Command:SCANR (NR)

MS2000 or RM2000 syntax

Shortcut	NR
Format	SCANR [X=start] [Y=stop] [Z=enc_divide] [F= #_pixels] [R=retrace_speed]
Units	X and Y in mm, Z and F as integer
Remembered	Using SS Z
Firmware Required	SCAN MODULE

Tiger (motorized) syntax

Shortcut	NR
Format	[addr#]SCANR [X=start] [Y=stop] [Z=enc_divide] [F= #_pixels] [R=retrace_speed]
Units	X and Y in mm, Z and F as integer, R as percentage (0-100)
Type	Card-Addressed
Remembered	Using [addr#]SS Z
Firmware Required	SCAN MODULE

Sets up raster scan start and stop positions, with the position values expressed in millimeters. During scanning, the stage will move past both of these positions slightly, so that when scanning within the range specified, the scan proceeds with uniform speed (set by the SPEED command). On units equipped with hardware position Sync, the output pulse goes high as the stage crosses the start position.

X [`start`]**:** The `start` position in millimeters.

Y [`stop`]**:** The `stop` position in millimeters.

Z [`enc_divide`]**:** On systems with the `ENC_INT` firmware module, an output pulse will occur every `enc_divide` number of encoder counts.

F [`#_pixels`]**:** If the user specifies the `#_pixels`, the stop position will be calculated based upon the enc_divide and start position. Applicable to `ENC_INT` only.

MS-2000 v9.54 or Tiger v3.30 required

R [`retrace_speed`]**:** Specify the speed of the retrace move as a percentage of the max speed (decimal value between 0 and 100). The default value of 67% was hardcoded previously.

Tiger micro-mirror syntax

Shortcut	NR
Format	[addr#]SCANR [X=scans_per_slice] [Y=slices_per_volume] [Z=SPIM_mode] [F=volume_repeats] [R=slice_repeats]
Units	Integer
Type	Card-Addressed
Remembered	Using [addr#]SS Z
Firmware Required	MM_SPIM

Sets up the high-level operation of the SPIM state machine coordinated by the Micro-mirror card

scans_per_slice (**X**): sets the number of one-way beam scans in each slice (recall the slice corresponds to one image). Minimum value is 1.

slices_per_volume (**Y**): sets the number of slices (or images) in each volume. No facility exists to make it different for the two sides, though in principle it is possible. Minimum value is 1.

SPIM_mode (**Z**): sets a byte (by assigning a decimal) with the functions below. The default value is 2 (usual diSPIM, no special functionality).

- 2 LSBs correspond to single-sided vs. double-sided and the specified start side according to the following
  - 3 for diSPIM starting on opposite side
  - 2 for usual diSPIM (default)
  - 1 for usual iSPIM
  - 0 for iSPIM on opposite side
- Bits 2-3 were laser output mode in v2.85-v2.87; for v2.88+ this functionality is instead controlled by LED Z laser mode, bits 0-2.
- Bit 2 is set to disable micro-mirror moving to home position when other side is active during the SPIM state machine (i.e. rely completely on laser-based blanking while reducing micro-mirror movements). Default is unset (home move enabled). (v2.89+)
- Bit 3 is set to disable piezo moving to illumination position (home). Default is unset (piezo home enabled). (v2.89+)
- Bit 4 is set to alternate sides after each piezo/slice position (for interleaved stage scan). Note that piezo trigger signals will continue, but this is OK for the stage scan situation when the piezos' SAA value is 0 and either the piezo's SAO position is the same as the offset or else bit 3 is set. Default is unset (not alternating sides). (v3.09+).
- Bit 5 is set to alternate the beam scan direction between sweeps (either between slices or within same slice if the number of line scans per slice is more than 1). Default is unset (not alternating direction). Before v3.14 this was set using the LSB of the SAP setting. (v3.14+).
- Planned but not yet implemented: Bit 6 is set to add one extra camera trigger at the end of each side. Use this to accommodate "synchronous" or "overlap" camera mode without requiring an entire additional slice. Default is unset (no extra camera trigger). Proper operation requires the side delay (NV Y) be longer than the sum of the camera delay (NV T) and the camera duration (RT T). Because this occurs during the side switch time the total acquisition time is only increased by the time required for the final camera trigger.
- Bit 7 is set to have the slice axis move in a continuous linear fashion instead of in stairstep (i.e. when set it moves continuously during each slice) (v3.5+)

volume_repeats (**F**): sets the number of volumes to be collected per trigger event (two sides count as a single volume). Minimum value is 1.

slice_repeats (**R**): sets the number of slices to be collected at each piezo position. Minimum value is 1.

commands, tiger, ms2000, scan