## Series: "dst11-t193xx-h2o" - optical output 100W to 500W, water cooled series

The product series dst11-t193-h2o combines the features and reliability of OsTech Laser- and TEC controllers with diode laser modules to a turn key laser source. It could be powered by an input voltage of 110~230VAC with power factor correction. Normally the optical power output is located at the back panel. The optical power could be chosen between 100W and 400W. Lasers are water cooled. Multiple laser protection features are incorporated.

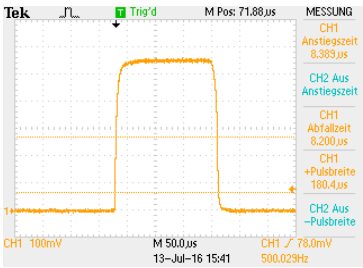
As user interface we provide the front panel display, RS232 and an isolated industrial interface. The following modes are available: cw-mode, external analogue modulation, external digital modulation, internal modulation, internally generated pulses and pulse bursts, externally triggered internal pulses and bursts. Typical rise time is about 25µs, shorter rise times on request.

It is possible to provide your own laser diode to OsTech for integration. Otherwise we choose the best suited laser for your application.

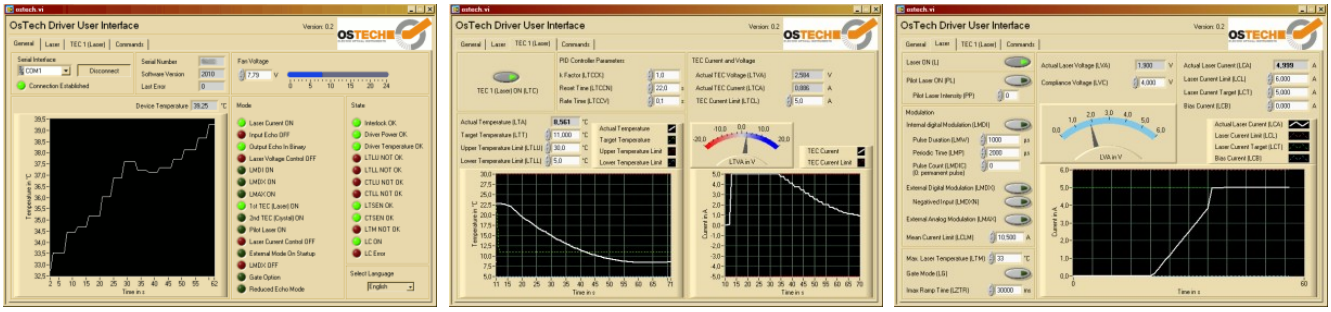
Any questions or requests are welcome to be discussed with our engineers.



- front and back view of a typical configuration

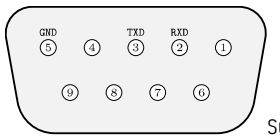
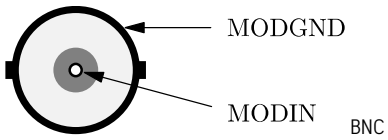
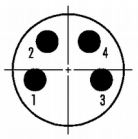



- typical puls shape

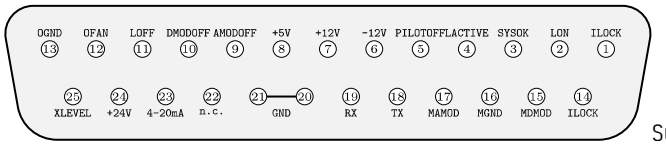



PC-LabVIEW interface for remote control. The list of serial commands you find here: "http://www.ostech.de/en/downloads/manuals/ds-en.pdf"

| Features | Options |
|---|---|
| • from 100W to 400W optical output power in cw-mode (qcw power up to 1kW)<br>• housing 19“rack mount, 3HU, depth 340mm/400mm(13"4/15"8)<br>• input 110V-240V AC<br>• typical optical output - NA 0.22; fiber core diameter 100, 200, 400 or 600µm; fiber receptacle SMA, D80 or QBH depending on power air or water cooled, others on request<br>• key switch, emergency stop, Interlock and LaserOn signal<br>• operation modes: cw, internal digital modulation, external analog or digital Modulation, pulse or pulse burst mode internally or externally triggered, gated mode<br>• rise/fall-time typ. 25..50µsec<br>• front panel display with touch keys<br>• RS232-Interface, control software and labview VI is provided for download<br>• isolated industrial interface, SysOk and LaserOn-Output, LaserOn-and modulation input and others<br>• various protection features for safety of the laser diode<br>• PC-interface for configuration and control by LabVIEW ™<br>• system is prepared for water cooling<br>• Water connector: 12mm push in fittings OD calibrated (optional others f.e. OD 8mm), water flow and pressure drop depends on laser diode and power loss | • dual wavelength<br>• USB or Ethernet<br>• low noise optical output<br>• short rise- / fall-time (1..10µs)<br>• pilot-laser if available on laser<br>• optical power monitor<br>• fiber detection sensor, depending on laser diode<br>• metal armoured fiber cable, variable length<br>• laser diode provided from customer<br>• suitable industrial chillers in 19" 3HU<br>• PLC compatible control voltages<br>• metal armoured fiber cable, variable length, incorporating mode stripping with passive cooling, fibre breakage, connectivity and connector temperature sensing<br>• laser diode provided from customer for integration |
| **Application examples** | |
| • Plastic welding<br>• Soldering<br>• Illumination<br>• Selective laser melting<br>• Heat treatment<br>• Medicine | |

| RS232 Connector | AMOD/DMOD Connector | Interlock Connector |
|---|---|---|
|  SubD-9, female |  BNC |  M8-round connector<br>Binder Sensor series 768 · 718<br>ordering# 09-3391-00-04<br>fits with<br>ordering# 99-3376-00-04 |
| Standard RS232-Connector connected to PC<br>9600-Baud-8N1(No Null-Modem Cable !) | Input-Impdanz 10kOhm<br>Digital Modulation with TTL-Pegel<br>Analog Modulation 0-4[V] => 0-Imax[A] | 2 circuit Interlock - Laser runs only<br>if both circuits are closed<br>IL1+Pin1, IL1-Pin2, IL2+Pin3, IL2-Pin4 |

## Support Connector - Isolated Industrial Interface - 2nd version



SubD25-female

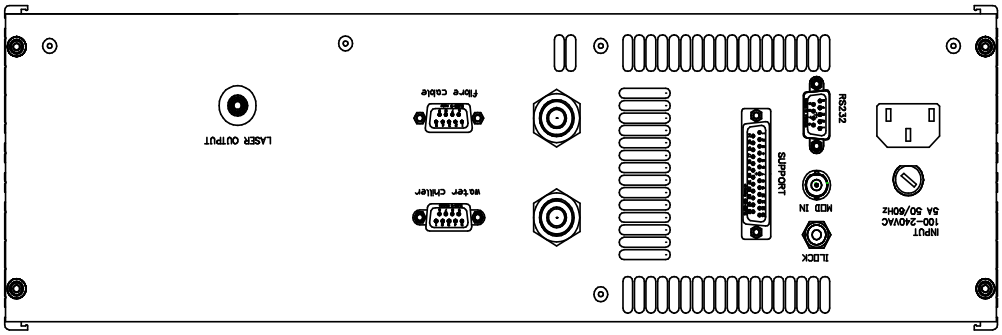
| PIN.No | Abbr. | | Function |
|---|---|---|---|
| 1 | ILOCK | out | Output Interlock Output max. 12V 10mA (connect to pin14) to close Interlock |
| 2 | LON | out | Output Laser On - High = Laser is in On State [1] |
| 3 | SYSOK | out | Output System Ok - High = System OK - Laser Ready for Operatioin [1] |
| 4 | LACTIVE | out | Output Laser Active - High = Laser Is Emitting [1] |
| 5 | PILOTOFF | in | If your Laser has a pointer device it's switched ON when - LOW [3] |
| 6 | -12V | sup | Supply Output -12V max. 250mA for free usage [2] |
| 7 | +12V | sup | Supply Output +12V max. 250mA for free usage [2] |
| 8 | +5V | sup | Supply Output +5V±1% max. 250mA for free usage [2] |
| 9 | AMODOFF | in | Input if LOW = xternal analogue modulation is ON (is changable) [3] |
| 10 | DMODOFF | in | Input if LOW = xternal digital modulation is ON (is changable) [3] |
| 11 | LOFF | in | Input Laser-OFF - Low = Laser is ON [3] |
| 12 | OFAN | sup | optioinal (Fan) Supply - 2V..22V up to 1A for external Fan [7] |
| 13 | OGND | sup | optional IGND [7] |
| 14 | ILOCK | in | Interlock Input - has to be connected to XO_ILOCK (connect to pin1) to close Interlock |
| 15 | MDMOD | in | Input Digital Modulation [4] |
| 16 | MGND | sup | Modulation GND |
| 17 | MAMOD | in | Input Analog Modulation Input [4] [5] |
| 18 | TX | in | RS232-Tx [2] |
| 19 | RX | out | RS232-Rx [2] |
| 20,21 | GND | sup | Xternal GND |
| 22 | n.c. | | |
| 23 | 4-20mA | in | Additional 4..20mA Analogue Modulation Input [7] |
| 24 | +24V | sup | Supply Output +24V max. 80mA for free usage [2] |
| 25 | XLEVEL | in | Input for Logical Output Level [6] |

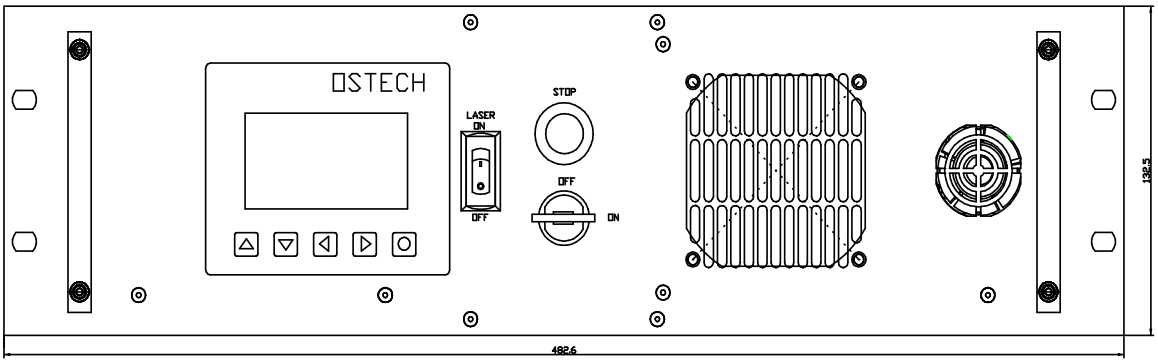
[1] Logic Output, High Level = XLEVEL (default =5V), LOW Level < 1V, see [6]
[2] vs. XGND
[3] Input internally pulled-up, Input is tolerant up to 24V for High-level
[4] vs. XMOD_GND
[5] 0-4V → 0A-Imax (Ri=10kOhm, for a 0-10V input signal put 15kOhm in series)
[6] XLEVEL is default 5V = TTL-Level, to change Output High level to 12V connect XLEVEL to +12V
or to change Output High level to 24V connect XLEVEL to +24V
[7] vs. IGND Signals are NOT! isolated! Take care!
- current state from 2017-08-01

| Laser data | |
|---|---|
| **Laser Module Type** | **Laser Modules from Jenoptik, Dilas, Lumics, Oclaro and others asOrequested by the customer** |
| Optical Output Power | 100W – 400W |
| Wavelength | 808nm / 880nm / 915nm / 938nm / 976nm / 1064nm (others on request) |
| Fiber Core Diameter, Numerical Aperture | 105µm, NA (0.15) 0.22 / 200 µm, NA 0.22 / 400 µm, NA 0.22 / 600 µm, NA 0.22 |
| Fiber Connector | F-SMA 905, D80 or QBH potential free, (others on request) |
| Diode Laser Operating Temperature | Typical Diode Laser Operating Temperature 15 ... 30 °C, measured with internal temperature sensor |

## Configuration Examples

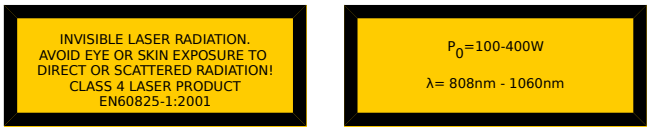
| Type | Device Name | |
|---|---|---|
| 647 | dst11-DILAS-240W-808nm-400µ-0.22NA-H2O-t19315-v0-647 | |
| 706 | dst11-DILAS-300W-808nm-400µ-0.22NA-QBH-H2O-t19317-706 | |
| 502 | dst11-JOLD-400W-808nm-QBH-0.22NA-H2O-t19312-v0-502 | |
| 695 | dst11-LUMICS-100W-H2O-t19316-v0-695 | |
| 724 | dst11-LUMICS-170W-976nm-200µ-0.22NA-H2O-t193xx-724 | |
| 743 | dst11-PHOTONTEC-150W-9xxnm-105µ-0.22NA-H2O-t193xx-743 | |
| 770 | dst11-PHOTONTEC-100W-976nm-t193xx-H2O-770 | |



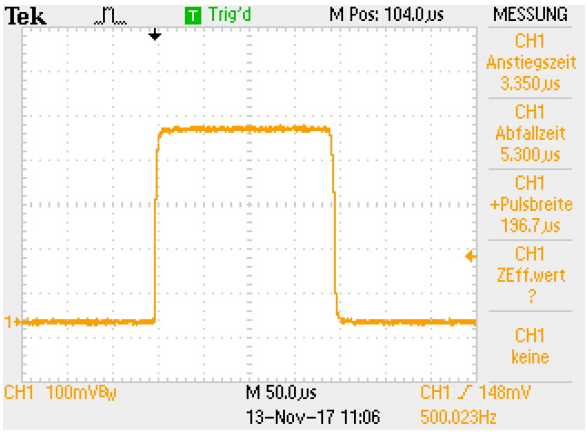




19“ 3HU, 340/400mm depth

## Laser Safety




## Fast Pulse Option




example for speed up rise (3.35µs) and fall (5.3µs) times

## Revision overview:

2013.10.10: "v0" – series setup
2017.01.23: "v1" – new types integrated f.e. JOLD-400, cooling improved, alternatively-new "industrial interface 2nd version" with additional PLC-compatibility as option
2018.01.29: "v2" – new layout and new types integrated

## References:

http://www.ostech.de/de/produkte/diodenlasersysteme/dst11-t193
http://www.ostech.de/en/downloads/manuals/ds-en.pdf
http://www.ostech.de/en/downloads/labview