.
- 4. Adjusting STOP position**
Within the time of 4 seconds, adjust such motor controller position, where you wish to have the motor switched off and wait, until motor beeps 2 times.
- 5. Brake adjustment**
Leave the motor in STOP position after brake has been engaged, or within the time of 4 seconds move the controller to upper backstop position, in order to adjust the brake disengagement. Wait until the motor beeps 1 time and adjust the motor controller to STOP position (if it was out of this position).

After 1 second, the brake adjustment is signaled (see the step number 2). This finishes the programming and programmed values are stored. Now you can fly. When motor is still beeping intermittently after finalization of step 5, incorrect values have been programmed, or too narrow regulating range was selected. In such case, the regulator must be switched off. Incorrect values are not stored and regulator retains the last programmed correct values. Should you wish to program new values, you have to repeat steps 1 to 5.

Installation of regulator in model

For reliable function of regulator, **you have to provide sufficient volume of cooling air.** This condition must be observed particularly in such cases, when the limit capabilities of regulator are to be used.

Operation

After switching the regulator on (connection of power cells) the beep signalizes the brake adjustment (1 beep signalizes the engagement of brake, 2 beeps signal brake disengagement). In case that motor beeps more than two times, the programmed values were affected and regulator must be newly programmed. If the regulator does not have signal available after switching it on (this corresponds to programmed STOP position), the motor is not switched on and this state is signaled – repeated one or two beeps, in accordance with adjustment of brake. If, upon switching the controller on, it is in position above approximately one half of regulating range, the programming mode is activated. The programming mode activated inadvertently can be cancelled by moving the motor controller to upper backstop position, as per step 3, or by switching the regulator off. Absence of signal from receiver is signaled by three beeps with 1-second delay. Such signaling can be used for localization of model in case that it lands in non-transparent terrain (for example corn or high grass).

Should the regulator be exposed to current overloading during the operation, the motor is switched off. Repeated switching of motor is possible only after motor controller is setup to STOP position. Power cell voltage is controlled in two levels. Reaching of 1st level is signaled for the duration of 3 seconds by fast changes in motor power output. After reaching the 2nd level, the motor is switched off and can be turned on only after motor controller is setup to STOP position.

IMPORTANT CAUTION

It is not allowed to connect the regulator to voltages higher, than specified in technical information.

The polarity of leads to power cells must not be interchanged.

The power cell must be connected to terminals intended for connection of motor.

Connection of motor to regulator must be performed only after disconnection of power cells.

CERTIFICATE OF WARRANTY

The product is warranted for period of **12 months** from the date of purchase.

Date of purchase:

Stamp and signature of distributor