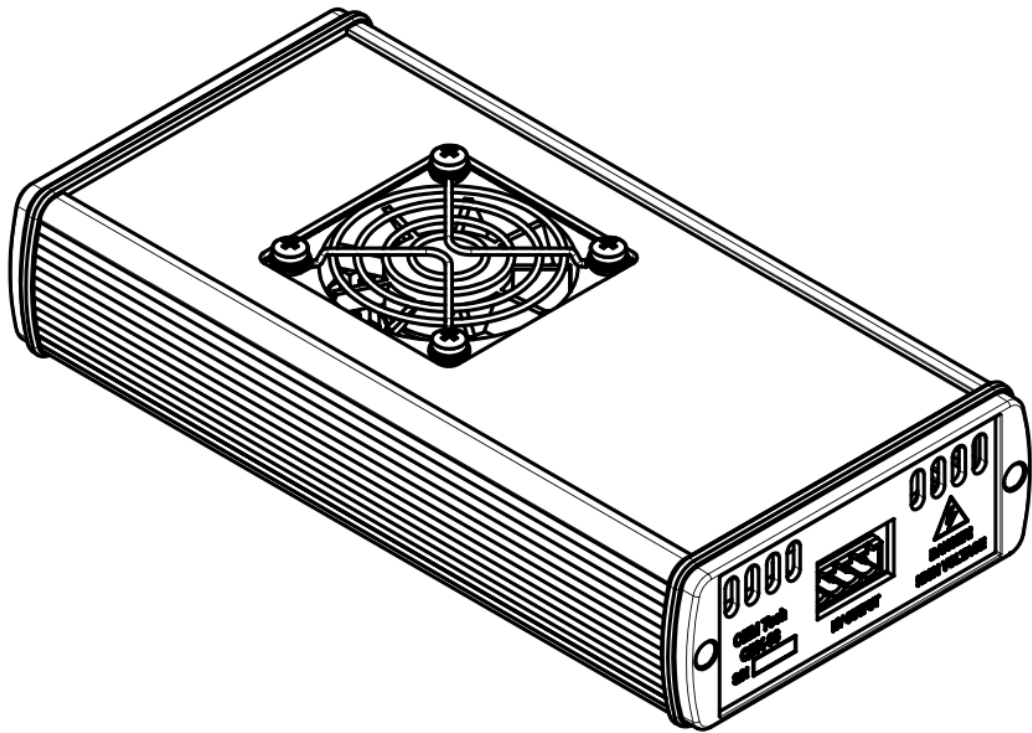


QBX-08 Pockels cell driver

User manual

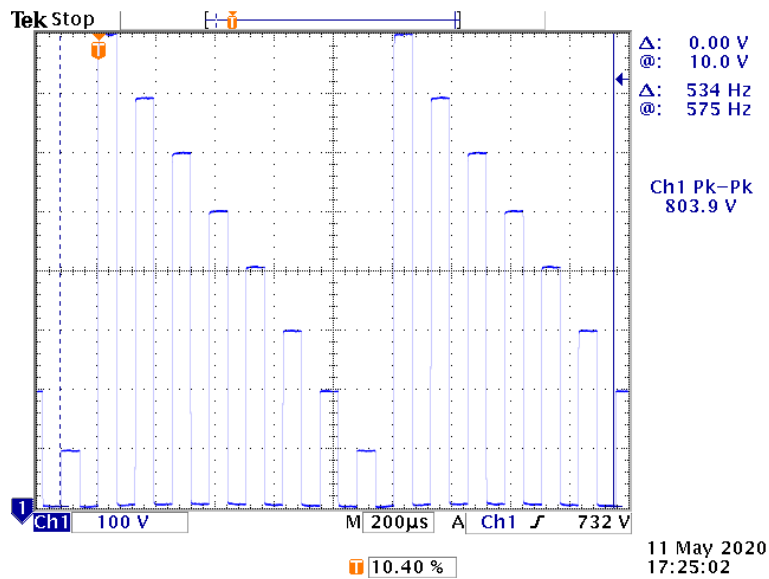


Warning! This equipment produces high voltages that can be very dangerous.
Please read user manual before starting operations.

Overview

QBX-08 is a dedicated Pockels cell drivers designed for applications where voltage on the Pockels cell should be continuously adjustable. Driver is built on voltage amplifier schematics, maximal output voltage is 800V (other voltages both smaller and higher up to 1600V are available on request), amplification factor is 100:1.

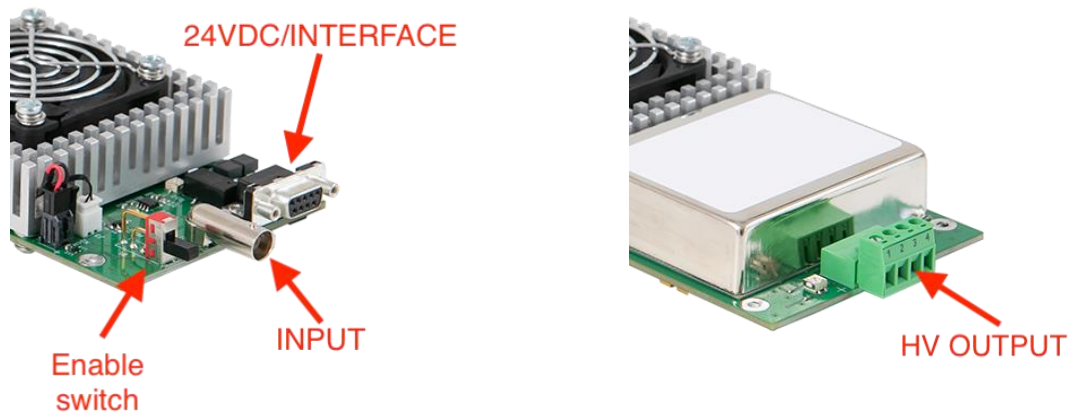
Driver is forced air cooled with integrated fan. Driver can be supplied in PCB and enclosed versions.



Appearance



Connections, signals, signal descriptions



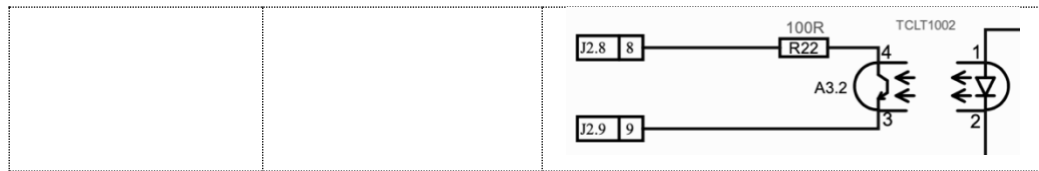
INPUT: BNC

Analog signal of 0-8V amplitude applied to this connector is amplified with 100:1 factor and delivered to the high voltage output of QBX-08 Pockels cell driver.

Input impedance is 50 Ohm.

24VDC/INTERFACE: D-SUB 9 PIN, FEMALE

PIN (color)	DESIGNATION	DESCRIPTION
1, 2 (black)	24VDC RETURN	+24VDC power supply to be connected here. Power consumption 1.5A max.
3, 4 (red)	+24VDC	We recommend to use +24VDC power supply with isolated output and non-grounded return.
5	N/C	-
6	Enable	5V TTL signal to be applied here to enable the high voltage output.
7	Enable return	Enable signal could be used instead of Enable switch and they shouldn't be used at the same time.
8	Ready	Exactly as Ready LED, indicates the Pockels cell driver is enabled and ready to work.
9	Ready return	



ENABLE SWITCH

UPPER POSITION	ON	Enable switch turned to ON position enables the high voltage output.
BOTTOM POSITION	OFF	Enable switch could be used instead of Enable signal of interface and they shouldn't be used at the same time.

HV OUTPUT: Phoenix Contact 1757268

PIN (color)	DESIGNATION	DESCRIPTION
1	HV OUTPUT	High voltage output (amplified INPUT) of the QBX-08 driver.
4	GND	
2, 3	N/C	-

Mating part (Phoenix Contact 1758377) is supplied together with the driver.

LEDs

There is a Ready LED onboard indication the driver is ON and ready to work.

Grounding and mounting

Grounding policy

By default INPUT negative, HV OUTPUT negative and 24VDC return (via filtering choke) are interconnected to each other and to chassis ground (through the mounting pads).

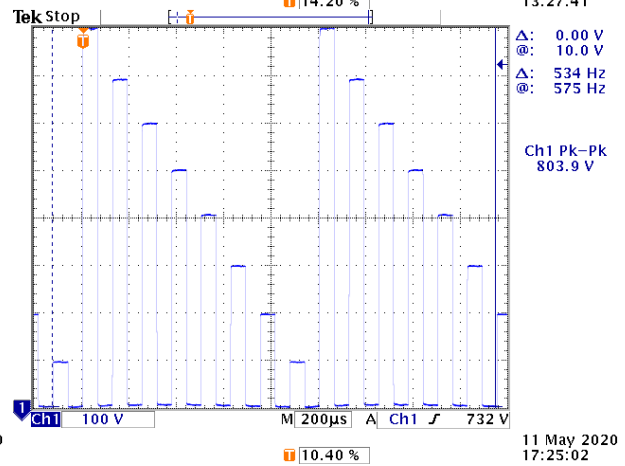
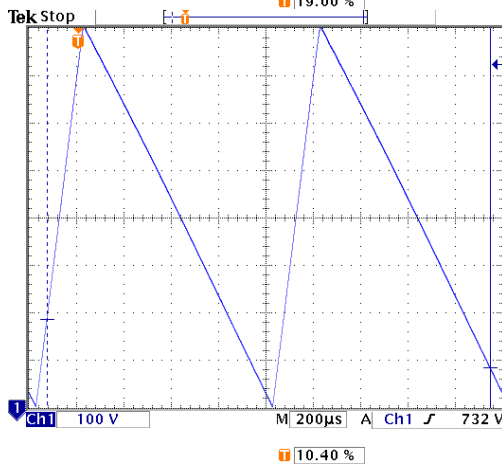
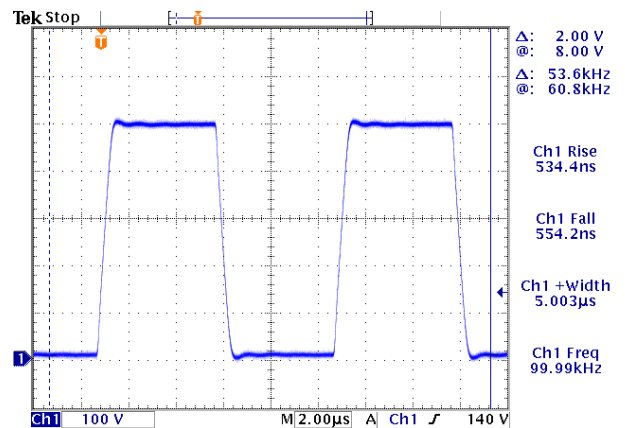
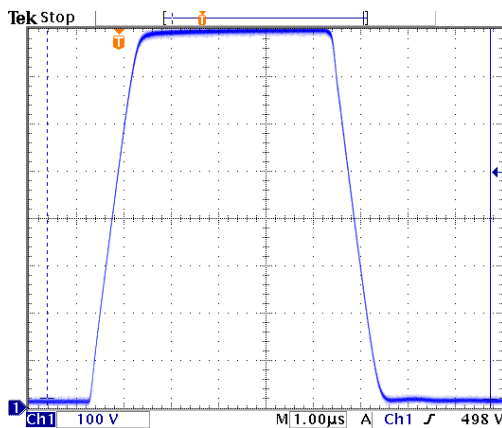
Driver is to be mounted with four M3 screws.

Operations

1. Connect +24VDC power supply, waveform generator and Pockels cell
2. Turn on +24VDC power supply
3. Turn *ENABLE SWITCH* in *ON* position or apply *ENABLE* signal
4. Turn on waveform generator and apply desired waveform to *INPUT*

Typical output

Examples of waveforms:



Specifications

ELECTRICAL SPECIFICATION

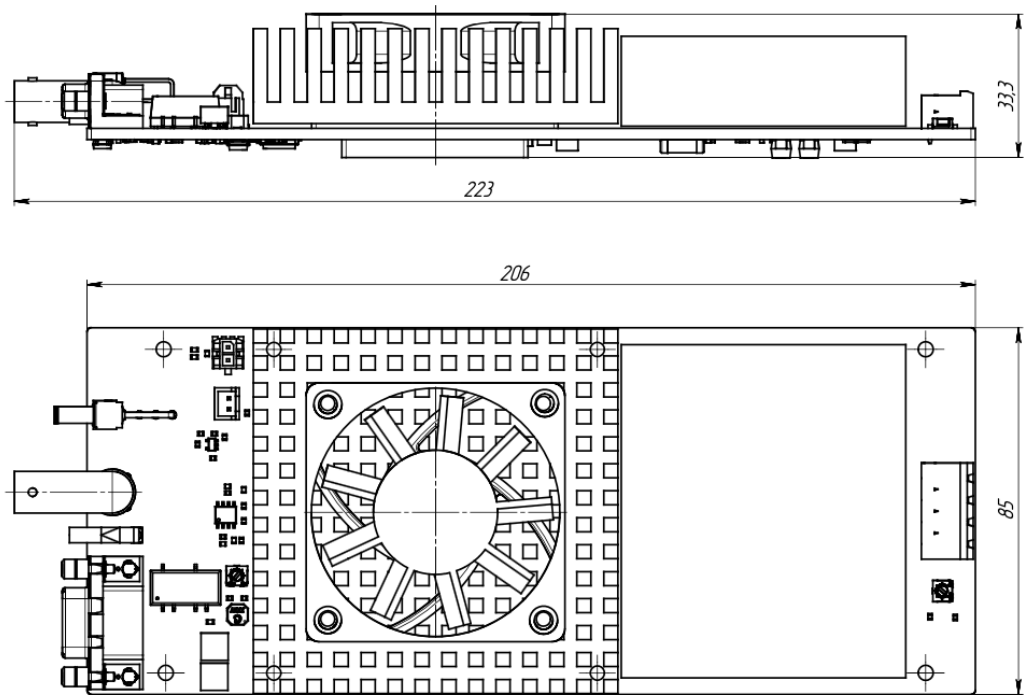
Input	
Power	24VDC, 1.5A typ.
Signal	Analog signal 0-8V, input impedance 500Ohm
HV Output	
Output type	High voltage signal repeats the shape of low voltage input signal
Output polarity	Positive
Amplitude	0-800V (100:1 amplification)
Repetition rate	Up to 1MHz (at smaller loads and voltages). Also limited as $f_{MAX} * C * U^2 = 2W$, for example: ~50kHz @ 800V and 60pF ~130kHz @ 500V and 60pF
Rise/fall time (full slope)	<1us (1 microsecond)
Delay time	<1us
Load requirements	
Load type	Capacitive (other on request)
Load capacitance	<60pF (other on request)
Cooling	Forced air cooling with integrated fan
Environmental	
Operating temperature	+10...+40C

MECHANICAL SPECIFICATION

Size (LxWxH)	206x85x45 mm ³ (see also the dimensional drawing below)
Weight	Approx. 0.6 kg

DIMENSIONAL DRAWINGS

PCB version



Enclosed version

