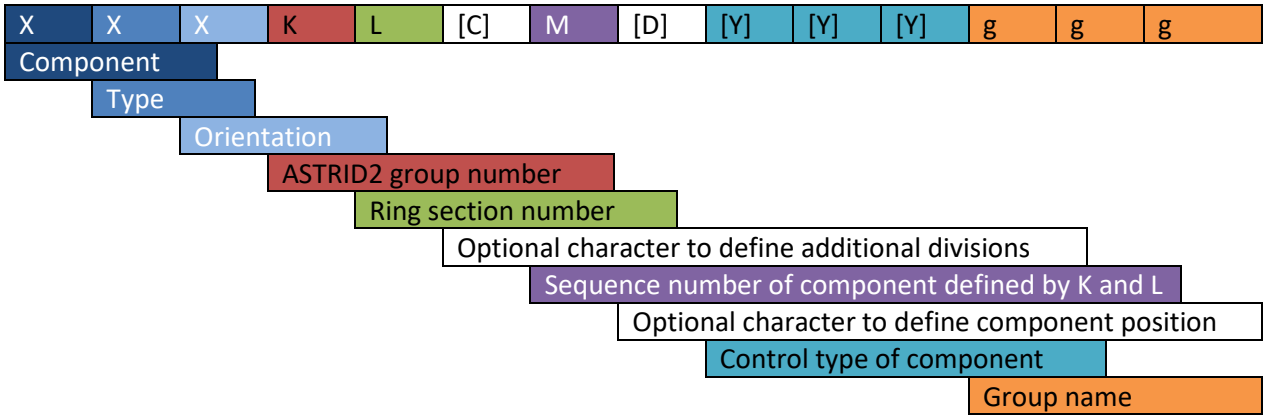
ASTRID2 Nomenclature

1. Introduction

The aim of this document is to present a naming scheme for the ASTRID2 storage ring which unambiguously identifies the components of the ring and the parameters used in the control of the ring. The scheme is based on that already used for ASTRID with a few small changes in order to ensure that there is no duplication of names of components for the two rings and to make it clear from the name which ring a parameter/control belongs to.

2. Overview

A component can be completely described by a code with the following lay-out:



A component in the ring, e.g. magnet, monitor, pump will have a name with the form

XXXKL[C]M[D]

A controller/supply/electronics connected to a component will have a name with the form

XXXKL[C]M[D][YYY]

Where YYY is an optional description of the type of controller/supply/electronics e.g. IPS indicates that the parameter that is being controlled is current and that it is a power supply.

Where this name is used in the control system it becomes

XXXKL[C]M[D][YYY]ggg

In the control system this is described as a “cluster”, and each parameter in a cluster is uniquely identified through the addition of a “surname”, i.e. “XXXKLMYYYggg.name”.

A full list of options for each character can be found in the tables on the following pages, but a summary of the use of the characters is as follows.

Component, Type and Orientation

These remain the same as for ASTRID with a couple of additions/changes:

VGF is for a full range gauge
WIG is a wiggler
WUN is an undulator

ASTRID2 group number

K is a new character which indicates where the component is situated, i.e. on the ring, transfer beamline, beamline etc.

Ring section number

L indicates in which section of the ring the component is located (1-6) and 0 is used for general or all sections of the ring, for example if there is a power supply which is used for magnets in all sections of the ring.

Optional character to define additional division

C is used to signify additional sectioning for example for beamline splitting L, C and R may be used to indicate which beamline.

Number of component in area defined by K and L

M indicates in which section of the area defined by K and L the component is found, e.g. which number valve or gauge in a section of the ring or along a beamline.

Optional character to define component position

When two or more components in a section are controlled/powered by the same electronics this character is used to define the position of a component in the section in order that each component has a unique name. A, B, C… are used for this character. See the notes below for a full explanation.

Control type of component

This three-letter group may be added to identify a specific parameter within a component, e.g. IPS for current power supply. VIR indicates a virtual parameter which is either calculated from or based on several other parameters for a component.

Group name

As now for ASTRID the group name can be added to the parameter, with ast2 for ASTRID2, ast (or blank) for ASTRID etc.

3. Notes

The names for the components in the ring are defined by the power supply (controller, electronics) for that component. For example if a power supply controls more than one component then XXXKLM are the same for each component and then are made unique through the addition of A, B, C… etc (defined in the code as 'optional character D') at the end. Ideally this letter is added in the order in which the components are arranged in the ring, i.e. moving around the ring anti-clockwise. Obviously if additional components are added at a later date the next available letter will be used regardless of their position relative to the existing components. Therefore when the control parameter which goes in to ConSys is defined it is clear which components in the ring are being controlled.

e.g. for the quadrupoles: there are four QMH magnets for each arc in the ring, but the two 'outer magnets' (positions 1 and 4) are powered by one supply and the two inner (positions 2 and 3) by another. Therefore using this scheme the numbering is as follows for the QMH magnets in section X:

Label name	Position in the arc	Supply
QMH1X1A	1	QMH101IPS
QMH1X2A	2	QMH102IPS
QMH1X2B	3	QMH102IPS
QMH1X1B	4	QMH101IPS

This then gives QMH101IPS and QMH102IPS as the parameter names for the two power supplies.

All independently controlled components will be given a unique identifying parameter name. If two or more of these components are within one module (e.g. the correctors that are with the sextupole magnets), then labels indicating all the components will be attached to the module.

Where there are several connections (i.e. different parameters) to one component (e.g. the RF cavity) the individual connections are distinguished by adding 'YYY' after XXXKLM, for example CRE141SMY, would be the signal generator, CRE141FFG the fast feedback gain, etc.

3. Examples

Description	*Component name*	*Parameter name*
The first bending magnet in arc 3 in the Astrid2 ring	BMH131	
The (general) power supply for all the main dipole magnets		BMH101IPSas2
The magnet for the first (and only) horizontal bending magnet in the transfer beamline	BMH211	
The power supply for the first (and only) horizontal bending magnet in the transfer beamline		BMH211IPSas2
The second vertical magnet in the transfer beamline	BMV212	
The first (frontend) valve for the MPW (the first beamline from the first straight section)	VVS311	VVS311mpw
The second valve in arc 2	VVS122	VVS422as2
The third valve on the beamline from the second magnet in arc5 (CD1)	VVS453	VVS553cd1
The tenth valve on the beamline from the fifth straight section (the AMO beamline)	VVS3510	VVS3510amo

Component		Type		Orientation	
A	Acceleration	ES	Electrostatic		
B	Bending	M	Magnetic	H	Horizontal
D	Correction dipole	E	Electrostatic	V	Vertical
F	Bumper (Fast)	P	PoleFace	S	Skew
O	Octupole			X	45°
S	Septum				
Q	Quadrupole				
X	Sextupole				
C	Cavity	RE	RF, Electrons		
		RI	RF, Ions		
		RL	RF, Landau		
E	Electrode	C	Clearing	H	Horizontal
				V	Vertical
ECO	Electron Cooler				
I	Ion Source	SN	Nielsen Type		
		SS	Spray		
K	Kicker	M	Magnetic	H	Horizontal
		E	Electrostatic	V	Vertical
		D	Diagnostic	X	45°
		S	Stripline	L	Longitudinal
L	Lens	M	Magnetic	S	Solenoid
		E	Electrostatic	E	Einzel
M	Monitor	BS	Beam Scanner		
		CT	Current Transformer		
		FC	Faraday Cup		
		S	Scraper, H, V, L, R, T, B		
		RS	Radiation Synchrotron		
		TV	Television		
		VD	Viewing Dual screen		
		VS	Viewing Screen		
P	Protection	SI	Security Interlock		
		MA	Machine		
U	Pickup	E	Electrostatic	H	Horizontal
		S	Schottky	V	Vertical
		B	Button	L	Longitudinal
		R	Ring	X	45°
				C	Circular
T	Timing	AE	AEG		
		PG	Pulse Generator		
		TR	Trigger		
		DS	Distributor		

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Component		Type		Orientation	
W	Insertions	IG	Wiggler		
		UN	Undulator		
		S	Scraper, H, V, L, R, T,B		
		AB	Absorber		
		AS	Absorber Slow		
		AF	Absorber Fast		
G	Grid	F	Floor	M	Mark
		P	Prism		
		T	Tape		
V	Vacuum	A	Aperture	C	Circular
		B	Button		
		BK	Bake-Out		
		GA	Restgas analyzer		
		GC	Gauge Controller		
		GI	Ionisation Gauge		
		GP	Penning Gauge		
		GR	Pirani Gauge		
		GD	Dual Gauge		
		GF	Full Range Gauge		
		PB	Backing Pump		
		PC	Cryopump		
		PD	Diffusion Pump		
		PI	Ion Pump		
		PN	Neg Pump		
		PS	Sublimation Pump		
		PT	Turbo Pump		
		VR	Roughing Valve		
		VS	Sector Valve		
		VV	Venting Valve		
		VI	Ion-Pump Valve		
		VT	Turbo-Pump Valve		

ASTRID2 group number	
1	ASTRID2 ring
2	Transfer beamline ASTRID to ASTRID2
3	Beamline from straight section
4	Beamline from arc
9	General

Ring section number	
0	General (or all sections)
1	First section or arc
2	…
3	…
4	…
5	…
6	…

Optional character to define additional divisions	
L	Left hand beamline
C	Centre beamline
R	Right hand beamline
A, B..	For future (unforeseen) bending magnet beamlines

Number of component in area defined by K and L	
0	General (or all sections)
1, 2…	
	Can be two digit if required.

Optional character to define component position	
A	First component in a section
B	Second component in a section
C	…

Control type on component	
AUX	Auxillary
VIR	Virtual parameter, calculated or based on other parameters within a parameter cluster(s)
Meas	Measurement
AMP	Amplifier
APW	Arc Power (for a RPC)
CAM	Camera
COOL	Cooling
COND	Conditioning
CPW	Control Power (for a RPC)
CTR	Controller
DPW	Diagnostic Power (for a RPC)
DST	Device Status
FFG	Fast Feedback Gain
FFP	Fast Feedback Phase
HVC	High Voltage Clearing
HVS	High Voltage Supply
IIP	Current, Ion Pump
IKR	Pfeiffer IKR270 gauge
IPS	Current, Power Supply
IPU	Current, Pulsed Power Supply
ISH	Current, Shunt
LIB	Libera configuration and status
LSA	Libera Slow Acquisition data
LFA	Libera Fast Acquisition data
MFI	Magnet Field Measurement
MNPL	Manipulator
MPLX	Multiplexer
MOT	Motor
PKR	Pfeiffer PKR261 gauge
POW	Power
VPS	Voltage, Power Supply
VPU	Voltage, Pulsed Power Supply
SCTR	Safety Controller
SFTY	Safety
SML	Signal Generator (R&S SML model)
SMY	Signal Generator (R&S SMY model)
SPC	SPC Ion Pump Power Supply
TMP	Temperature
TPR	Pfeiffer TPR280 gauge
TRA	Transmitter
TSP	Titanium Sublimation Pump
4UHV	Aigilent 4UHV Ion pump controller

Group name	
ast	ASTRID
mic	Microtron
ast2	ASTRID2
cd1	
matline	
uv1	
sgm2	
sgm3	
sx700	
xrm	
amo	
isa	General ISA things e.g. baking