

Bench-Top Pockels Cell Drivers

The bench-top Pockels cell drivers QBD-BT, QBU-BT, and QBU-BT-10kV are the completed devices based on Pockels cell driver boards QBD, QBU, and QBU-10kV correspondingly. The total load capacitance of Pockels cell and connective cable is assumed as 23 pF (this corresponds to pretty long 50 cm output cable bent in non-optimal way and higher than normal Pockels cell capacitance). The bench-top Pockels cell drivers have internal and external synchronization modes. The internal synchronization is limited by the output values (voltage - repetition rate):

QBD-BT and QBU-BT

0.40...0.79kV - 296kHz
 0.80...1.19kV - 200kHz
 1.20...1.39kV - 160kHz
 1.40...1.59kV - 130kHz
 1.60...1.79kV - 110kHz
 1.80...1.99kV - 90kHz
 2.00...2.49kV - 56kHz
 2.50...2.99kV - 40kHz
 3.00...3.49kV - 31kHz
 3.50...3.99kV - 24kHz
 4.00...4.49kV - 18kHz
 4.50...4.99kV - 15kHz
 5.00...5.49kV - 12kHz
 5.50...5.99kV - 11kHz
 6.00kV - 9kHz

QBU-BT-10kV

4.00...4.99kV - 50kHz
 5.00...5.99kV - 30kHz
 6.00...6.99kV - 25kHz
 7.00...7.99kV - 20kHz
 8.00...8.99kV - 15kHz
 9.00...9.99kV - 10kHz
 10.00kV - 5kHz

Higher performance can be achieved in external synchronization mode. In burst mode (i.e. for short term operations) the performance increases at least twice and can achieve 100 kHz at low operating voltages and low load capacitances. Higher load capacitance decreases the performance.

QBU-BT



QBD-BT and QBU-BT








QBD-BT



QBU-BT-10kV



Bench-Top Pockels Cell Drivers

| | | QBD-BT | QBU-BT | QBU-BT-10kV |
|-----------------------|--|--|---|---|
| Input | Voltage Current | | 110/230VAC, 50-60Hz < 1A | |
| | Repetition of external low voltage TTL signal | - |  | |
| Output | Working modes: QBD-BT-UP QBU-BT-(10kV) | push-up (=normally off)  | push-up (=normally off)  | |
| | QBD-BT-DN QBU-BT-(10kV) | pull-down (=normally on)  | pull-down (=normally on)  | |
| | Voltage, low level Synchronization | | fixed, 0V internal / external | |
| | Pulse width | - | 1µs-1s internal synchronization 200ns ... DC external synchronization | |
| | Voltage, high level Repetition rate | regulated, up to 6kV up to 50kHz (CW) up to 100kHz (burst) | regulated, up to 6kV up to 50kHz (CW) up to 100kHz (burst) | regulated, up to 10kV >5kHz at full load (10kV, 11pF) |
| | Jitter | ±1ns | ±1ns / ±10ns | ±2ns |
| | Delay time | 100ns | 100ns / 1µs | 150ns |
| Load capacitance | up to 0.5nF | - | - | |
| Recovery time | 5-10µs (load dependent) | - | - | |
| Rise time (fall time) | <20ns | <20ns | <20ns / 25ns at load capacitance <11pF | |
| Environment | Operation temperature | +10°C to +40°C (wider temperature range is available on request) | | |
| | Storage temperature | -20°C to +60°C | | |
| | Humidity | 90%, non-condensing | | |
| Other | Size (L x W x H) | 225x200x60mm | 225x200x60mm | 300x220x80mm |
| | Weight | 2.0kg | 2.0kg | 2.0kg |