

TC.LIN.75.1500.50

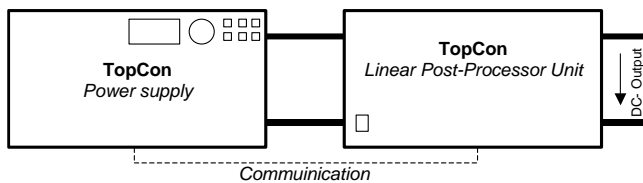
Linear Post Processor Unit for Regatron Power Supplies



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 for a fast regulation around the MPP of a IV-curve.
- User-friendly PC program available. This enables the user to communicate over the power supply to the *Linear Post-Processor Unit*.
- Seamless integration into the well established TopControl software.
- Swiss made: developed, manufactured and tested in Switzerland by Regatron AG.

System Configuration (single Modules)



Technical Data

Mains input data (Auxiliary Supply)

Voltage	189 ... 253 V _{AC}
Frequency	48 ... 62 Hz
Input power	50 W

DC Input ratings

Input voltage	0 ... 1500 V _{DC}
Input current	50 A _{DCmax}
Leakage current DC to PE	< 10 mA

Output ratings

Output voltage range	0 ... 1500 V _{DC} ¹⁾
Drop Voltage (typical)	50 V ²⁾
Output current full range	0 ... 50 A ³⁾
Output current half range	0 ... 25 A
Output Capacitor	< 100 nF

Dissipation Power

Continuous power diss.	2000 W ⁴⁾
Power diss. < 3 Min	2500 W ⁵⁾
Transient power diss.	Full SOA protection

Operating modes ^{14), 15)}

AAP ⁶⁾ current regulation	0 ... 100 % I _{max} @0 ... (V _{max} - V _{Drop})
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Resolution

Voltage, current resolution	14.5 Bit ⁷⁾
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Static accuracy

Load regulation	< ± 0.05 % FS typ. ⁸⁾
Line regulation	< ± 0.05 % FS typ. ⁹⁾

Transient response time

Load regulation	< 10 μs ¹⁰⁾
Set value tracking	< 50 μs ¹¹⁾

Stability

	< ± 0.02 % FS ¹²⁾
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Temperature coefficient

Current, voltage	< 0.01 % FS/°C ¹³⁾
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Remote sensing

Terminals on rear side	cable voltage drop compensation
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1) Maximum Output Voltage = Input Voltage – Drop Voltage.
 2) Adjustable Value, the Drop Voltage influences directly the power dissipation. Full Range / Half Range are selectable by PC program TopControl.
 3) At ambient temperature 25 °C, for *current half range* 60 % of specified value.
 4) To reach this current a slightly higher input current of the power supply is needed.
 5) For Drop Voltage < 250 V_{DC}, for *current half range* 50 % of specified value.
 6) Application Area Programming, e.g. I(U) curves of solar panel / solar array.
 7) Improved by using oversampling technics.
 8) Typical value for 60 % to 70 % load variation, at voltage drop and temperature conditions.
 9) Typical value for variation within 20 V to 60 V drop voltage, at constant load and temperature conditions.

10) 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.
 11) 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 line input and temperature conditions. Transient response time can be slightly affected by multi-unit operation.
 12) Maximum drift over 6 hours after 30 minute warm-up time, at constant line input, load and temperature conditions.
 13) Typical change of output values versus ambient temperature, at constant line input and load conditions.
 14) Fast steps from U_{oc} to I_{sc}, I_{sc} to U_{oc}, MPP to I_{sc} or MPP to U_{oc} due to the SOA protection not for all IV-curves possible.
 15) TC.LIN has to be controlled with a IV-curve. IV-curves can be generated with the AAP function of the TopControl function engine TFE or with the solar array simulation software SASControl.

Cooling

Integrated liquid cooling system of the power stage with completely integrated liquid to liquid heat-exchange system.

Heat exchanger

Material	EN AW-5083
Inlet/outlet on rear side size:	G ½"
Liquid temperature	15 ... 40 °C
Flow	≥ 2.5 l/min
Pressure max.	≤ 10 bar
Pressure drop	50 mbar@3 l/min

Standard programming interfaces

Control port

Isolation to electronics and earth:	125 Vrms
Connector	15 pin D-sub, female on rear panel

Control port

Input functions	Future use
Output functions	Future use

RS232

Isolation to electronics and earth:	125 Vrms
Connector	9 pin D-sub, female on rear panel
Baud rate	38400 baud
Resolution (programming and readback):	
U, I	0.005 % FS

Safety

Type of protection (IEC 60529)

Basic construction	IP 20
Mounted in cabinet	up to IP 53

Isolation

Line to output	4000 V _{rms}
Line to case	2500 V _{rms}
DC-Input, Output to case:	± 1000 V _{DC} , > 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
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RoHS Directive 2011/65/EU

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances	EN IEC 63000
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Ambient conditions

Operating temperature	5 ... 35 °C
Storage temperature	-25 ... 70 °C
Relative air humidity (non-condensing)	0 ... 95 %
max. output cabling length (low inductance):	10 m

Weight & Dimension

Weight	~21 kg
Width front panel	483 mm
Width housing	444 mm (19")
Height front panel	132 mm
Height housing	132 mm (3 U)
Depth with PACOB	515 mm
Depth housing	452 mm
DC input connections max.: (DC+, DC-, PE)	3 x 16 mm ²
DC Output connections max.: (DC+, DC-, PE)	3 x 16 mm ²
Remote Sensing connections max. (DC+,DC-)	2 x 1 mm ²

Ordering code

TC.LIN.75.1500.50

Scope of delivery

TopCon Linear Post-Processor Unit ready to install, including:

Operating manual language	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.)	

For detailed technical information, contact your local sales partner or REGATRON.

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