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Datasheet



PG-1410

Pulse Amplifier
DC – 300 kHz

1 Product Description

The PG-1410 is a fast pulse amplifier. With maximum pulse output currents up to 200 A_{peak} (max. 40 μs), output voltages between +/- 0,2 V and +/- 25 V can be set as required via a control input. The maximum continuous current is 36 A at 25 V output voltage. Both loads, inductive and capacitive, can be connected.

Output voltage and output current can be observed at low impedance signal outputs.

In addition to an overtemperature shutdown, a current monitor provides overload protection.

An interlock offers the possibility of a remote controlled security system.

For power supply the device is equipped with a wide range power supply unit.

Please find the latest release of this datasheet on our website:

www.drhubert.de



2 Features

- Directly controllable pulse amplifier with variable signal voltage and high peak current.
- Switching frequency signal output 0...300 kHz.
- Signal voltages adjustable in the range +/- 0,2...25 V.
- Maximum peak current +/- 200 A_{peak} (max. 40 μs at max. 200 Hz).
- Maximum continuous current 36 A.
- Two monitor outputs for output voltage and output current.
- Safety shutdown by means of interlock.



3 Applications

The amplifier delivers the following signals:

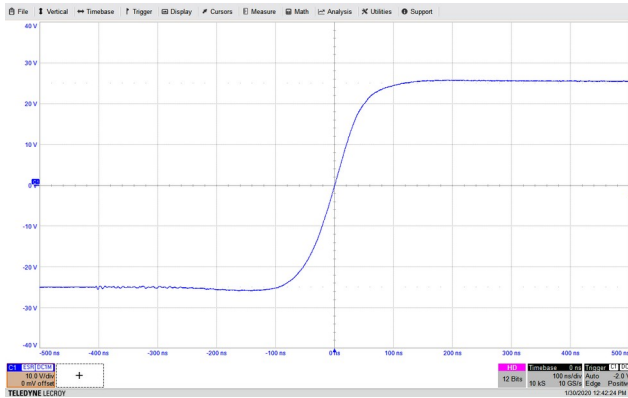


Figure 1: voltage for switch-on

without load, $U_{OUT} = 50 V_{PP}$; $t_{rise} \approx 100 ns$

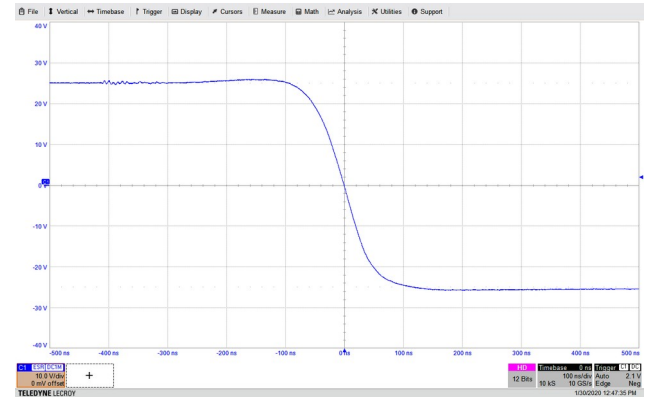


Figure 2: voltage for switch-off

without load, $U_{OUT} = 50 V_{PP}$; $t_{fall} \approx 100 ns$

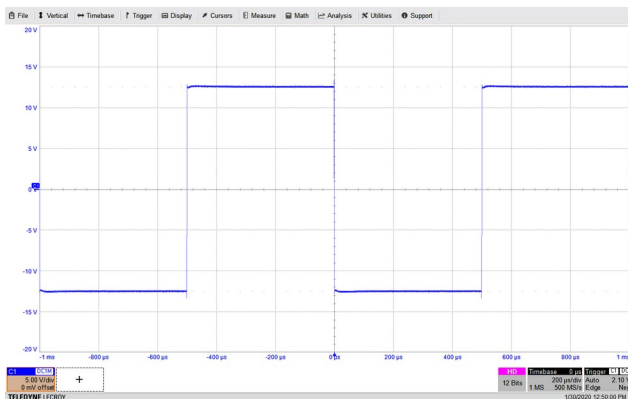


Figure 3: voltage without load

1 kHz-Pulse, $U_{OUT} = 25 V_{PP}$

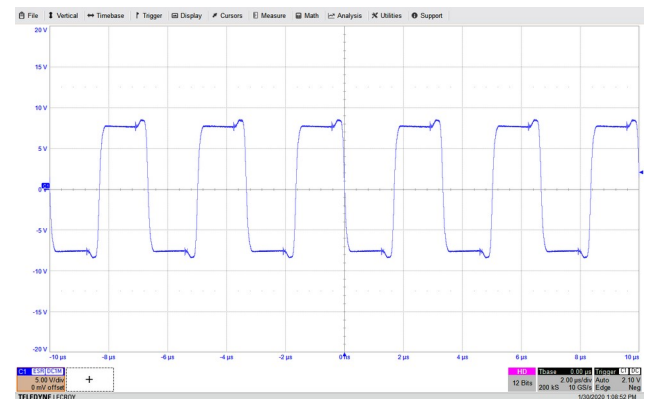


Figure 4: voltage without load

300 kHz-Pulse, $U_{OUT} = 15 V_{PP}$

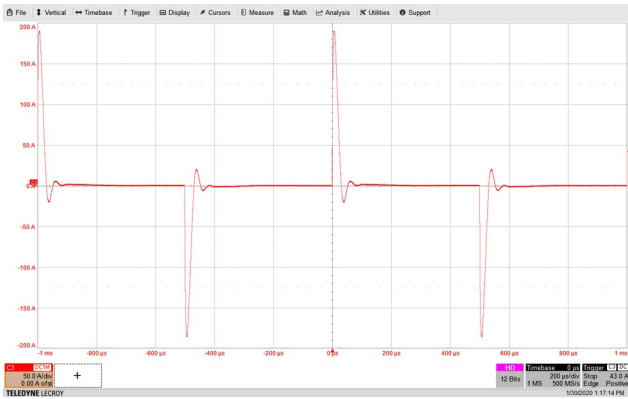


Figure 5: Short circuit with load $C \approx 130 \mu\text{F}$

1 kHz-Pulse, $Z_{OUT} \approx 0,06 \Omega$, $U_{OUT} = 25 V_{PP}$

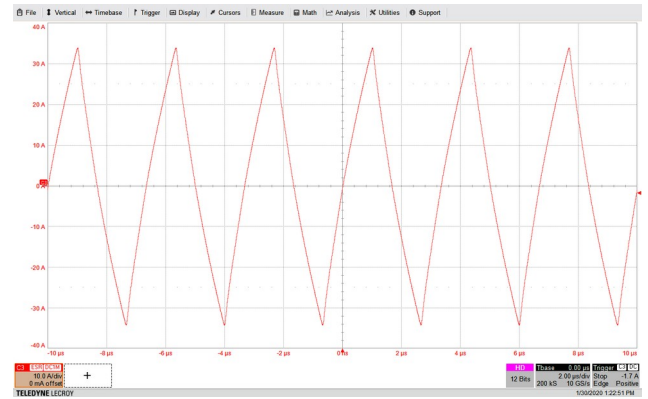


Figure 6: Short circuit with load $C \approx 130 \mu\text{F}$

300 kHz-Pulse, $Z_{OUT} \approx 0,4 \Omega$, $U_{OUT} = 25 V_{PP}$

3.1 Signal generation

The input signal is generated by an external generator gate and fed to the device via the Signal IN input.

4 Photos

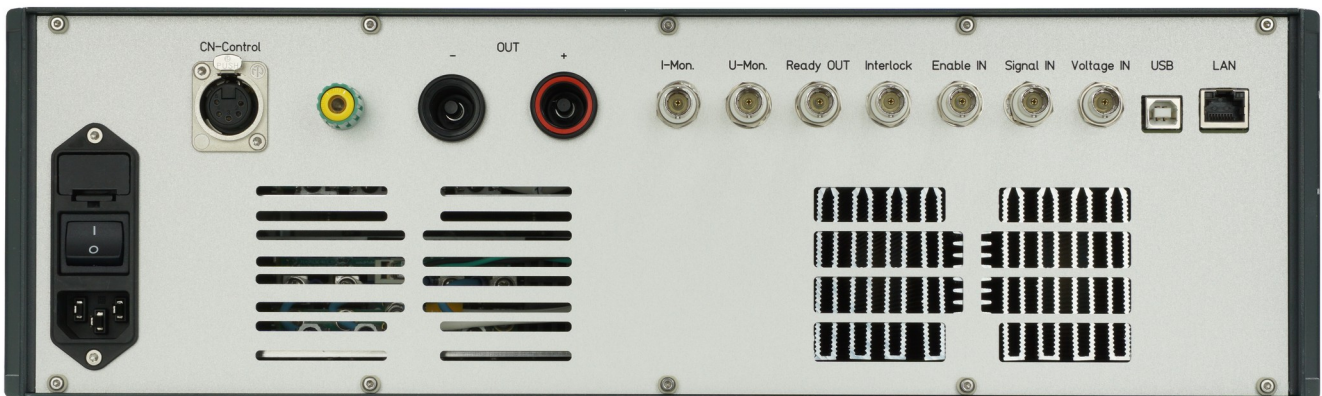


Figure 7: Back side of the amplifier



5 Technical data

Parameters	Specification	Conditions/Moments
Product Characteristics		
Housing	19" standing enclosure	
Application		
Applications	Test systems	
	Frequency range 0...300 kHz	Duty cycle 10...90 %
	Pulse duration $\geq 1 \mu\text{s}$	For use at a PWM Generator
	Fast on/off switching voltage sources at +/- 0,2...25 VDC, max. 36 A	
Electrical Data		
AC/DC Power	85...264 VAC @ 47...63 Hz 120...370 VDC	
Power consumption	Max. 1200 W	
Output Data		
Current	Max. $I_{\text{OUT}} = \pm 200 A_{\text{peak}}$ (max. 40 μs at max. 200 Hz) respectively 400 $A_{\text{peak-peak}}$ Max. $I_{\text{continuous}} = \pm 36 A$	
Voltage	$U_{\text{OUT}} = \pm 0.2...25 V_{\text{peak}}$ respectively 0.4...50 $V_{\text{peak-peak}}$ DC-Voltage-Error 0.2... < 5 V: < 1 % DC-Voltage-Error 5...25 V: < 0.1 %	
Power	Max. $P_{\text{continuous}} = 900 W$	
Inputs (Back)		
AC/DC Power	IEC C20 socket, switch and fuses	2 Fuses 16 AT 250 V (5 x 20 mm)
PE Ground socket	Pole clamp 4 mm diameter	yellow/green
Voltage IN	BNC Jack Receptacle $ \text{Signal-Out } (V_{\text{peak}}) = 2.5 \times \text{Voltage IN}$ Input Impedance: 25 kOhm Signal In: 0...10 VDC Overvoltage-proof between -30...30 VDC	
Signal IN	BNC Jack Receptacle Input Impedance: 500 Ohm Signal In: 0...5 VDC (TTL) Signal Frequency: 0...300 kHz Galvanic isolation Overvoltage-proof between -10...10 VDC	Signal IN is 0...1 V: Signal-Out = negative Signal IN is 3...5 V: Signal-Out = positive
Enable IN	BNC Jack Receptacle Input Impedance: 500 Ohm Signal In: 0...5 VDC (TTL) Galvanic isolation Overvoltage-proof between	Enable IN is 0...1 V: Signal-Out = negative Enable IN is 3...5 V: Signal-Out = positive



Interlock	-10...10 VDC BNC Jack Receptacle Galvanic isolation Overvoltage-proof between -10...20 VDC	Input short-circuit: Interlock enabled Input 11...13 VDC: Interlock enabled Input with no signal: Interlock disabled
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Outputs (Back)

OUT	MC Safety flush-mounting sockets 6 mm diameter Output Impedance: typical 60 mOhm	$t_{rise} = t_{fall} = \text{typical } 100 \text{ ns (without load)}$
CN-Control	XLR female socket, 5-pins I_{OUT} per channel: max. 0.5 A U_{OUT} every channel: +24 VDC With integrated free-wheeling diodes	Channels 1...4 on Pins 2...5 Pin 1: common GND Pins 2...5: Signals Out
I-Monitor	BNC Jack Receptacle Signal-Out = $I_{OUT} \times 0.1 \text{ V/A}$ Output Impedance: 50 Ohm Sustained short-circuit proof	
U-Monitor	BNC Jack Receptacle Signal-Out = $U_{OUT} \times 0.4 \text{ V/V}$ Output Impedance: 50 Ohm Error < 0.5 % Sustained short-circuit proof	
Ready OUT	BNC Jack Receptacle PhotoMOS-Relay, Solid State Relay Max. Load voltage: +/- 40 V Max. Load current: +/- 120 mA On resistance 20...25 Ohm Galvanic isolation Sustained short-circuit proof	When Signal OUT ready, Relay is closed

Operating Elements (Front)

Button power	Switching power on/off	Display with blue LED
Button generator on	Switching generator on/off	Display with green LED
LED ready	Green LED	If the internal signal voltage is stable, the LED lights up constantly, otherwise it flashes
LED protection	Red LED	LED flashes in the event of an error

Operation Conditions

Ambient temperature	10...40 °C	
Storage temperature	0...70 °C	
Relative air humidity	5...80 %RH	non condensing
Max. height above sea level	Max. 2000 m	
Protection	IP 20	
Degree of soiling	2	≤ 240 VAC
Cooling	Forced air	

Mechanical Data

Weight	13 kg	
Dimensions	449 x 133 x 495.5 mm	W x H x D



Accessories

Accessories (supplied)

EU Power Supply Cord with IEC
Connector C19



6 Block Diagram

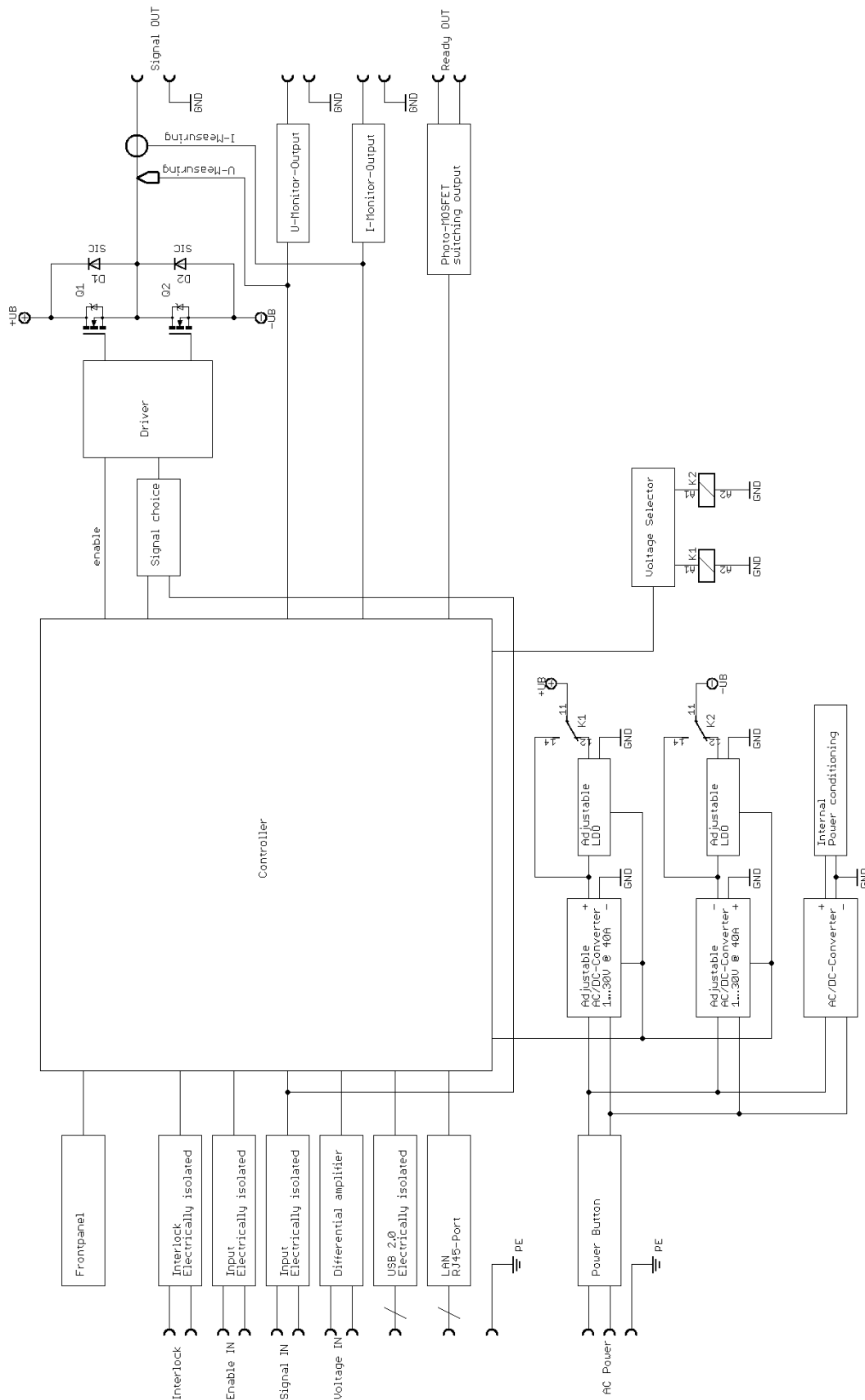


Figure 8: Block diagram of the Pulse amplifier



7 Contact

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8 Dokumentenhistorie

Revision	Date	Changes
1.2	June 2020	Description for applications changed