

WideMove XT Closed Loop Scanning-System Preliminary Manual

Technical Data

Electrical

| | |
|--------------------------|----------------------------------|
| Coil Resistance | 0.8 Ohm |
| Inductivity (1KHz) | 250 μ H |
| Permitted Peak Current | 2.5 A |
| Operating Driver Voltage | 115V/230V switch able, 30W |
| Signal Driver Inputs | X and Y differential max. 20V pp |
| Feedback signal | approx. 100mV/per optical degree |

Optical

| | |
|-------------------------|--------------------------------------|
| Rise time <8 Grad opt. | 250 μ s |
| Rise time 40 Grad opt. | 1.0 ms |
| Rise time 90 Grad opt. | 1.6 ms |
| Rise time 180 Grad opt. | 2.5 ms |
| Scanspeed ILDA | 24K |
| Pointing stability | <1mrad |
| Noise | <1mrad 0-10KHz |
| Mirror Dimension L x W | 12 x 5 mm |
| Mirror material | Float glass Enhanced Aluminum coated |
| Reflection | >95% 400-700nm |

Mechanical

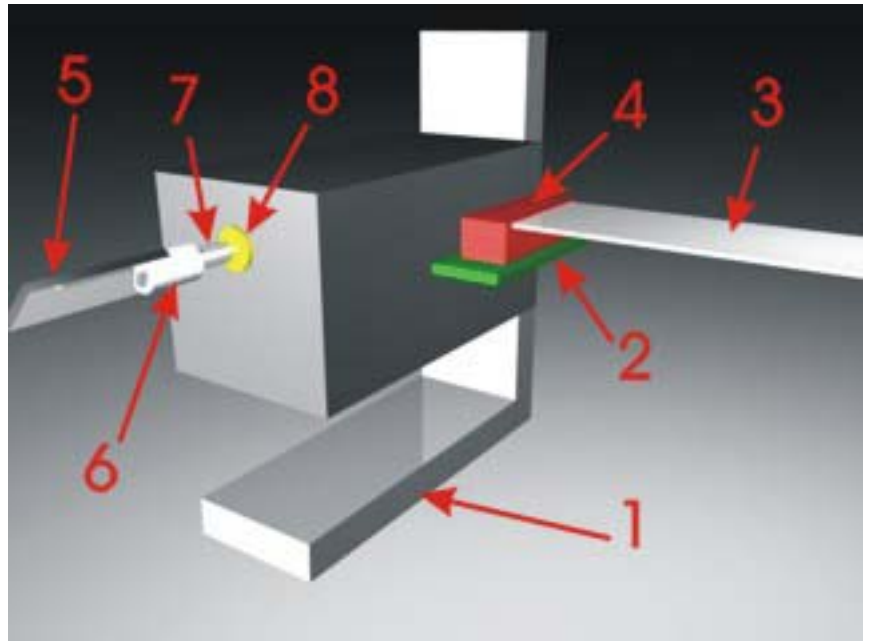
| | |
|-----------------------------|-----------------------------|
| Housing Dimension L x H x W | 40 x 21 x 22 mm |
| Overall length | 68 mm |
| Recommended Mirror distance | 5.5 mm min. between X and Y |
| Connection cable length | 50 cm |
| Connection cable type | 10 pol. DSUB |

All specifications @ 20 °C ambient temperature and warm up period of 5 minutes.

Operation

Scheme of Scanner (Sketch. 1)

1. Mount
2. Connector
3. Connector cable
4. Connector plug
5. Laser mirror
6. Mirror holder
7. Galvo Shaft
8. Bearing



Sketch. 1

Mounting

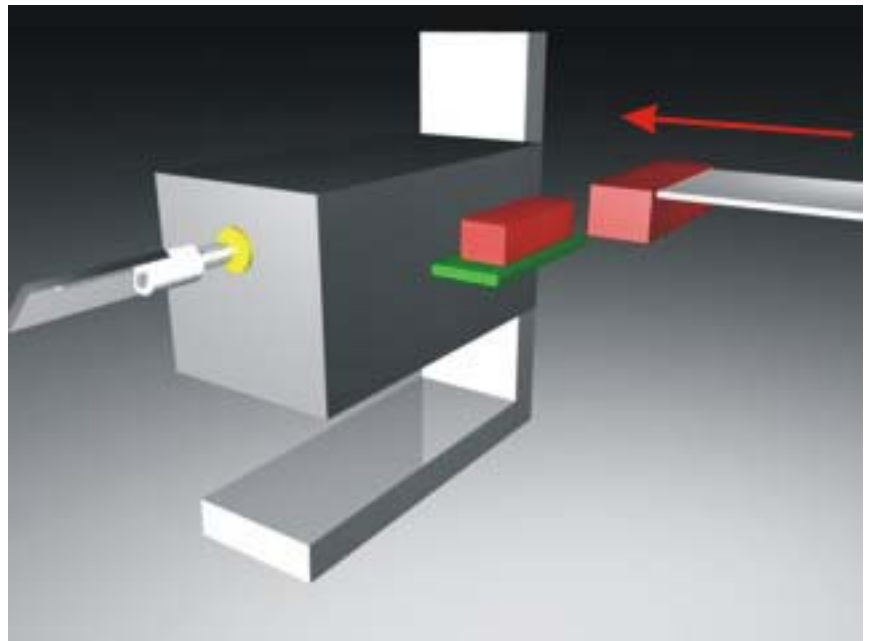
The Galvo mounts are mounted on a standard optical table with M5 holes. Attach the galvo with the M3 butterfly nut on the mount. Use a washer between butterfly nut and mount. The rotational axis of the stud bolt corresponds to the rotational axis of the scanner mirror.

Connection Cable

Plug the connector cable into the connector as shown in sketch 2.

NOTE:

The plug is not protected against inverse polarity. Make sure that the plug is connected properly.



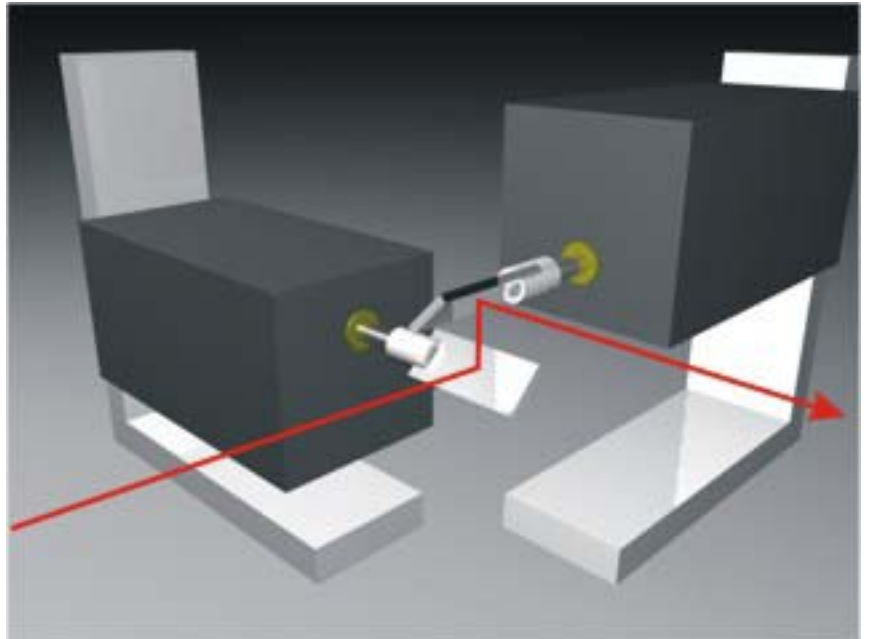
Sketch. 2

If the mirrors do not move into the middle position after powering up the system, immediately switch off the system and figure out the cause of the malfunction.

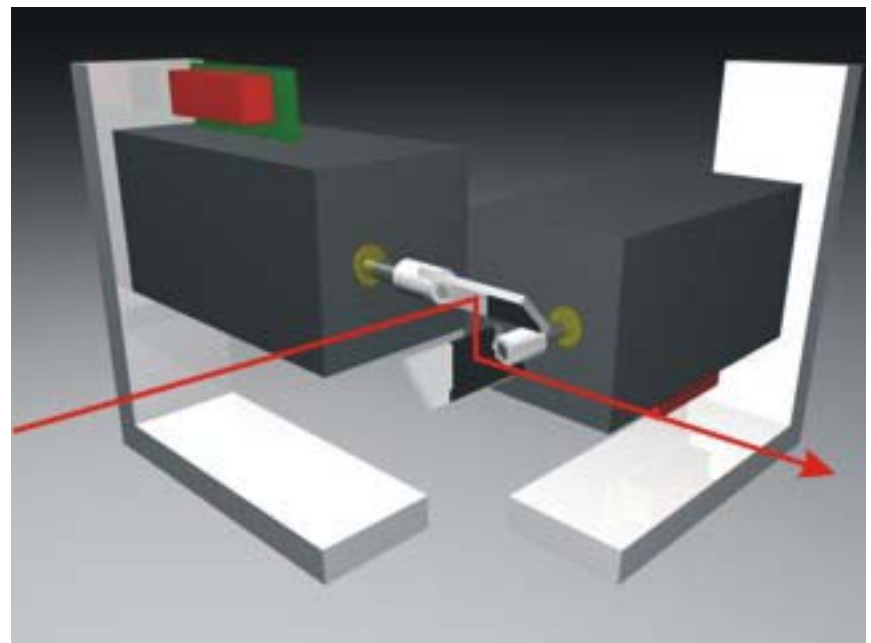
Setup

Sketch 3 and 4 show possible setups of the Wide Move XT Scanner.

Sketch. 3



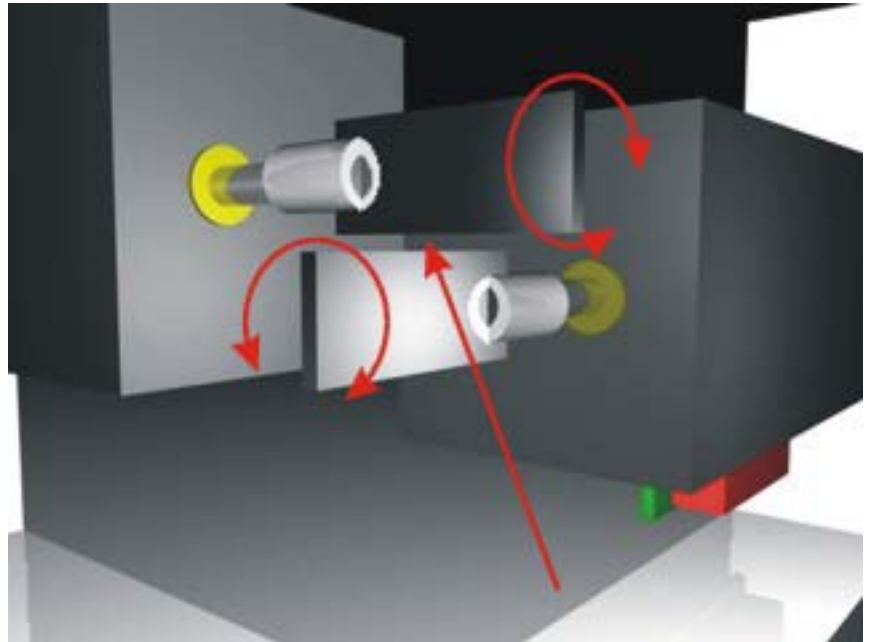
Sketch. 4



Galvo Mirror Distance

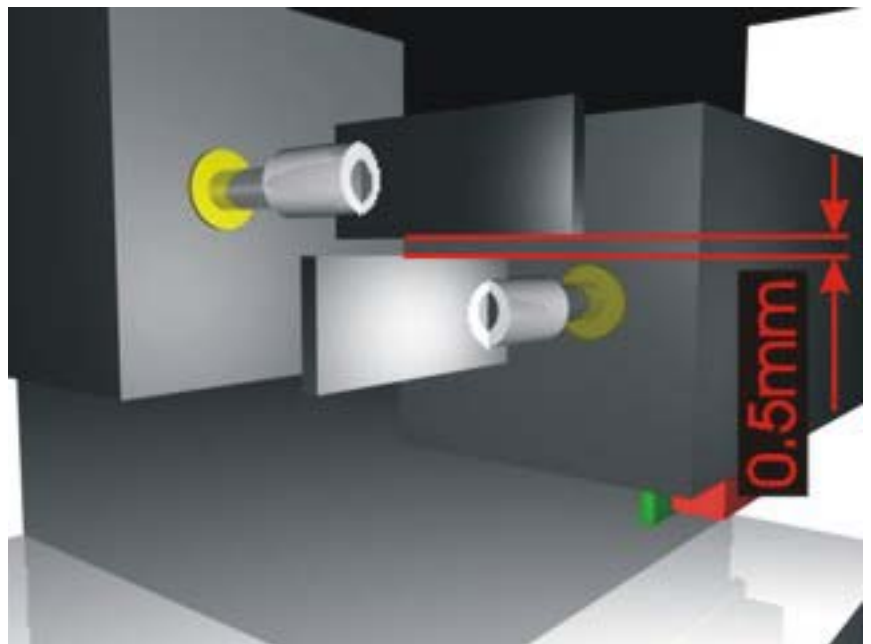
In order to get the maximum possible scanning angle, it is necessary to approximate the galvo mirrors as close as possible. However the mirrors shall not touch each other under no circumstances.

During setup the mirrors might move further than the desired scanning angle, so that even for this case the distance must be chosen properly. Make sure that the mirrors do not touch even if both mirrors are perpendicular towards each other as shown in sketch 5.



Sketch. 5

The minimum distance between the mirror facets is recommended to be at least 0,5mm with perpendicular positioned mirrors.



Sketch. 6

Perturbances

The Galvo sensor technology is of electro magnetically type. Therefore avoid exposure of high magnetic fields to the galvo (like transformers, laser power supplies, strong motors, etc.) Perturbances of this nature can be detected as waves or distortions in the output image.

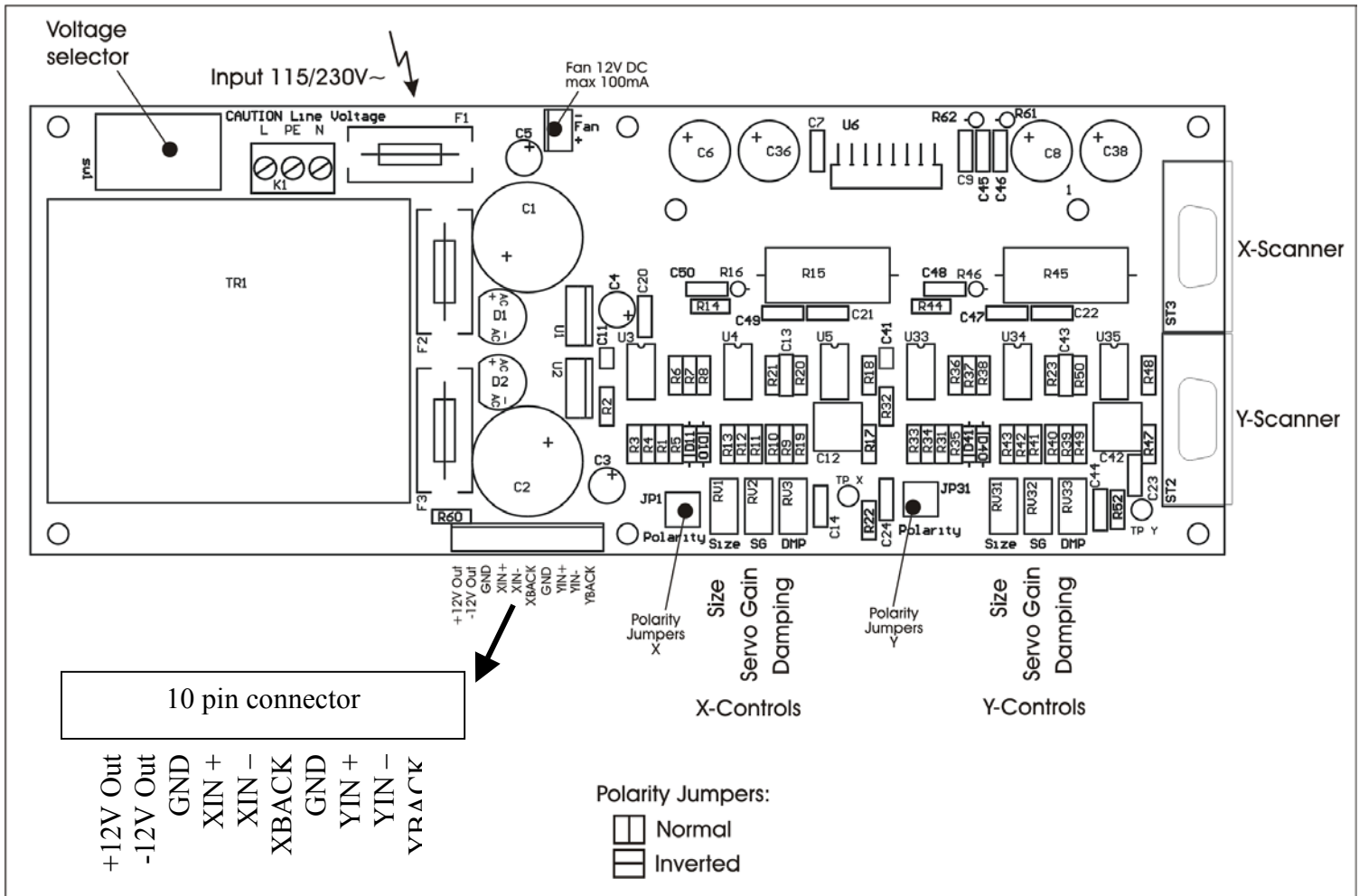
Overload

Limit Operation of the galvos causes temperature rise of the system. In normal working condition, the system does not become hot. Make sure that the temperature of the galvo housing is always less than 70 degrees Celsius and the driver heat sink temperature less than 60 degrees Celsius.

Temperature Drift

The galvo positioning repeatability strongly depends on the temperature. In order to position beams with high accuracy, never point the beam in a „cold“ state but let the galvos heat up for about 10-15 minutes.

Driver Electronics / Connection



Make sure to set the correct input voltage at the voltage switch of the driver.
 Only connect the Input signals to XIN+, XIN-, YIN+ and YIN-
 The Input signal voltage range is +/-10 Volt.

Differential input signals

If a differential input signal is present (ILDA STANDARD) simply connect the Input signals to XIN+, XIN-, YIN+ and YIN-. GND does not need to be connected.

Single Ended input signals

If a single ended input signal is present (e.g. Medialas Laser Painter PCI) connect the input signals XIN+ and YIN+ to their respective pins. Additionally XIN- and YIN- to GND.