Linear Post-Processor Unit
for Regatron Power Supplies

Features
- The Linear Post-Processor Unit combines the advantages of a primary switched power supply like high efficiency, small outline, light weight, cost efficiency, with the fast, smooth linear controlled output capability of a linear power supply.
- To be used in combination with TopCon power supplies.
- Modular concept for easy power increase: Parallel, master-slave-operation of power supplies and Linear Post-Processor Units.
- Very fast digital controller features quick response time, enhanced dynamics and programmable control characteristics.
- User-friendly PC program available. This enables the user to communicate over the power supply to the Linear Post-Processor Unit.\(^1\)
- Seamless integration into the well established TopControl software.
- Swiss made: developed, manufactured and tested in Switzerland by Regatron AG.

System Configuration (single Modules)

Regatron AG
Kirchstrasse 11
CH-9400 Rorschach
Switzerland
Tel +41 71 846 67 67
Fax +41 71 846 67 77
www.regatron.com
topcon@regatron.ch

40 A/20 A/1000 VDC
TC.LIN.SER.40.1000.40

Input requirements and output specifications

<table>
<thead>
<tr>
<th>Mains input data (Auxiliary Supply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage ...................................... 85 – 264 VAC</td>
</tr>
<tr>
<td>Frequency .................................... 48 – 62 Hz</td>
</tr>
<tr>
<td>Input power .................................. 120 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC Input ratings</th>
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</thead>
<tbody>
<tr>
<td>Input voltage ................................ 0 – 1000 VDC</td>
</tr>
<tr>
<td>Input current ................................ 40 A</td>
</tr>
<tr>
<td>Leakage current DC to PE ........................... &lt; 10 mA</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Output ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage range .............................. 0 – 1000 VDC</td>
</tr>
<tr>
<td>Drop Voltage (typical) ............................ 40 V</td>
</tr>
<tr>
<td>Output current full range ........................ 0 – 40 A</td>
</tr>
<tr>
<td>Output current half range ........................ 0 – 20 A</td>
</tr>
<tr>
<td>Output Capacitor ................................ &lt; 10 nF</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Dissipation Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous power diss. .......................... 1500 W</td>
</tr>
<tr>
<td>Power diss. &lt; 3 Min. ............................. 2000 W</td>
</tr>
<tr>
<td>Transient power diss. ............................ Full SOA protection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAP(^3) current regulation .......................... 0 – 100 % (I_{\text{max}})</td>
</tr>
<tr>
<td>Resolution ........ 14.5 Bit (^8)</td>
</tr>
<tr>
<td>Static accuracy (\leq \pm 0.05 % \text{ FS typ.}) (^9)</td>
</tr>
<tr>
<td>Line regulation (\leq \pm 0.05 % \text{ FS typ.}) (^10)</td>
</tr>
<tr>
<td>Transient response time (&lt; 10 \mu s) (^11)</td>
</tr>
<tr>
<td>Set value tracking (&lt; 50 \mu s) (^12)</td>
</tr>
</tbody>
</table>

| Stability .......... \(< \pm 0.02 % \text{ FS}\) \(^13\) |
| Temperature coefficient \(< 0.01 % \text{ FS}/°C\) \(^14\) |

Remote sensing
Terminals on rear side ........ cable voltage drop compensation

General specifications
Weight .............................................. 23 kg
Width front panel .................................. 483 mm
Width housing ..................................... 444 mm (19")
Height front panel ................................ 265 mm
Height housing ................................... 262 mm (6 U)
Depth with output terminals .................. 485 mm
Depth housing ..................................... 450 mm
DC input terminals max .......................... 3 x 25 mm\(^2\)
(DC+, DC-, PE)
DC Output terminals max ........................ 3 x 25 mm\(^2\)
(DC+, DC-, PE)
Remote Sensing terminals max ........... 2 x 10 mm\(^2\)
(DC+, DC-)

1) Most commonly used parameter are accessible via PC Program TopControl connected to TopCon power supply.
2) Maximum Output Voltage = Input Voltage – Drop Voltage.
3) Adjustable Value, the Drop Voltage influences directly the power dissipation.
4) Full Range / Half Range are selectable by PC program TopControl.
5) At ambient temperature 25 °C, for current half range 60 % of specified value.
6) For Drop Voltage < 250 VDC, for current half range 50 % of specified value.
7) Application Area Programming, e.g. I(U) curves of solar panel / solar array.
8) Improved by using oversampling techniques.
9) Typical value for 60 % to 70 % load variation, at voltage drop and temperature conditions.
10) Typical value for variation within 20 V to 60 V drop voltage, at constant load and temperature conditions.
11) Typical recovery time to within < ± 2 % band of set value for a load step 60 % to 70 %, ohmic load, voltage drop > 30 V and constant temperature conditions.
12) Typical recovery time to within < ± 2 % band of set value for a set value step 60 % to 70 %, ohmic load, voltage drop > 30 V and constant temperature conditions.
13) Maximum drift over 6 hours after 30 minute warm-up time, at constant line input, load and temperature conditions.
14) Typical change of output values versus ambient temperature, at constant line input and load conditions.

Right reserved to make modifications without notification.
### Ambient conditions
- Operating temperature: 5 – 40 °C
- Storage temperature: -25 – 70 °C
- Relative air humidity: 0 – 95% (non-condensing)

### Cooling
- Fans: internal temperature-controlled

### Safety
- **Type of protection (IEC 60529)**
  - Basic construction: IP 20
  - Mounted in cabinet: up to IP 53

- **Isolation**
  - Line to output (auxiliary supply): 4000 V<sub>ms</sub>
  - Line to case (auxiliary supply): 2500 V<sub>ms</sub>
  - DC-Input, Output to case: ±1000 V<sub>DC</sub>, > 10 MΩ

### Conformity CE-Marking
- **EMC Directive**
  - EMC emission: EN 61000-6-4
  - EMC immunity: EN 61000-6-2

- **Low Voltage Directive**
- Electronic equipment for use in power installations: EN 50178

### Standard programming interfaces
- **Control port**
  - Isolation to electronics and earth: 125 V<sub>ms</sub>
  - Connector: 15 pin D-sub, female
  - on rear panel

- **Control port**
  - Input functions: Future use
  - Output functions: Future use

### Standard programming interfaces (continued)
- **RS232**
  - Isolation to electronics and earth: 125 V<sub>ms</sub>
  - Connector: 9 pin D-sub, female
  - on rear panel
  - Baud rate: 38400 baud
  - Resolution (programming and readback): U, I: 0.005 % FS

### Ordering code
- TC.LIN.SER.40.1000.40

### Scope of delivery
- TopCon Linear Post-Processor Unit ready to install,
  including:
  - Operating manual: English
  - RS232 cable length: 1.8 m
  - CAN bus: CAN cable
  - CANTerm Connector

### Software
- TopControl: on Installation disc
- API (DLL file): for LabVIEW® and C/C++
  - (and other programming languages,
  - to be used in combination
  - with TopCon Power Supplies.)

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TC.LIN.SER.40.1000.40 (continued)