ASC (Automatic Self- Calibration)

Setup and Test

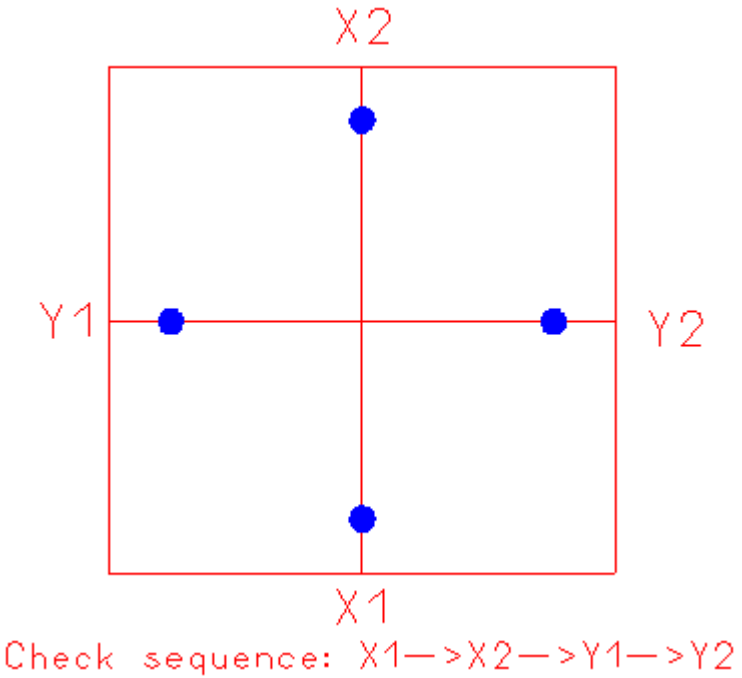
1) Check Field correction and working temperature
2) Setup the Machine configuration (Activate ASC)
3) Calibrate the Reference values (VLM – Tools)
4) Run Marking Process and verify the log-file
   VisualLaserMarker/bin/VLMDriftCorr.log
5) Run drift test on material with time-scheduled laser
   (24 h and more)

ASC (Automatic Self- Calibration)

- The scan head is equipped with an additional internal Sensor system

Measurement

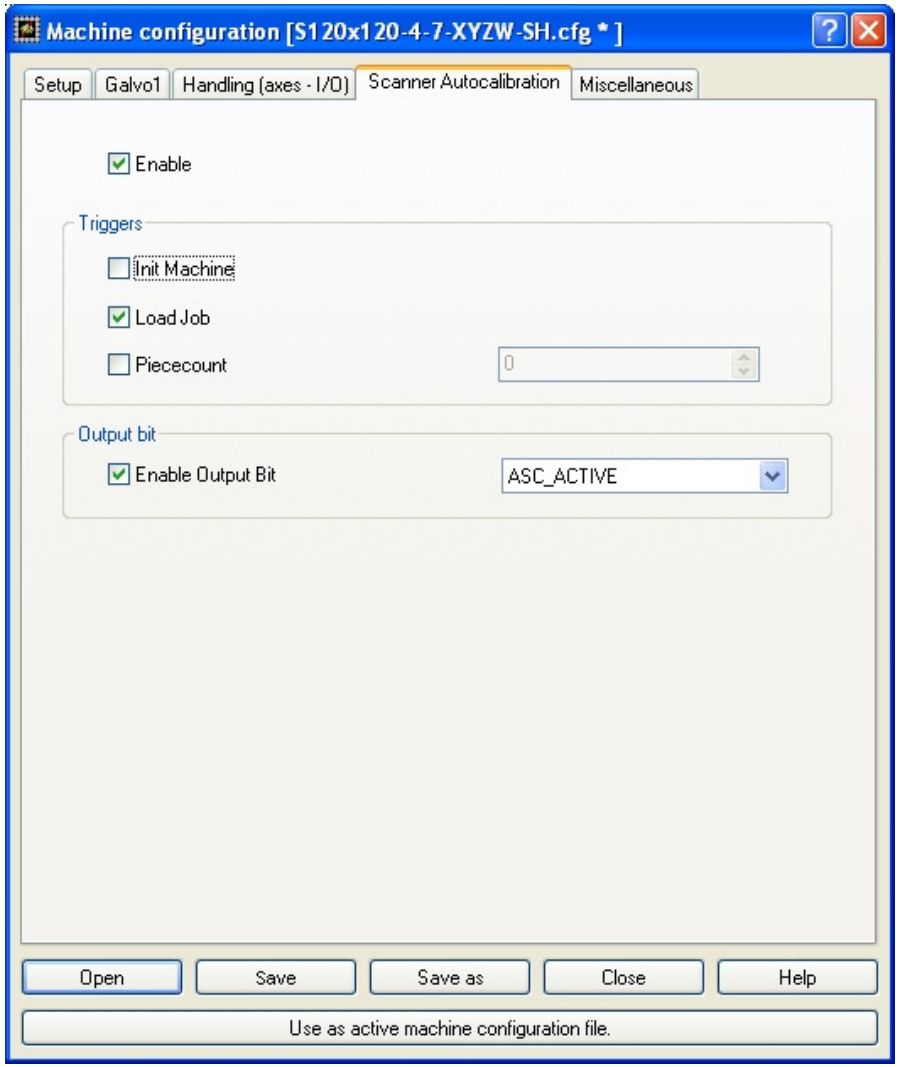
- Scan Head seeks several reference positions • within the scanable area, defined by the internal sensor system
- The seek values are compared with fixed reference values (measured at first calibration)
- From resulting deviations gain and offset factors are calculated
- These compensation factors are immediately used in VLM



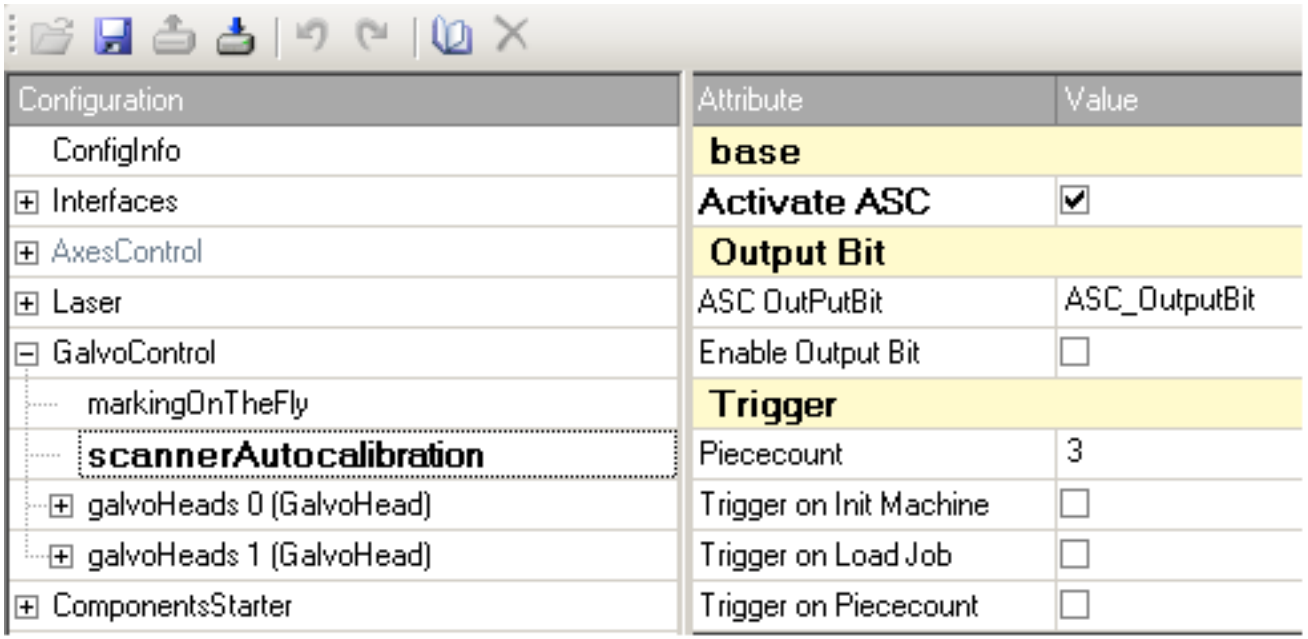
ASC integrated in VLM(>=4.5)

Define ASC configuration

- **Enable**: Enables ASC feature
- **Trigger** points to re-calibrate the galvo
  - **Init Machine**: ASC calibration done at Init Machine
  - **Load Job**: ASC calibration done at Load Job
  - **Piececount**: ASC calibration repeated every XX marked pieces
- **Enable Output Bit**: Output bit for external process control to integrate the ASC trigger into the flow for the time the function will be active



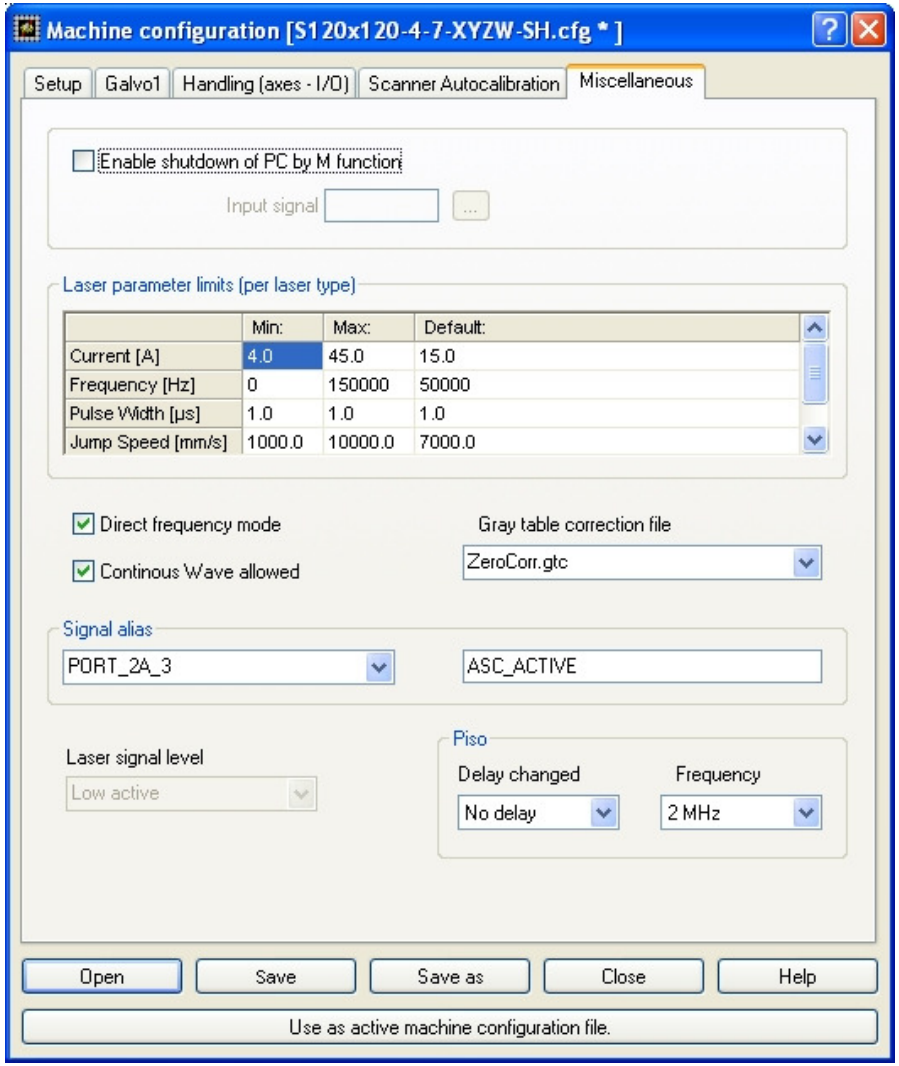
ASC integrated with RCU



How to set the Output bit

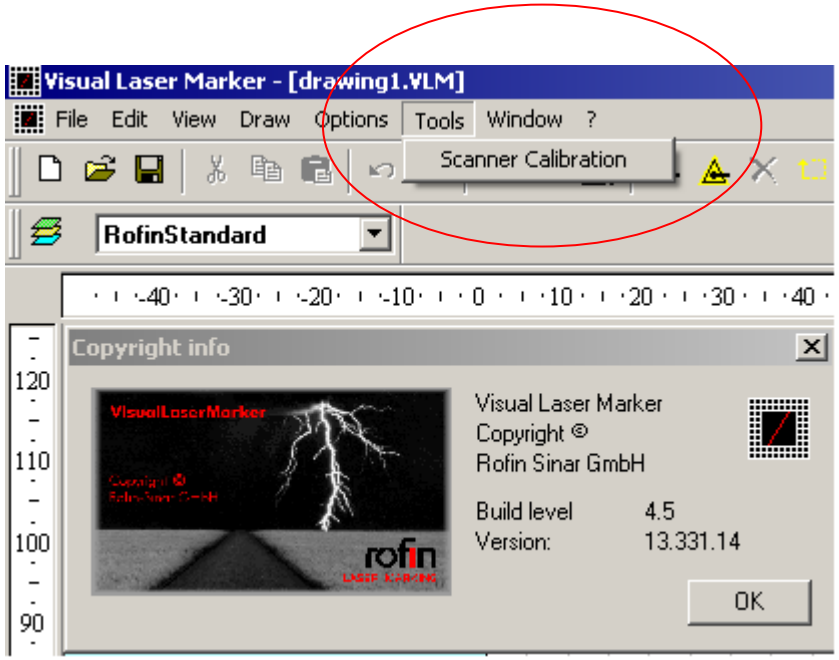
• Create Signal alias
(e.g. ASC_ Outputbit) to define the hardware port which is assigned to the alias name.

• Save the configuration and restart the machine configuration program to get the Signal alias in the Bit-name listbox



Create Reference values

- Reference values must be measured before the first calibration of the laser system
- Before reference value measuring, the requested precision of the Galvo positioning must be delivered by the Field Correction
- Galvo Head must be at working temperature
- Reference values should not be changed until the Laser System is calibrated completely again (Scanner Head change etc…)



Logging of measured values

- Logging is always enabled
- Logging settings in VisualLaserMarker/System/LoggerConfig.xml
- Logfile **VisualLaserMarker/bin/VLMDriftCorr.log**

04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head1 X1: 7415	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7261
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head1 X2: 56073	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7262
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head1 Y1: 9031	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7263
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head1 Y2: 57564	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7264
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head2 X1: 8469	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7278
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head2 X2: 56855	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7279
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head2 Y1: 7404	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7280
04.12.2009 16:14	DEBUG	VLM:LDCPcld.DriftCorr	Ref Position Head2 Y2: 55714	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7281
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	4 measured positions for head: 0	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7323
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X1: 7416	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7324
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X2: 56073	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7325
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y1: 9033	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7326
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y2: 57564	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7327
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	4 measured positions for head: 1	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7323
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X1: 8470	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7324
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X2: 56854	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7325
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y1: 7404	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7326
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y2: 55714	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7327
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	4 measured positions for head: 0	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7323
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X1: 7417	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7324
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X2: 56073	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7325
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y1: 9034	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7326
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y2: 57564	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7327
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	4 measured positions for head: 1	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7323
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X1: 8470	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7324
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position X2: 56854	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7325
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y1: 7404	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7326
04.12.2009 16:15	DEBUG	VLM:LDCPcld.DriftCorr	Drift Position Y2: 55714	D:\Projects\wlm_4-5\wlm\src\lmos\LDCPcld.cpp:7327

Long term test

- Logging shows the functional test results as well the reference values which the system will refere to during run-time calibration. (InitMachine, LoadJob or Piececount).

- Long term tests (24 h and more) needs to execute a drift test program with time scheduled measurements.