This regulator and monitoring device, VT 12000 S 1X, is designed to be used for the speed control of secondary units.

**Special characteristics are:**
- Timed ramp
- PID-speed regulator
- PD-swivel angle regulator
- Output stage for servo valve
- Voltage stabilisation
- Monitoring of secondary unit by means of "signal outputs" such as:
  - Swivel angle ≤ 5 %
  - Speed ≤ 2 %
  - Swivel angle difference ≥ 5 %
  - Speed difference ≥ 5 %
  - Speed ≥ 110 % (max.)
  - Rotary acceleration "too high"
  - "Ready to go" signal outputs
  - Electronic monitoring of positional transducer
  - Voltage symmetry ± 15 V

**Technical Data:**

**Regulator card:**

<table>
<thead>
<tr>
<th>Operating voltage (DC)</th>
<th>$U_b: \pm 18.5 , \text{V up to } \pm 26 , \text{V} $</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ph. bridge (Transformer winding)</td>
<td>$\pm 18.5 , \text{V up to } \pm 25 , \text{V} $</td>
</tr>
<tr>
<td>Full bridge (Transformer winding)</td>
<td>$\pm 18.5 , \text{V} $</td>
</tr>
</tbody>
</table>

Smoothing capacitor, separate for $+U_b$ and $-U_b$ with respect to L0 (not in supply schedule): $C: \geq 1000 \, \mu \text{F} / 35 \, \text{V}$

Output voltage:
- $+UM: +15 \, \text{V} (\pm 3 \%)$
- $-UM: -15 \, \text{V} (\pm 3 \%)$

Max. output current: $I_{\text{S}}: \pm 25 \, \text{mA}$

Max. output current (servo valve): $I: \leq 60 \, \text{mA (10 \%)}$

Current draw-off ($S_1$ to $S_8$ unloaded):
- $-24 \, \text{V DC}: I: \leq 175 \, \text{mA}$
- $+24 \, \text{V DC}: I: \leq 420 \, \text{mA}$

Frequency (Dither): $f: 320 \, \text{Hz} / 3 \, \text{mA}_{\text{ss}}$

Relay selection voltage (DC): $U_{\text{rel}}: 21.5 \, \text{V up to } 32 \, \text{V}$

Relay pull-in voltage (DC): $U_{\text{p}}: 21.5 \, \text{V up to } 32 \, \text{V}$

Relay drop-out voltage: $U: \leq 2 \, \text{V}$

Coil resistance (relays): $R_{\text{N}}: \approx 2000 \, \Omega$

Positional transducer:
- LV 9 (resistive)
- Oscillator frequency: $f: -5.5 \, \text{kHz}$
- Sensitivity: $-147 \, \text{mV/mm}$
- Speed - actual value: $U: 30 \, \text{V / 1000 mm/min}$
- Actual value, measured output: $U_{\text{max}}: \pm 10 \, \text{V}$
- Max. load: $I_{\text{max}}: \pm 1 \, \text{mA}$
- Differential amplifier input: $R_1: > 50 \, \text{k\Omega}$

**Monitor card**

Signal outputs - group 1:
- $S_1$: Swivel angle difference ≥ 5 %
- $S_2$: Swivel angle ≤ 5 %
- $S_3$: Monitor for positional transducer / voltage symmetry

Signal outputs - group 2:
- $S_4$: Speed difference ≥ 5 %
- $S_5$: Speed ≥ 110 % (max.)
- $S_6$: Speed ≤ 2 %
- $S_7$: Rotary acceleration "too high" (S1 to S7 respond immediately)

**Important:** On overload, the signal outputs S1 to S7 are switched off at the same time as S8 (high resistance). Reset then occurs as the power input is switched off and on (with a delay of approximately 100ms).

**Warning:** Isolate pressure line of secondary unit or allow brake to come on!

Signal outputs - "Ready to operate":
- $S_8$: Signal outputs - "Ready to operate" $U_{\text{out S8}}: \geq U_B - 3 \, \text{V}$
- $R_{\text{N}}: 220 \, \Omega$

**General Data**

- Ambient temperature $T$: 0 up to 50 °C
- Space reqd. Conductor side: 1 division
- Component side: 9 divisions
- Component: 1 division = 5.08 mm
- Weight $m$: 0.4 kg

For applications outside these parameters, please consult us!