



Elettra Sincrotrone Trieste

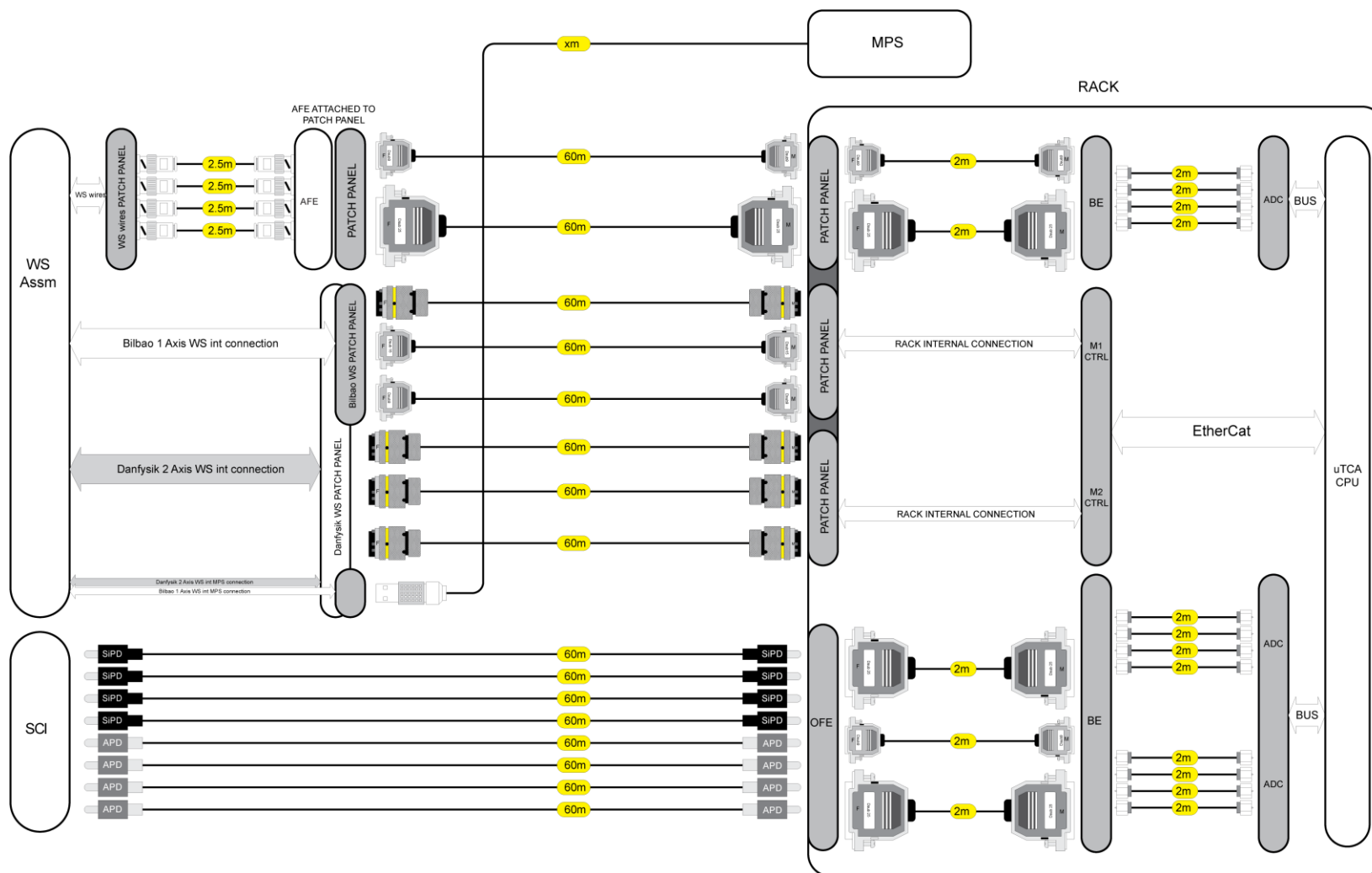
The **ESS** WS Racks and cabling

Sandi Grulja

Themes:

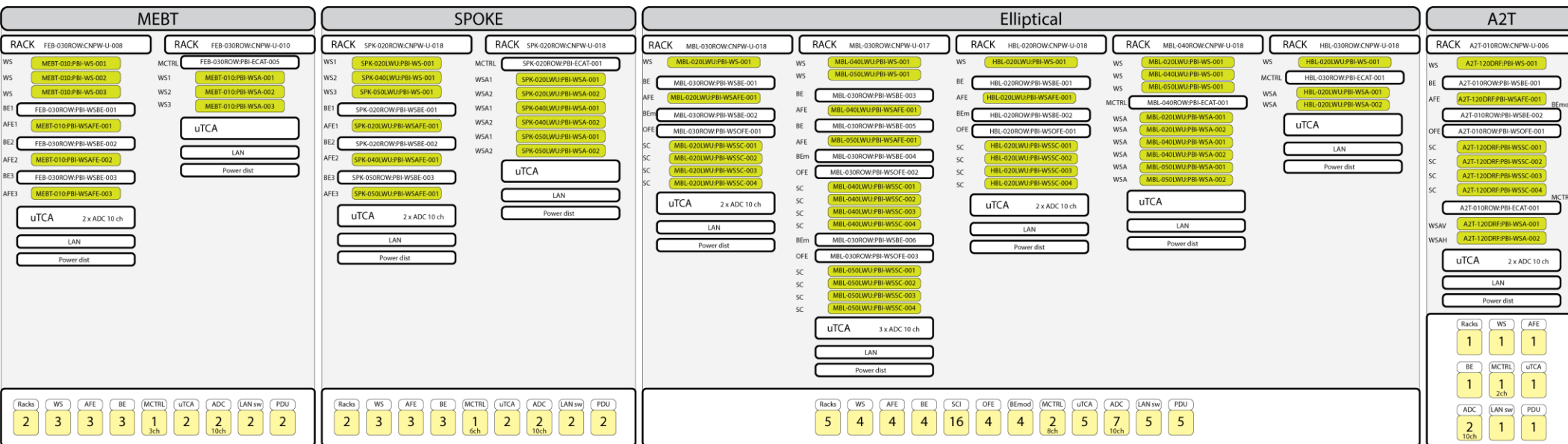
- Racks and Cabling

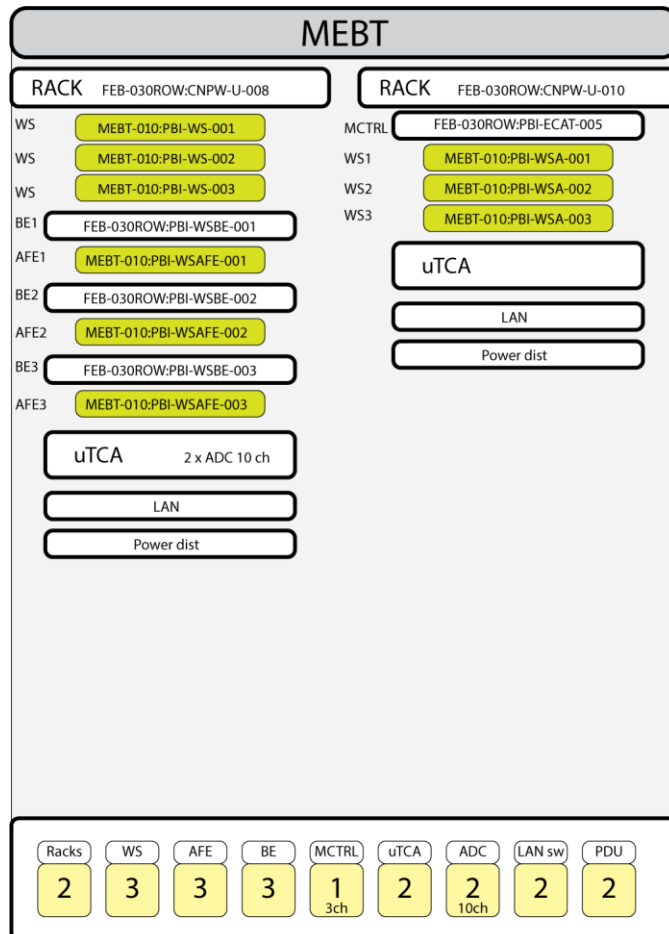
Panoramic view





WS layout with singular Racks and units





From ---> TO	MEBT Cables	Cable	Connector
WS ---> AFE	12	Triaxial	Triaxial
AFE ---> BE	3	DSTP	DSUB9_F-M
AFE ---> BE	3	DSTP.	DSUB25_F-M
BE ---> ADC	12	coaxial	SMA_M-M
MCTRL ---> WSA	3	DSTP	Souriau_F-M
MCTRL ---> WSE	3	DSTP	DSUB9_F-M
MCTRL ---> WSL	3	DSTP	DSUB9_F-M
LAN ---> BE	3	Eth. CAT6	RJ45
LAN ---> uTCA	2	Eth. CAT6	RJ45
LAN ---> MCTRL	1	Eth. CAT6	RJ45
Power ---> Units	8	*Power cord	*VDE_F

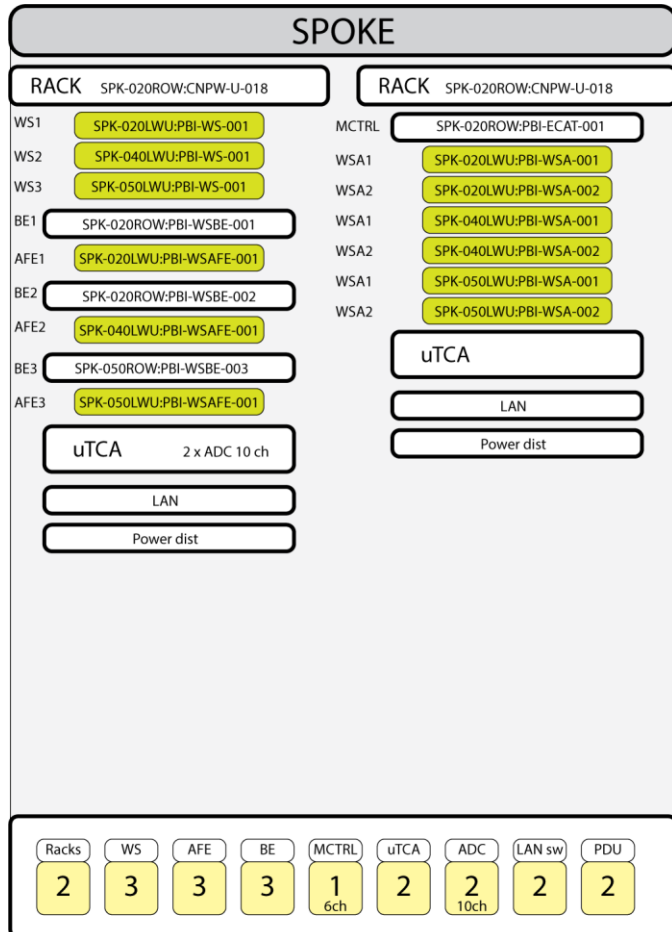
Rack	FEB-030ROW:CNPW-U-008	Units
	BE1	2U
	BE2	2U
	BE3	2U
	uTCA	6U
	LAN switch	1U
Total		13U
Rack	FEB-030ROW:CNPW-U-008	Units
	MCTRL	3U
	uTCA	6U
	LAN switch	1U
Total		10U

Notes: DSTP - Double shielded twisted air, Eth. Cat6 – Ethernet cable CAT6, F-M = Female – Male type of connector

All other cable information are in (WS cable and connection table.xlsx – by Johan Norin)

* European VDE; European standard 3-pin power plug; Certificate: VDE; Rated current & voltage: 16A/250V; Applicable cable & cord: H05VV-F 3G0.75-1.5; Number of cores: 3: IEC60320/C13

SPOKE



From ----> TO	Number	Cable	Connector
WS ----> AFE	12	Triaxial	Triaxial
AFE ----> BE	3	DSTP	DSUB9_F-M
AFE ----> BE	3	DSTP.	DSUB25_F-M
BE ----> ADC	12	coaxial	SMA_M-M
MCTRL ----> WSA	6	DSTP	Souriau_F-M
MCTRL ----> WSE	6	DSTP	DSUB9_F-M
MCTRL ----> WSL	6	DSTP	DSUB9_F-M
LAN ----> BE	3	Eth. CAT6	RJ45
LAN ----> uTCA	2	Eth. CAT6	RJ45
LAN ----> MCTRL	1	Eth. CAT6	RJ45
Power ----> Units	8	*Power cord	*VDE_F

Rack	SPK-020ROW:CNPW-U-018	Units
	BE1	2U
	BE2	2U
	BE3	2U
	uTCA	6U
	LAN switch	1U
Total		13U
Rack	SPK-020ROW:CNPW-U-018	Units
	MCTRL	3U
	uTCA	6U
	LAN switch	1U
Total		10U

Notes: DSTP - Double shielded twisted air, Eth. Cat6 – Ethernet cable CAT6, F-M = Female – Male type of connector

All other cable information are in (WS cable and connection table.xlsx – by Johan Norin)

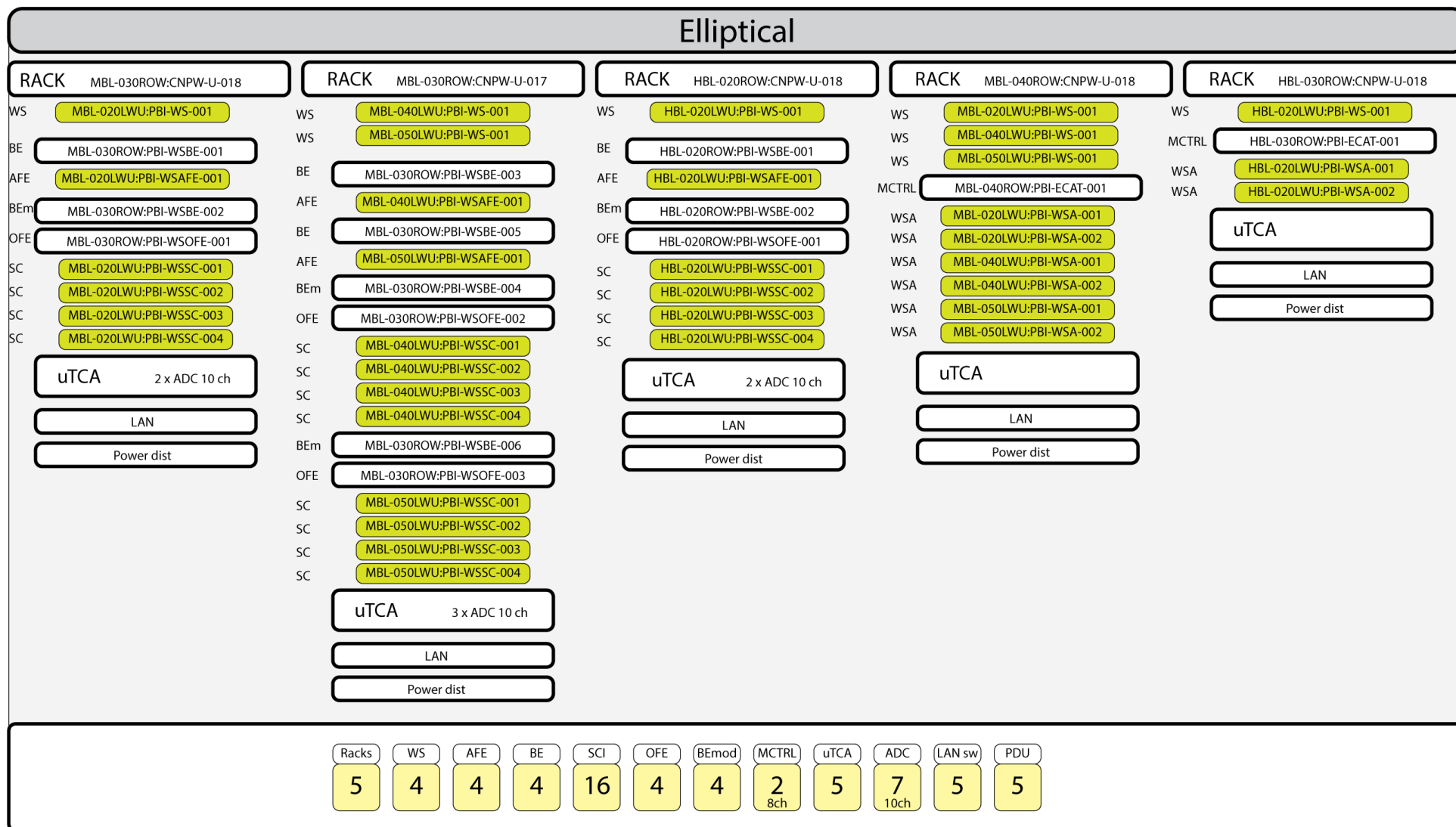
* European VDE; European standard 3-pin power plug; Certificate: VDE; Rated current & voltage: 16A/250V; Applicable cable & cord: H05VV-F 3G0.75-1.5; Number of cores: 3



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Cabling

ELLIPTICAL



ELLIPTICAL

From ---> TO	ELLIPTICAL cables	Cable	Connector
WS ---> AFE	16	Triaxial	Triaxial
AFE ---> BE	4	DSTP	DSUB9_F-M
AFE ---> BE	4	DSTP	DSUB25_F-M
BE ---> ADC	16	coaxial	SMA_M-M
SCINT ---> OFE	32	Silica core Opt Fiber	APC
OFE ---> Bem	4	DSTP	DSUB9_F-M
OFE ---> Bem	8	DSTP	DSUB25_F-M
MCTRL ---> WSA	8	DSTP	Souriau_F-M
MCTRL ---> WSE	8	DSTP	DSUB9_F-M
MCTRL ---> WSL	8	DSTP	DSUB9_F-M
LAN ---> BE+Bem	8	Eth. CAT6	RJ45
LAN ---> uTCA	5	Eth. CAT6	RJ45
LAN ---> MCTRL	2	Eth. CAT6	RJ45
Power ---> Units	20	*Power cord	*VDE_F

Rack	MBL-040ROW:CNPW-U-018	Units
	MCTRL	3U
	uTCA	6U
	LAN switch	1U
Total		10U

Rack	HBL-030ROW:CNPW-U-018	Units
	MCTRL	3U
	uTCA	6U
	LAN switch	1U
Total		10U

Rack	MBL-030ROW:CNPW-U-018	Units
	BE	2U
	BEm	2U
	OFE	2U
	uTCA	6U
	LAN switch	1U
Total		13U

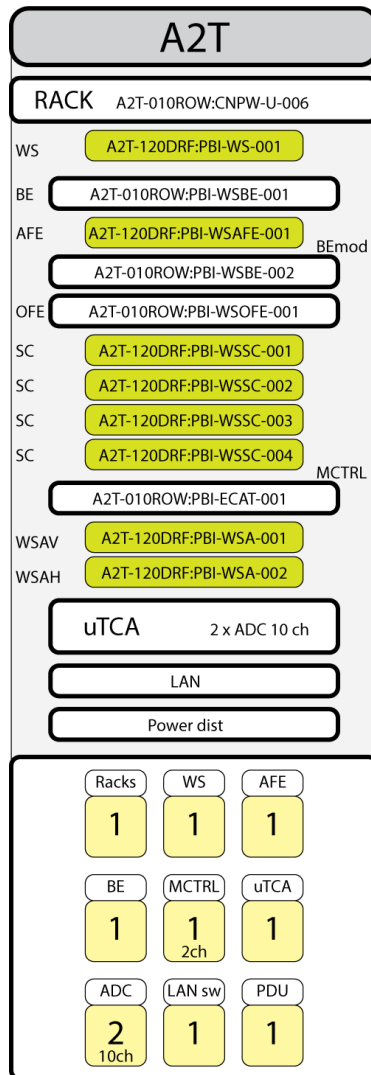
Rack	MBL-030ROW:CNPW-U-017	Units
	BE1	2U
	BE2	2U
	BEm1	2U
	BEm2	2U
	OFE1	2U
	OFE2	2U
	uTCA	6U
	LAN switch	1U
Total		19U

Rack	HBL-020ROW:CNPW-U-018	Units
	BE	2U
	BEm	2U
	OFE	2U
	uTCA	6U
	LAN switch	1U
Total		13U

Notes: DSTP - Double shielded twisted air, Eth. Cat6 – Ethernet cable CAT6, F-M = Female – Male type of connector
All other cable information are in (WS cable and connection table.xlsx – by Johan Norin)

* European VDE; European standard 3-pin power plug; Certificate: VDE; Rated current & voltage: 16A/250V; Applicable cable & cord: H05VV-F 3G0.75-1.5; Number of cores: 3

A2T

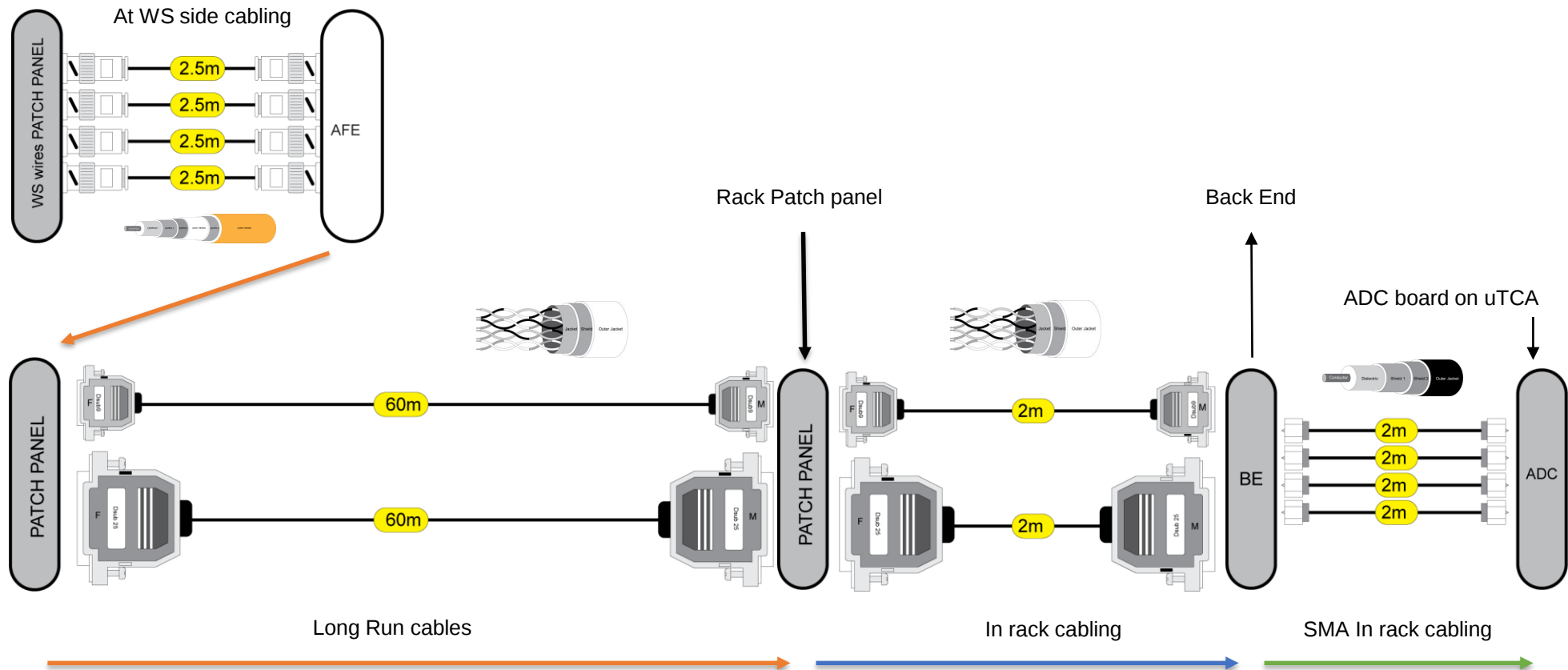


	A2T cables		
From ---> TO	Number	Cable	Connector
WS ---> AFE	4	Triaxial	Triaxial
AFE ---> BE	1	DSTP	DSUB9_F-M
AFE ---> BE	1	DSTP	DSUB25_F-M
BE ---> ADC	4	coaxial	SMA_M-M
SCINT ---> OFE	8	Silica core Opt Fiber	APC
OFE ---> Bem	1	DSTP	DSUB9_F-M
OFE ---> Bem	2	DSTP	DSUB25_F-M
MCTRL ---> WSA	2	DSTP	Souriau_F-M
MCTRL ---> WSE	2	DSTP	DSUB9_F-M
MCTRL ---> WSL	2	DSTP	DSUB9_F-M
LAN ---> BE+Bem	2	Eth. CAT6	RJ45
LAN ---> uTCA	1	Eth. CAT6	RJ45
LAN ---> MCTRL	1	Eth. CAT6	RJ45
Power ---> Units	5	*Power cord	*VDE_F

Rack	A2T-010ROW:CNPW-U-006	Units
	BE	2U
	BEm	2U
	OFE	2U
	MCTRL	3U
	uTCA	6U
	LAN switch	1U
Total		16U

Notes: DSTP - Double shielded twisted air, Eth. Cat6 – Ethernet cable CAT6, F-M = Female – Male type of connector
 All other cable information are in (WS cable and connection table.xlsx – by Johan Norin)
 * European VDE; European standard 3-pin power plug; Certificate: VDE; Rated current & voltage: 16A/250V;
 Applicable cable & cord: H05VV-F 3G0.75-1.5; Number of cores: 3

WS to AFE to uTCA ADC board connections



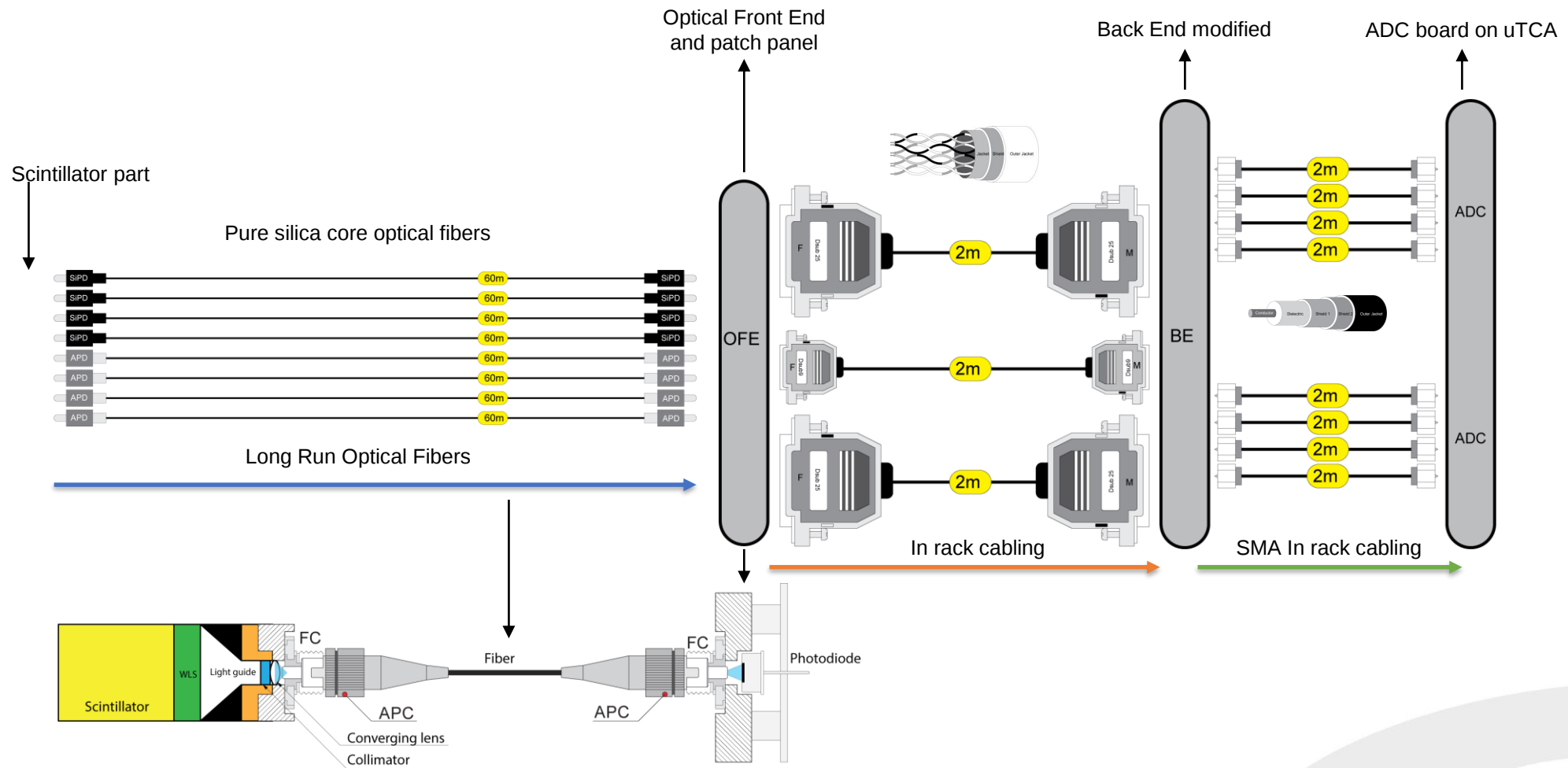


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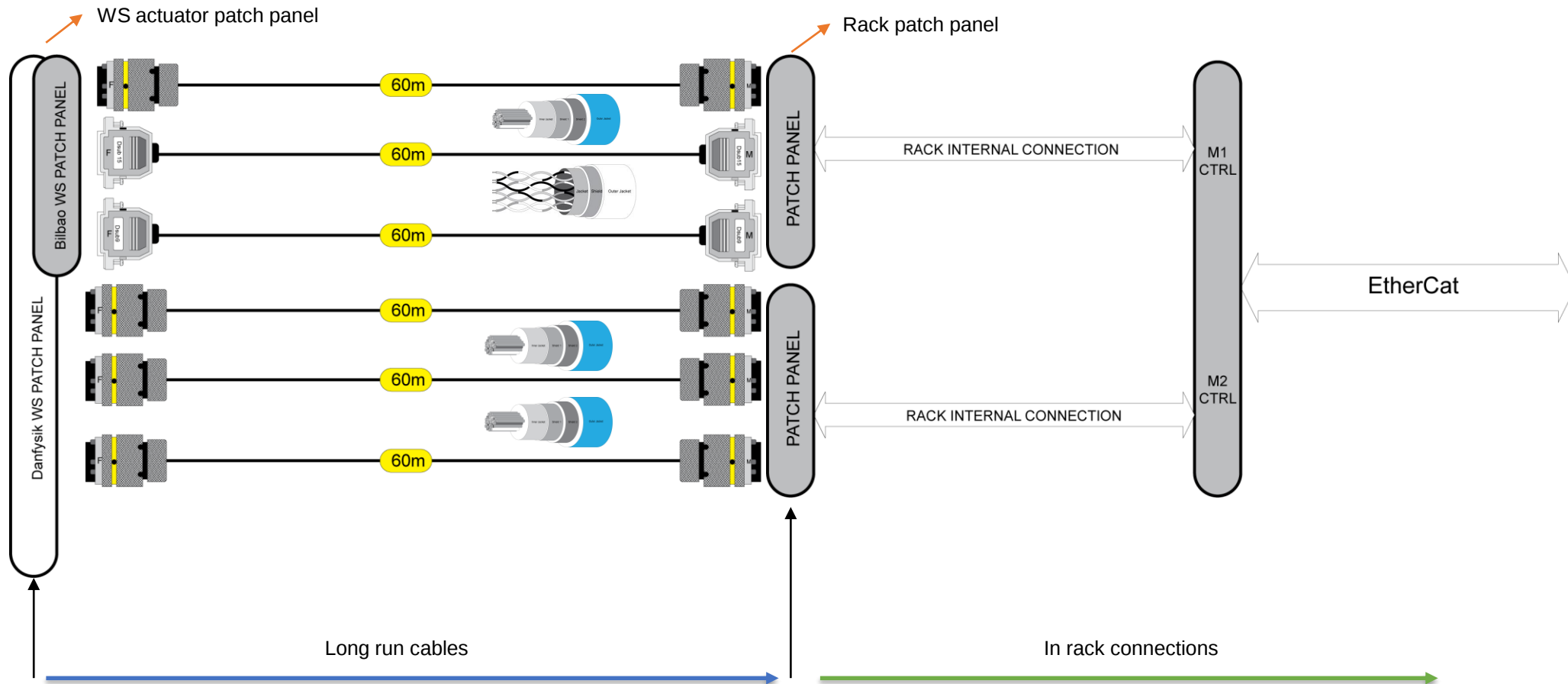
Cabling



Scintillator to OFE to BEm to uTCA ADC board connections



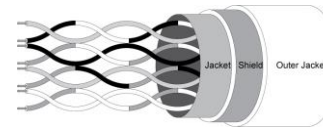
WS actuator to Motion controller connections



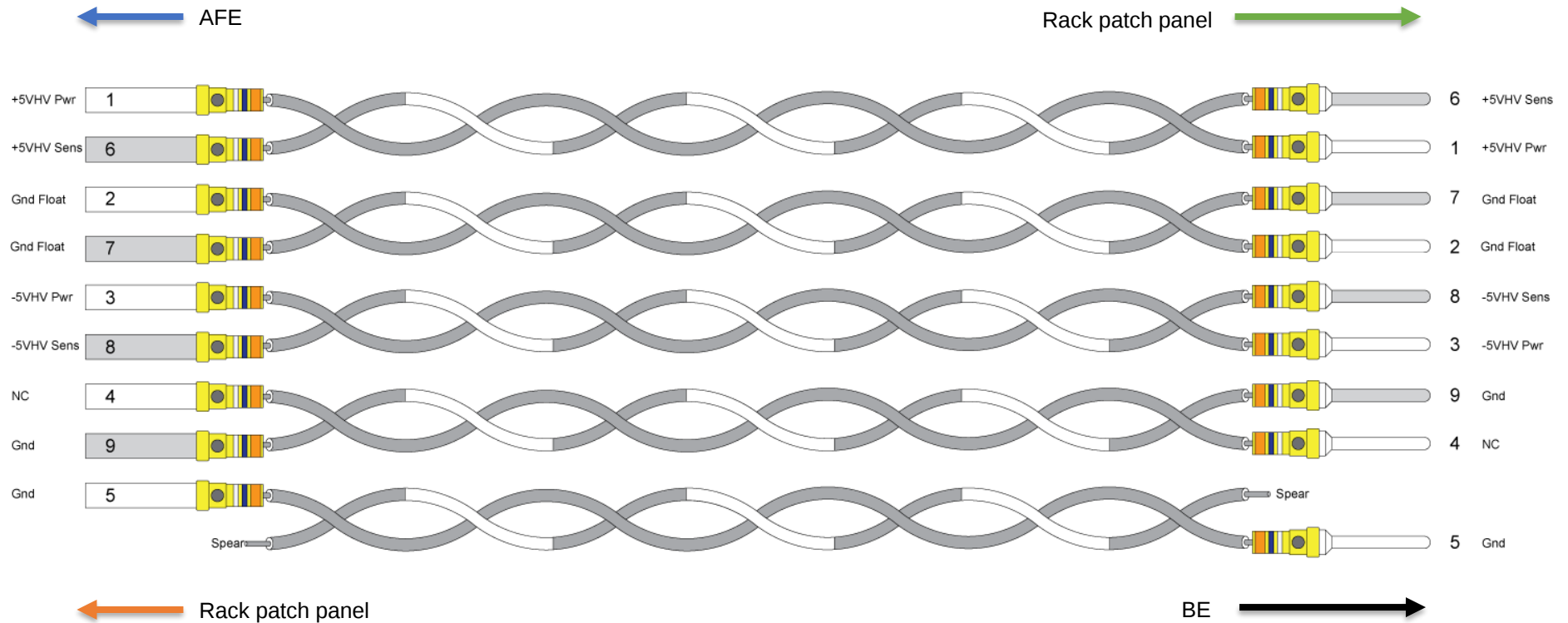


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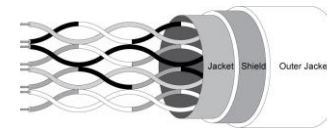
AFE control cable with DSUB 9 pinout specification for long run cables and in rack connection from BE to rack patch panel.



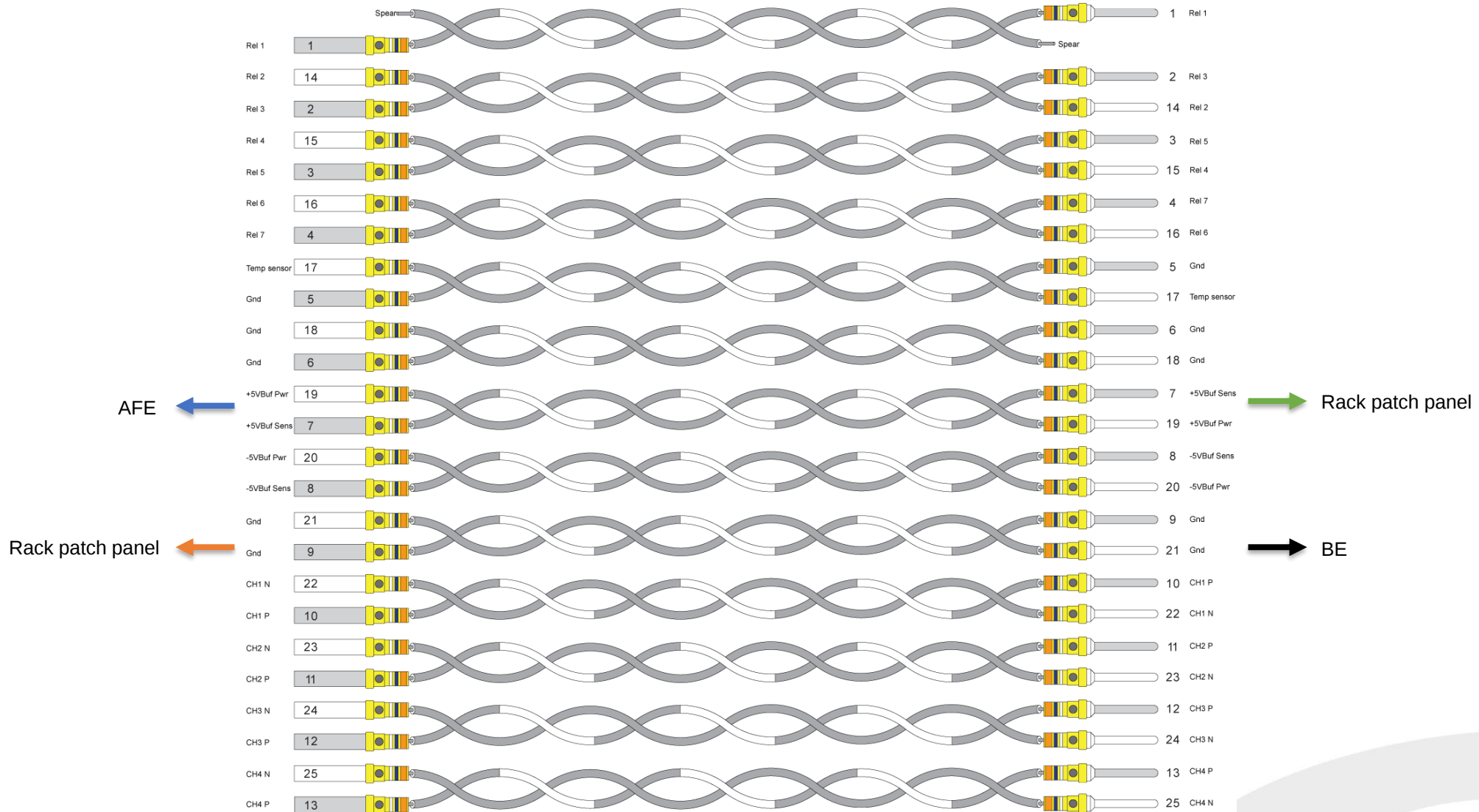


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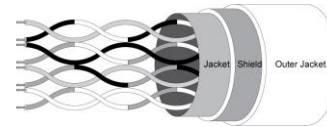
AFE signal cable with DSUB 25 pinout specification for long run cables and in rack connection from BE to rack patch panel.



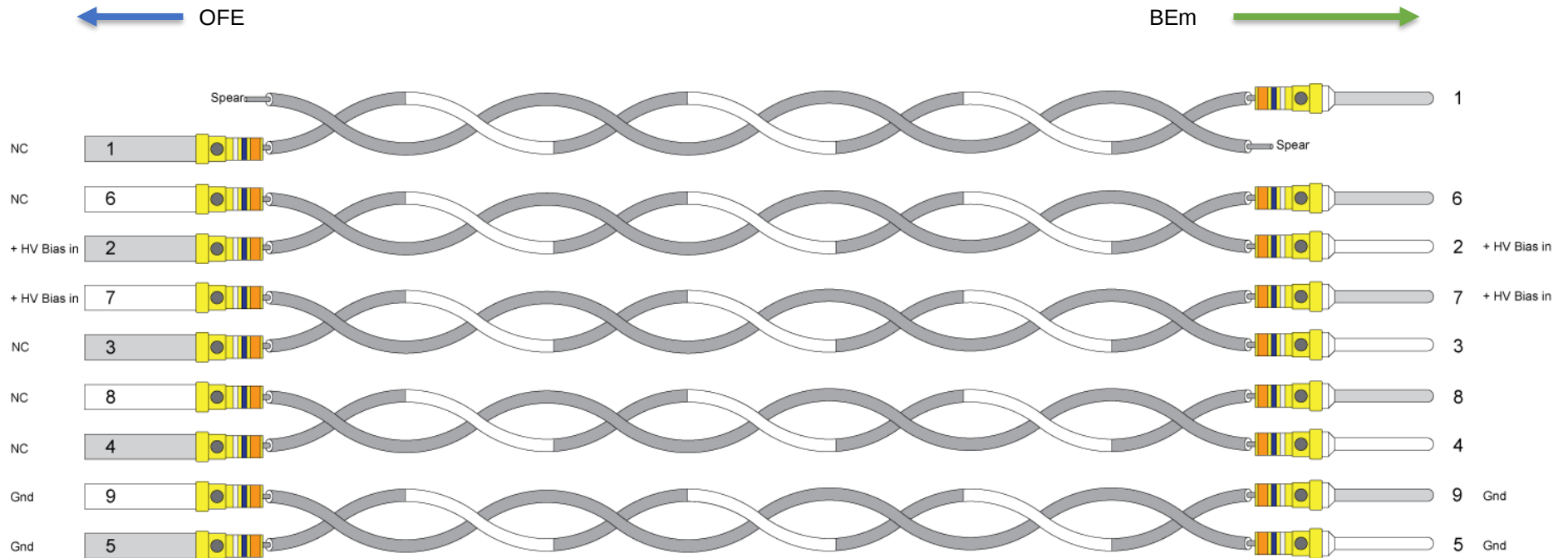


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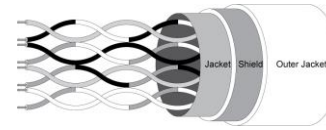
BEm to OFE APD Biasing cable with DSUB 9 pinout specification for in rack connection.



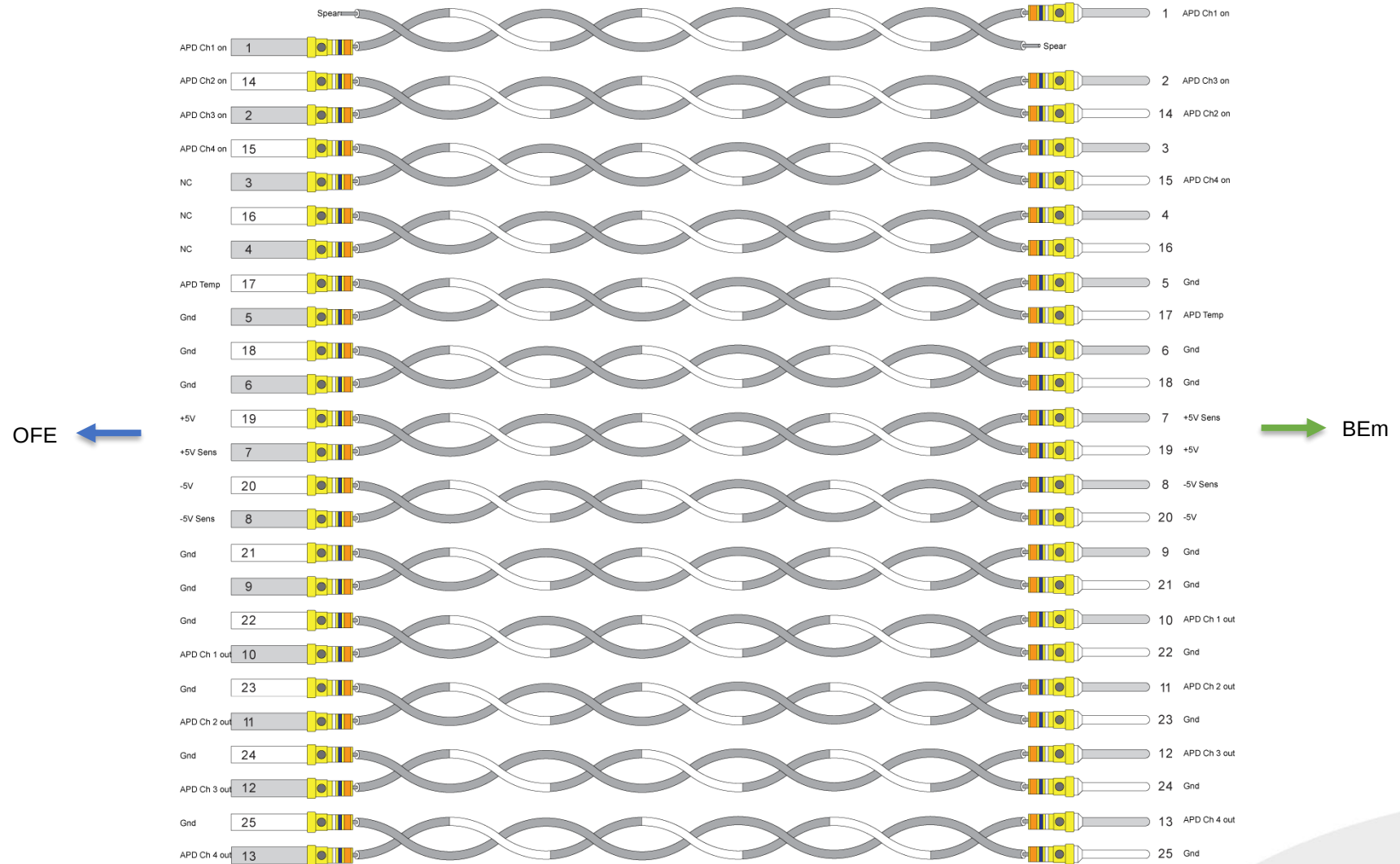


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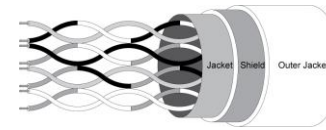
BEm to OFE APD signal cable with DSUB 25 pinout specification for in rack connection.



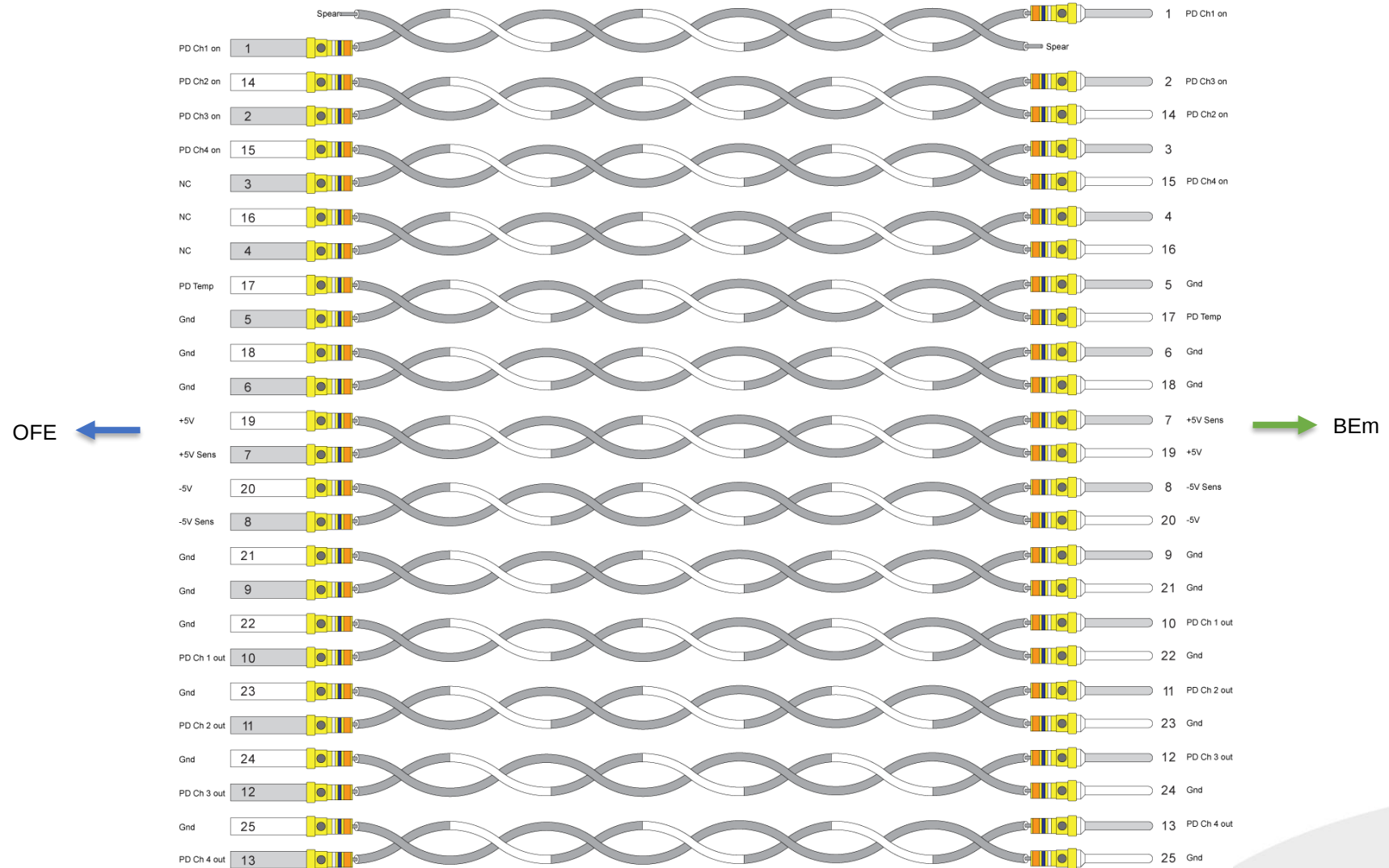


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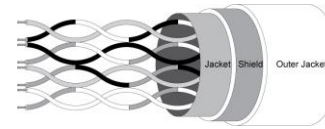
BEm to OFE PD signal cable with DSUB 25 pinout specification for in rack connection.



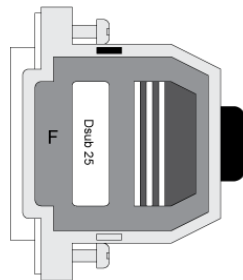


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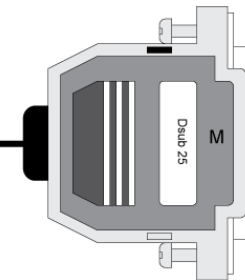
Cabling



Cables terminated from active side of the cable with Female connector to avoid any person who operate with it any accidental contact. For the same reason all cables terminations come with Female connectors and their Front End sockets are Male type when cables part connector connected to them pins are closed and covered.



Active side



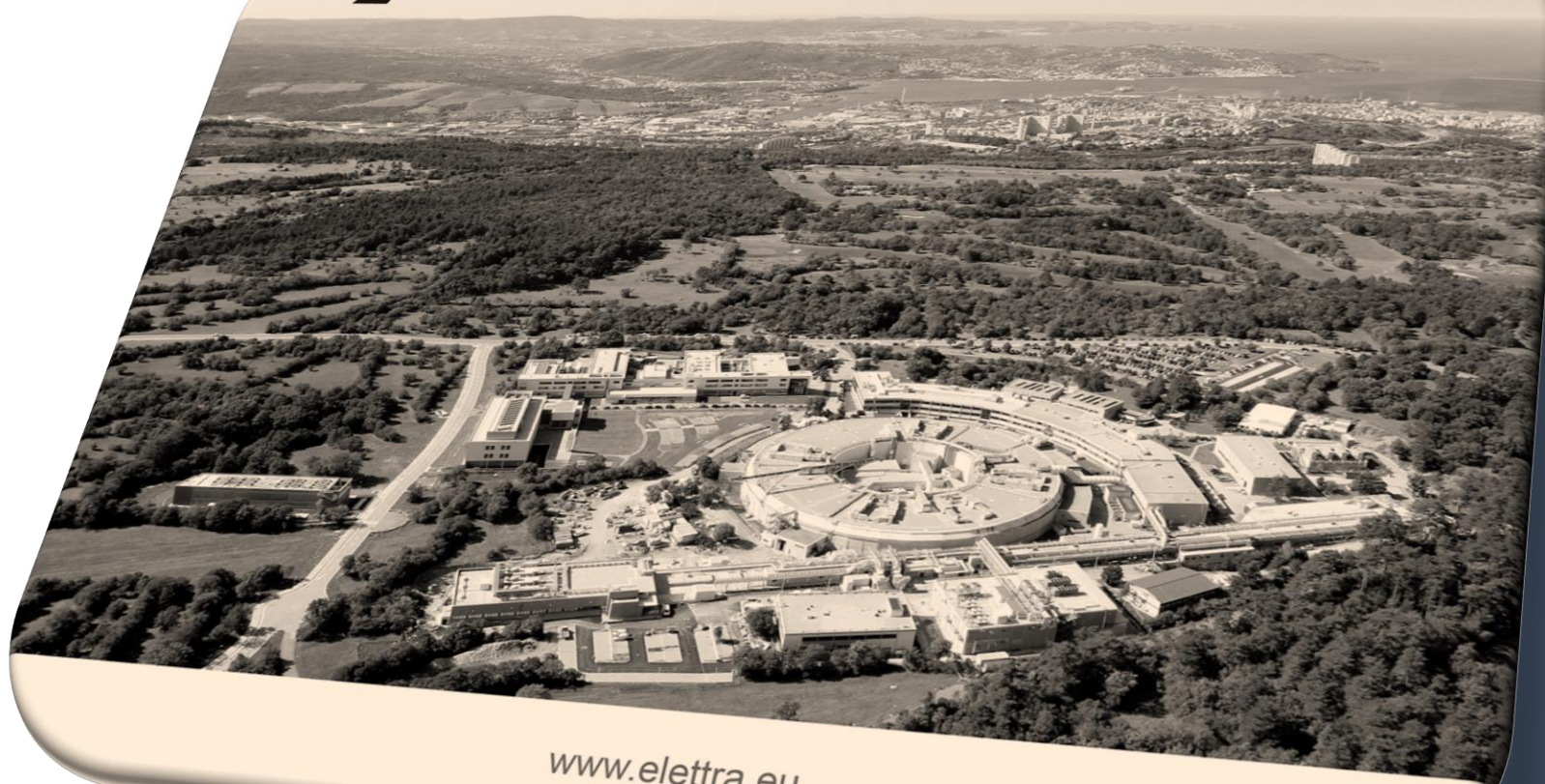
Passive side

WS cable database by Johan Norin

Extracted from WS cable database extract 20180220.xlsx

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Thank you !