

Overview

Names for RAYLASE deflection units and subsystems are built by following scheme:

Primary name contains product group, type, aperture, wavelength, variations

Detailed description contains substrate material, mechanical design, tuning, electrical connectors, customer number

2-Axis Deflection Units

Structure and coding of primary name (max. 32 digits)

GG-TTTT-AA [WWWWWWWW] VV Pxx/D

GG	Article G roup name	(2 digits)
	MS	MINISCAN
	SS	SUPERSCAN
	TS	TURBOSCAN
	RL	RL DEFLECTION UNIT
TTTT	T ype	(optional 0-5 digits)
	I / II / III / IV / V	Series
	E	Enhanced
	K	Kit
	HD	HighDyn
AA	A perture	(2 digits)
	07 ... 70	Apertur diameter [mm]
[WWWWWW]	W ave length	(3-13 digits)
	[xxxx]	Wave length xxxx [nm]
	[xxxx+zz]	Wave length xxxx [nm] + coating with zz
	[xxxx-yyyy]	Wave length range from xxxx to yyyy [nm]
	[xxxx+yyyy]	Wave length combination xxxx and yyyy [nm]
	[xxxx-yyyy+zz]	Wave length range from xxxx to yyyy [nm] + coating with zz
	[AG]	Silver/Argentum, 400 nm – 1064 nm
	[AL]	Aluminium
	[AU]	Gold/Aurum
	[C]	10600 nm
	[C*]	9000 nm – 11000 nm
	[DY]	532 nm
	[DY+Y]	532 nm + 1064 nm
	[TY]	355 nm
	[Y]	1064 nm
	[YIL]	1064 nm + illumination (850 - 870 nm camera inspection)

Naming of deflection Units



VV	V ariations V1..V9 Specific for MS-II-10: VA1 VA2 VA4 VB1 VB2 VC1 VC2 VC3 VD1 VD2 VE1 VE2 VF1 VF2 VG1 VG2 VH1 VH2	(optional 2 digits) Differentiation of production variations For example from standard deviating mirror deflection DSB 2 + 8320 + 9 mm + $\pm 22,5^\circ$ DSB 3 + 8320 + 9 mm + $\pm 22,5^\circ$ DSB 3 + 8320 + 9 mm + $\pm 22,5^\circ$ + Connector 90° DSB 2 + 8320 + 10 mm + $\pm 22,5^\circ$ DSB 3 + 8320 + 10 mm + $\pm 22,5^\circ$ DSB 2 + 8320 + 9 mm + $\pm 22,5^\circ$ + Neck DSB 3 + 8320 + 9 mm + $\pm 22,5^\circ$ + Neck DSB 3 + 8320 + 9 mm + $\pm 22,5^\circ$ + Neck + Connector 180° DSB 2 + 8320 + 10 mm + $\pm 22,5^\circ$ + Neck DSB 3 + 8320 + 10 mm + $\pm 22,5^\circ$ + Neck DSB 2 + 8320 + 9 mm + $\pm 23,5^\circ$ DSB 3 + 8320 + 9 mm + $\pm 23,5^\circ$ DSB 2 + 8320 + 10 mm + $\pm 23,5^\circ$ DSB 3 + 8320 + 10 mm + $\pm 23,5^\circ$ DSB 2 + 8320 + 10 mm + $X \pm 23,4^\circ$ $Y \pm 23,8^\circ$ opt. DSB 3 + 8320 + 10 mm + $X \pm 23,4^\circ$ $Y \pm 23,8^\circ$ opt. DSB 2 + 8320 + 10 mm + $X \pm 23,4^\circ$ $Y \pm 23,8^\circ$ opt. + Neck DSB 3 + 8320 + 10 mm + $X \pm 23,4^\circ$ $Y \pm 23,8^\circ$ opt. + Neck
P	P rototype version Pxx	(optional 3 digits) Differentiation of prototype version xx (00 ... 99)
D	D Customer specific product D	(optional 1 digit) customer specific product

Naming of deflection Units



Structure and coding detailed description (max. 32 digits)

SS-[MMM]-TT-CC /xxxxx

SS	S Mirror / lens material	(2 digits)
	BE	Beryllium
	BA	Beryllium / Aluminium
	OG	Optical glass
	QU	Quartz
	SI	Silicium
	SC	Silicium carbid
[MMM]	M echanical type	(3-13 digits)
	Cooling – mandatory field	
	[N]	No cooling
	[W]	Water cooling
	[W2]	Water cooling with 90° angle
	[W3]	Water cooling with connection to incoming of laser
	[A]	Air cooling
	other mech. types – optional – in order to this list	
	[L]	Head with bigger incoming aperture for LTM
	[F]	Head combined with FS (color Housing Cover)
	[P]	Head with pyrometer
	[T]	Head with mirror tilt function
	[S]	Head in stainless steel
	[U]	Drill pattern for fastening from below
	[G]	Standard drift
	[K]	Galvo temperature measurement
TT	T uning	(2 digits)
		Optimized tuning for
	C	long vectors at highest speeds
	FV	the best combination of high dynamic performance and high speed
	H	high precision beam deflection and fastest beam direction change during hatching
	H1	very frequent fast jumps
	LN	long vectors with low dither and high speed
	LS	long lines at very high speeds
	M	high precision beam deflection with sharp corners and minimized tracking error
	MA	marking applications
	PL	long vectors with high marking speed and very precise beam deflection
	RA	small vectors with low dither, and high dynamic performance for sharp corners
	ST	jumps or long vectors at highest speeds (minimal step response time)
	VC	a wide range of applications with emphasis on processing speed
	W	long vectors at highest speeds and precise beam deflection

Naming of deflection Units



CC	C Connector	(2 digits)
	D1	25-pol D-Sub-plug
	D2	25-pol D-Sub-plug + 9-pol D-Sub-plug
	X2	25-pol D-Sub-plug + 3W3 D-Sub-plug
	S1	25-pol D-Sub-plug (SL2-100 + Power)
	S2	9-pol D-Sub-plug + 3W3 D-Sub-plug
	SA	25-pol D-Sub-plug (analog) + 9-pol D-Sub-plug (SL2-100) + 3W3 D-Sub-plug (Power)
	SX	25-pol D-Sub-plug + 9-pol D-Sub-plug + 3W3 D-Sub-plug
	A1	25-pol D-Sub-plug (analog)
	A2	25-pol D-Sub-plug + 9-pol D-Sub-plug (analog)
	RX	25-pol D-Sub-plug + 9-pol D-Sub-plug + 3W3 D-Sub-plug (RL3-100 + XY2-100 + Power)
/xxxxx	D Customer number	(optional 6 digits)
	5-digit ERP customer number xxxxx	

Naming of deflection Units



Focusing Deflection Units, Focus Shifter

Structure and coding of primary name (max. 32 digits)

GG-TTTT-AA [WWWWWWWW] VV Pxx/D

GG	Article	Group name	(2 digits)
	AS	AXIALSCAN	
	FS	FOCUSHIFTER	
	LT	LTM Modul	
TTTT	T yp		(optional 0-5 digits)
	F	LTM Type FOCUSHIFTER	
	FC	LTM Type FOCUSHIFTER Compact Size	
	1.5 / 2 / 3	amplification factor of FOCUSHIFTER – named F/FC	
	K	Kit	
	II	Digital 3 axis deflection unit with PWM	
	Fxxx	AS-Fiber, focal length xxx [mm]	
	FTPN	AS-Fiber, coupling of Laser TruePulse nano	
	FINF	AS-Fiber, coupling of collimated Beam	
	RD	RAYVOLUTION DRIVE	
AA	A perature		(2 digits)
	03 ... 70	Aperture diameter [mm]	
[WWWWWW]	W ave length		(3-13 digits)
	[xxxx]	Wave length xxxx [nm]	
	[xxxx+zz]	Wave length xxxx [nm] + coating with zz	
	[xxxx-yyyy]	Wave length range from xxxx to yyyy [nm]	
	[xxxx+yyyy]	Wave length combination xxxx and yyyy [nm]	
	[xxxx-yyyy+zz]	Wave length range from xxxx to yyyy [nm] + coating with zz	
	[AG]	Silver/Argentum, 400 nm – 1064 nm	
	[AL]	Aluminium	
	[AU]	Gold/Aurum	
	[C]	10600 nm	
	[C*]	9000 nm – 11000 nm	
	[DY]	532 nm	
	[DY+Y]	532 nm + 1064 nm	
	[TY]	355 nm	
	[Y]	1064 nm	
	[YIL]	1064 nm + illumination (850 - 870 nm camera inspection)	
VV	V ariation		
	V1..V9	Differentiation of production variations For example from standard deviating mirror deflection	
	VR	Connector rear side	
	VT	Connector top side	
P	P rototype version		(optional 3 digits)
	Pxx	Differentiation of prototype version xx (00 ... 99)	
D	D Customer specific product		(optional 1 digits)
	D	customer specific product	

Naming of deflection Units



Structure and coding detailed description (max. 30 digits)

SS-[MMM]-TT-CC /xxxxx

SS **S** Mirror / lens material (2 digits)

BE	Beryllium
BA	Beryllium / Aluminium
OG	Optical glass
QU	Quartz
SI	Silicium
SC	Silicium carbid
ZS	Zinc selenide
ZF	Zinc sulfide

[MMM] **M**echanical type (3-13 digits)

Cooling – mandatory field

[N]	No cooling
[W]	Water cooling
[W2]	Water cooling with 90° angle

Other mech. types – optional – in order to this list

[10]	AS: minimal field size [cm]
[M]	Motorisation at LTM
[MV]	Preparation for motorisation
[P]	Laser pointer
[D]	Dust protection
[A]	AS-Fiber: Air cooling
[B]	Process light broad band output
[C]	AS-Fiber: Process light broad band output with RAYSPECTOR
[H]	High performance scanner (fully digital galvo)
[T]	AS-Fiber: fiber coupling top side
[R]	AS-Fiber: fiber coupling rear side
[F]	AS-Fiber: fiber coupling front side
[Q]	AS-Fiber: fiber plug QBH / RQB
[D]	AS-Fiber: fiber plug QD / LLK-D
[L]	AS-Fiber: fiber plug Q5 / LLK-B
[xxxx]	AS-Fiber: working distance [mm]
[T1]	AS-Fiber: coupling top side + RAYSPECTOR with mirror
[T2]	AS-Fiber: coupling top side + RAYSPECTOR with dichroit
[T3]	AS-Fiber: coupling top side + RAYSPECTOR with 850 nm mirror for collimated beam and use with OCT
[R1]	AS-Fiber: coupling rear side + RAYSPECTOR with mirror
[R2]	AS-Fiber: coupling rear side + RAYSPECTOR with dichroit
[G]	Standard drift
[K]	Galvo temperature measurement

Naming of deflection Units



TT	T uning	(2 digits)	
			Optimized tuning for
	C		long vectors at highest speeds
	FV		best combination of high dynamic performance and high speed
	H		high precision beam deflection and fastest beam direction change during hatching
	H1		very frequent fast jumps
	LN		long vectors with low dither and high speed
	LS		long lines at very high speeds
	M		high precision beam deflection with sharp corners and minimized tracking error
	PL		long vectors with high marking speed and very precise beam deflection
	RA		small vectors with low dither, and high dynamic performance for sharp corners
	ST		jumps or long vectors at highest speeds
	VC		wide range of applications with emphasis on processing speed
	W		long vectors at highest speeds (minimal step response time)
CC	C onnecter	(2 digits)	
	D1		25-pol D-Sub-plug
	D2		25-pol D-Sub-plug + 9-pol D-Sub-plug
	X2		25-pol D-Sub-plug + 3W3 D-Sub-plug
	S1		25-pol D-Sub-plug (SL2-100 + Power)
	S2		9-pol D-Sub-plug + 3W3 D-Sub-plug
	S3		2x 9-pol D-Sub-plug + 3W3 D-Sub-plug (2x SL2-100 + Power)
	S4		2x 9-pol D-Sub-plug + 3W3 D-Sub-plug (2x SL2-100 + Power for 2x SL2 + RL3)
	SX		25-pol D-Sub-plug + 9-pol D-Sub-plug + 3W3 D-Sub-plug
	RX		25-pol D-Sub-plug + 9-pol D-Sub-plug + 3W3 D-Sub-plug (XY2-100 + RL3-100 + Power)
	E2		6-pol Epic-plug + 17-pol Epic-plug
	E3		6-pol Epic-plug + 17-pol Epic-plug + M12 plug
	E4		6-pol Epic-plug + 17-pol Epic-plug + M8 plug
	E5		6-pol Epic-plug + 17-pol Epic-plug + M8 plug + M12 plug
	H1		26-pol DSub-plug high density + 3W3 D-Sub-plug
/xxxxx	D Customer number	(optional 6 digits)	
			5-digit ERP customer number xxxxx

AM Deflection Units

Structure and coding of primary name (max. 32 digits)

GG-TTTT-AA [WWWWWWW] VV Pxx/D

GG	Article Group name AM	(2 digits) Additive Manufacturing Module
TTTT	Type III F063 F085 F075 F050 RD	(optional 0-5 digits) Series/Generation 63 mm focus length (10 µm fiber single mode) 85 mm focus length (14 µm fiber single mode) 75 mm focus length (50..200 µm fiber multi mode) 50 mm focus length (fiber ring mode) RAYVOLUTION DRIVE
AA	Apertur 07 ... 70	(2 digits) Apertur diameter [mm]
[WWWWW]	Wave length [xxxx-yyyy+AL]	(3-13 digits) Wave length range from xxxx to yyyy [nm] + coating with Aluminium
VV	Variations (for future use)	
P	Prototype version Pxx	(optional 3 digits) Differentiation of prototype version xx (00 ... 99)
D	D Customer specific product D	(optional 1 digit) Customer specific product

Naming of deflection Units



Structure and coding detailed description (max. 32 digits)

SS-[MMM]-TT-CC /xxxxx

SS **S** Mirror-/lens material

SC	Silicium Carbid
QU	Quartz

[MMM] **M**echanical type (3-13 digits)

[W]	Water cooling
[B]	Process light broad band output
[C]	Process light broad band output with RAYSPECTOR
[A]	Air cooling
[H]	High performance scanner (fully digital galvo)
[Q]	Fiber plug QBH / RQB
[D]	Fiber plug QD / LLK-D
[L]	Fiber plug Q5 / LLK-B
[xxxx]	Working distance [mm]
[R2]	Fiber coupling rear side + RAYSPECTOR with dichroit
[K]	Galvo temperature measurement

TT **T**uning (2 digits)

H	Optimized tuning for high precision beam deflection and fastest beam direction change during hatching
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CC **C**onnecter (2 digits)

R2	9-pol D-Sub-plug (RL3-100) + 3W3 D-Sub plug
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/xxxxx **D** Customer Number (optional 6 digits)

5-digit ERP customer number xxxxx