

PAS Elektrodesign

Introduction

- PAS: Personnel Access System
 - Provide a proper access of personnel into NE Areas through authorization methods.
 - Provide interlocks to Interlock System to protect persons against radiation in case of unauthorized access.
 - Ensuring no person inside before Beam Operation.
 - Ensuring access only after radiation levels are acceptable.
- Control cabinets based on Siemens Simatic S7-1500 Fail Safe CPUs and on Simatic ET200SP Fail Safe CPUs

Type and amount of Cabinets in FAIR

■ Bereichsschrank	NE Area Cabinets	25
■ Schleusenschrank	Portal Cabinets for PAG/MAD	25
■ Steuerschrank SAD	Control Cabinets for SAD	14
■ Steuerschrank AAD	Control Cabinets for AAD	21
■ Steuerschrank ECD	Control Cabinets for ECD	10
■ BOG Schrank	Beam Off Groups Cabinets	21

FAIR Operation and Building Stages

Early Science		First Science		First Science Plus	
NE	BOG	NE	BOG	NE	BOG
22	10	22	10	22	10
50	11	50	11	50	11
52	12	52	12	52	12
53	14	53	14	53	14
55	15	55	15	55	15
60	18	60	18	60	18
	19	61	19	61	19
	20	62	20	62	20
	23	64	23	64	23
	40	65	40	65	40
	43	66	43	66	43
	51		51	28	51

Type and amount of Cabinets – Early Science

■ Bereichsschrank	NE Area Cabinets	06
■ Schleusenschrank	Portal Cabinets for PAG/MAD	06
■ Steuerschrank SAD	Control Cabinets for SAD	05
■ Steuerschrank AAD	Control Cabinets for AAD	15
■ Steuerschrank ECD	Control Cabinets for ECD	03
■ BOG Schrank	Beam Off Groups Cabinets	12

Bereichsschrank

Bereichsschrank - 6 Cabinets	
CPU 1516F-3 PN/DP	NE Area
IM 155-6 PN HF	
DI 16x24VDC ST	
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	
DQ 16x24VDC/0.5A ST	
DQ 16x24VDC/0.5A ST	
F-DI 8x24VDC HF	
DQ 16x24VDC/0.5A ST	ECD
DI 16x24VDC ST	

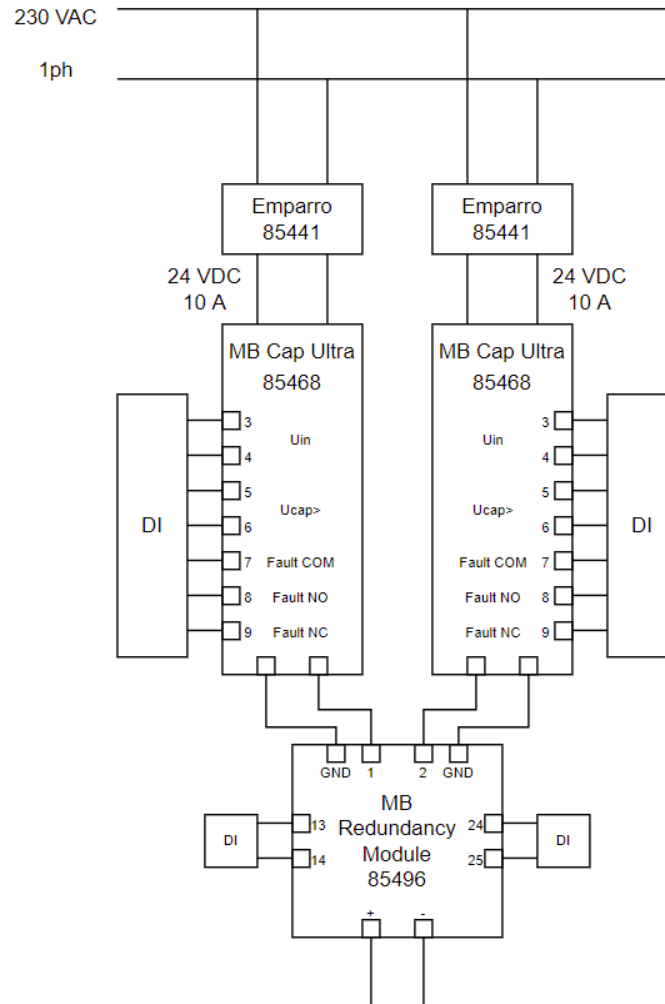
Door/Device	Equipment	Signal Name	Type	Comment
Bereich	Emergency	Emergency Lights - 1	DQ	
Bereich	Emergency	Emergency Lights - 2	DQ	
Bereich	Emergency	Emergency Lights - 3	DQ	
Bereich	Emergency	Emergency Lights - 4	DQ	
Bereich	Emergency	Emergency Lights - 5	DQ	
Bereich	Emergency	Emergency Lights - 6	DQ	
Bereich	Emergency	Emergency Lights - 7	DQ	
Bereich	Emergency	Emergency Lights - 8	DQ	
Bereich	Emergency	Emergency Lights - 9	DQ	
Bereich	Emergency	Emergency Lights - 10	DQ	
Bereich	Emergency	Emergency Lights - 11	DQ	
Bereich	Emergency	Emergency Lights - 12	DQ	
Bereich	Emergency	Emergency Lights - 13	DQ	
Bereich	Emergency	Emergency Lights - 14	DQ	
Bereich	Emergency	Emergency Lights - 15	DQ	
Bereich	Emergency	Emergency Lights - 16	DQ	
Bereich	Emergency	Emergency Horns - 1	DQ	
Bereich	Emergency	Emergency Horns - 2	DQ	
Bereich	Emergency	Emergency Horns - 3	DQ	
Bereich	Emergency	Emergency Horns - 4	DQ	
Bereich	Emergency	Emergency Horns - 5	DQ	
Bereich	Emergency	Emergency Horns - 6	DQ	
Bereich	Emergency	Emergency Horns - 7	DQ	
Bereich	Emergency	Emergency Horns - 8	DQ	
Bereich	Emergency	Emergency Horns - 9	DQ	
Bereich	Emergency	Emergency Horns - 10	DQ	
Bereich	Emergency	Emergency Horns - 11	DQ	
Bereich	Emergency	Emergency Horns - 12	DQ	
Bereich	Emergency	Emergency Horns - 13	DQ	
Bereich	Emergency	Emergency Horns - 14	DQ	
Bereich	Emergency	Emergency Horns - 15	DQ	
Bereich	Emergency	Emergency Horns - 16	DQ	
Bereich	Fuses	Fuses - 1	DI	
Bereich	Fuses	Fuses - 2	DI	
Bereich	Fuses	Fuses - 3	DI	
Bereich	Fuses	Fuses - 4	DI	
Bereich	Fuses	Fuses - 5	DI	
Bereich	Fuses	Fuses - 6	DI	
Bereich	Fuses	Fuses - 7	DI	
Bereich	Fuses	Ventilation - 1	DI	

Door/Device	Equipment	Signal Name	Type	Comment
ECD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 1	FDI	
ECD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 2	FDI	
ECD	Door Monitoring - SSP	OD - Door closed	DI	
ECD	Escape Route System	Alarm	DI	
ECD	Escape Route System	Door closed and locked	DI	
ECD	Escape Route System	Temporary unlocked and door opened	DI	Not used
ECD	Escape Route System	Permanent unlocked	DI	Not used
ECD	Escape Route System	Temporary unlock command	DQ	
ECD	Escape Route System	Permanent unlock command	DQ	
ECD	Escape Route System	Permanent lock command	DQ	
ECD	Escape Route System	Fire System	DQ	Not used
ECD	LED	LED 1	DQ	
ECD	LED	LED 2	DQ	
ECD	LED	LED 3	DQ	
ECD	LED	LED 4	DQ	
ECD	Fuses	Fuses - 1	DI	
ECD	Fuses	Fuses - 2	DI	
ECD	Fuses	Fuses - 3	DI	
ECD	Fuses	Fuses - 4	DI	
ECD	Fuses	Ventilation - 1	DI	

Door/Device	Equipment	Signal Name	Type	Comment
RSD	Door Monitoring - NX	NX - NC Safety Output Channel 1	FDI	
RSD	Door Monitoring - NX	NX - NC Safety Output Channel 1	FDI	
RSD	Door Monitoring - NX	NX - NC Safety Output Channel 2	FDI	
RSD	Door Monitoring - NX	NX - NC Safety Output Channel 2	FDI	
RSD	Door Monitoring - NM	NM - NC Safety Output Channel 1	FDI	
RSD	Door Monitoring - NM	NM - NC Safety Output Channel 2	FDI	

Door/Device	Equipment	Signal Name	Type	Comment
IO Chamber	IO Chamber	IO Chamber - Radiation Level OK	DI	

230 VAC Buffer



Schleusenschrank

Schleusenschrank - 6 Cabinets	
IM 155-6 PN HF	
F-DI 8x24VDC HF	PAG
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DQ 8x24VDC/0.5A PP HF	
DI 16x24VDC ST	
DI 16x24VDC ST	
DI 16x24VDC ST	
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	
DQ 16x24VDC/0.5A ST	
DQ 16x24VDC/0.5A ST	
F-DI 8x24VDC HF	MAD
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DQ 8x24VDC/0.5A PP HF	
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	

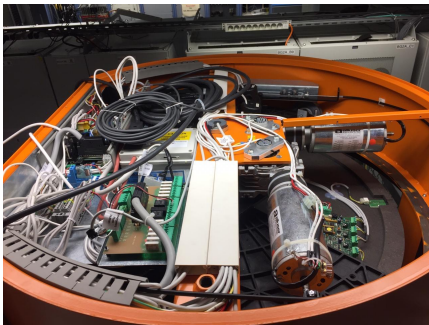
PAG Equipment



Door Locking Device



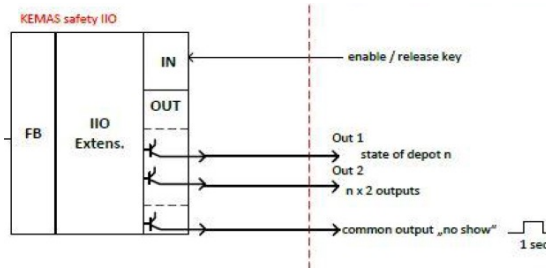
Door Monitoring Device



Personal Access Gate



Safety Mat Evaluation Device



Personal Key System (PKS)



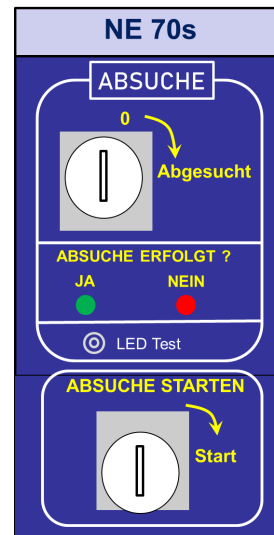
Dosimeter Station



QR Code Scanner



Activation Panel



Search Panel



Hand Vein Scanner

PAG Signals

Door/Device	Equipment	Signal Name	Type
PAG	CTP Inner Door	CTP - IMP - Guard Locking Solenoid	FDQ
PAG	CTP Inner Door	CTP - RST - Reset Input	DQ
PAG	CTP Inner Door	CTP - FO1A - Safety Output Channel 1	FDI
PAG	CTP Inner Door	CTP - FO1B - Safety Output Channel 2	FDI
PAG	CTP Inner Door	CTP - OD - Door Monitoring Output	DI
PAG	CTP Inner Door	CTP - OI - Diagnostic Output	DI
PAG	CTP Inner Door	CTP - OL - Guard Locking Monitoring Output	DI
PAG	CES Inner Door	CES - FO1A - Safety Output Channel 1	FDI
PAG	CES Inner Door	CES - FO1B - Safety Output Channel 2	FDI
PAG	CES Inner Door	CES - OD - Door Monitoring Output	DI
PAG	CES Outer Door	CES - FO1A - Safety Output Channel 1	FDI
PAG	CES Outer Door	CES - FO1B - Safety Output Channel 2	FDI
PAG	CES Outer Door	CES - OD - Door Monitoring Output	DI
PAG	Mayser Inner Mat	Zone Not Pressed OSSD1	FDI
PAG	Mayser Inner Mat	Zone Not Pressed OSSD2	FDI
PAG	Mayser Inner Mat	Circuit	DI
PAG	Mayser Inner Mat	Sensor	DI
PAG	Mayser Inner Mat	No Fault	DI
PAG	Mayser Outer Mat	Zone Not Pressed OSSD1	FDI
PAG	Mayser Outer Mat	Zone Not Pressed OSSD2	FDI
PAG	Mayser Outer Mat	Circuit	DI
PAG	Mayser Outer Mat	Sensor	DI
PAG	Mayser Outer Mat	No Fault	DI
PAG	PAG Interface	PAG Ready	DI
PAG	PAG Interface	APD Alarm	DI
PAG	PAG Interface	Inner Door Closed	DI
PAG	PAG Interface	Outer Door Closed	DI
PAG	PAG Interface	Person Inside	DI
PAG	PAG Interface	Start Biometric Check	DI
PAG	PAG Interface	Doors Open	DI
PAG	PAG Interface	Fire Alarm	DQ
PAG	PAG Interface	Biometry OK	DQ
PAG	PAG Interface	Biometry NOK	DQ
PAG	PAG Interface	Entry Identified	DQ
PAG	PAG Interface	Exit Identified	DQ
PAG	PAG Interface	Inner Mat Pressed	DQ
PAG	PAG Interface	Outer Mat Pressed	DQ

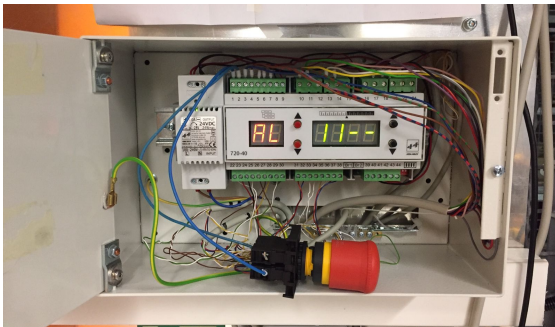
PAG	PKS	OSSD1 Key is present - 1	FDI
PAG	PKS	OSSD2 Key is present - 1	FDI
PAG	PKS	OSSD1 Key is present - 2	FDI
PAG	PKS	OSSD2 Key is present - 2	FDI
PAG	PKS	OSSD1 Key is present - 3	FDI
PAG	PKS	OSSD2 Key is present - 3	FDI
PAG	PKS	OSSD1 Key is present - 4	FDI
PAG	PKS	OSSD2 Key is present - 4	FDI
PAG	PKS	OSSD1 Key is present - 5	FDI
PAG	PKS	OSSD2 Key is present - 5	FDI
PAG	PKS	OSSD1 Key is present - 6	FDI
PAG	PKS	OSSD2 Key is present - 6	FDI
PAG	PKS	OSSD1 Key is present - 7	FDI
PAG	PKS	OSSD2 Key is present - 7	FDI
PAG	PKS	OSSD1 Key is present - 8	FDI
PAG	PKS	OSSD2 Key is present - 8	FDI
PAG	PKS	OSSD1 Key is present - 9	FDI
PAG	PKS	OSSD2 Key is present - 9	FDI
PAG	PKS	OSSD1 Key is present - 10	FDI
PAG	PKS	OSSD2 Key is present - 10	FDI
PAG	PKS	OSSD1 Key is present - 11	FDI
PAG	PKS	OSSD2 Key is present - 11	FDI
PAG	PKS	OSSD1 Key is present - 12	FDI
PAG	PKS	OSSD2 Key is present - 12	FDI
PAG	PKS	OSSD1 Key is present - 13	FDI
PAG	PKS	OSSD2 Key is present - 13	FDI
PAG	PKS	OSSD1 Key is present - 14	FDI
PAG	PKS	OSSD2 Key is present - 14	FDI
PAG	PKS	OSSD1 Key is present - 15	FDI
PAG	PKS	OSSD2 Key is present - 15	FDI

PAG Signals

PAG	PKS	Key Unlocked Feedback - 1	DI
PAG	PKS	Key Unlocked Feedback - 2	DI
PAG	PKS	Key Unlocked Feedback - 3	DI
PAG	PKS	Key Unlocked Feedback - 4	DI
PAG	PKS	Key Unlocked Feedback - 5	DI
PAG	PKS	Key Unlocked Feedback - 6	DI
PAG	PKS	Key Unlocked Feedback - 7	DI
PAG	PKS	Key Unlocked Feedback - 8	DI
PAG	PKS	Key Unlocked Feedback - 9	DI
PAG	PKS	Key Unlocked Feedback - 10	DI
PAG	PKS	Key Unlocked Feedback - 11	DI
PAG	PKS	Key Unlocked Feedback - 12	DI
PAG	PKS	Key Unlocked Feedback - 13	DI
PAG	PKS	Key Unlocked Feedback - 14	DI
PAG	PKS	Key Unlocked Feedback - 15	DI
PAG	PKS	Key No Show Feedback - 1	DI
PAG	PKS	Key No Show Feedback - 2	DI
PAG	PKS	Key No Show Feedback - 3	DI
PAG	PKS	Key No Show Feedback - 4	DI
PAG	PKS	Key No Show Feedback - 5	DI
PAG	PKS	Key No Show Feedback - 6	DI
PAG	PKS	Key No Show Feedback - 7	DI
PAG	PKS	Key No Show Feedback - 8	DI
PAG	PKS	Key No Show Feedback - 9	DI
PAG	PKS	Key No Show Feedback - 10	DI
PAG	PKS	Key No Show Feedback - 11	DI
PAG	PKS	Key No Show Feedback - 12	DI
PAG	PKS	Key No Show Feedback - 13	DI
PAG	PKS	Key No Show Feedback - 14	DI
PAG	PKS	Key No Show Feedback - 15	DI
PAG	PKS	Unlock Key Command - 1	DQ
PAG	PKS	Unlock Key Command - 2	DQ
PAG	PKS	Unlock Key Command - 3	DQ
PAG	PKS	Unlock Key Command - 4	DQ
PAG	PKS	Unlock Key Command - 5	DQ
PAG	PKS	Unlock Key Command - 6	DQ
PAG	PKS	Unlock Key Command - 7	DQ
PAG	PKS	Unlock Key Command - 8	DQ
PAG	PKS	Unlock Key Command - 9	DQ
PAG	PKS	Unlock Key Command - 10	DQ
PAG	PKS	Unlock Key Command - 11	DQ
PAG	PKS	Unlock Key Command - 12	DQ
PAG	PKS	Unlock Key Command - 13	DQ
PAG	PKS	Unlock Key Command - 14	DQ
PAG	PKS	Unlock Key Command - 15	DQ

PAG	Search Panel	Start Search Key - Channel 1	FDI
PAG	Search Panel	Start Search Key - Channel 2	FDI
PAG	Search Panel	Searched Successful Key - Channel 1	FDI
PAG	Search Panel	Searched Successful Key - Channel 2	FDI
PAG	Search Panel	Searched Successful Key Confirm - Channel 1	FDI
PAG	Search Panel	Searched Successful Key Confirm - Channel 2	FDI
PAG	Search Panel	Searched LED	DQ
PAG	Search Panel	Not Searched LED	DQ
PAG	Activation Panel	Activation Necessary Key - Channel 1	FDI
PAG	Activation Panel	Activation Necessary Key - Channel 2	FDI
PAG	Activation Panel	Start Activation Key - Channel 1	FDI
PAG	Activation Panel	Start Activation Key - Channel 2	FDI
PAG	Activation Panel	Activation OK Key - Channel 1	FDI
PAG	Activation Panel	Activation OK Key - Channel 2	FDI
PAG	Activation Panel	Activation OK Key Confirm - Channel 1	FDI
PAG	Activation Panel	Activation OK Key Confirm - Channel 2	FDI
PAG	Activation Panel	Activation Necessary LED	DQ
PAG	Activation Panel	Activation Not Necessary LED	DQ
PAG	Activation Panel	Activation OK LED	DQ
PAG	Activation Panel	Activation Not OK LED	DQ
PAG	LEDS	General Access LED	DQ
PAG	LEDS	Controlled Access without Key LED	DQ
PAG	LEDS	Controlled Access with Key LED	DQ
PAG	LEDS	Closed Access LED	DQ
PAG	LEDS	Search LED	DQ
PAG	LEDS	Activation Measurement LED	DQ
PAG	LEDS	Beam Permit LED	DQ
PAG	LEDS	Test LED	DQ
PAG	LEDS	Error LED	DQ

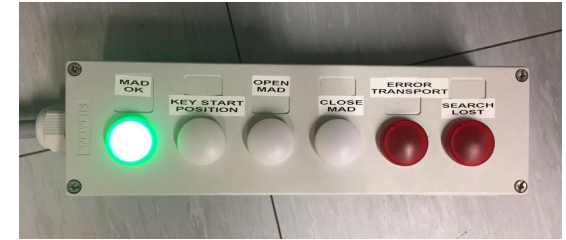
MAD Equipment



Escape Route System



Escape Route System Terminal



Material Transport LEDs



Light Curtain



Transport Key



LBK Radar



Door Monitoring Device

MAD Signals

Door/Device	Equipment	Signal Name	Type
MAD	Light Curtain	Light Curtain OK - Channel 1	FDI
MAD	Light Curtain	Light Curtain OK - Channel 2	FDI
MAD	Transport Key	Transport Key Unlock Command (Relay)	FDQ
MAD	Transport Key	Transport Key Relay On - Channel 1	FDI
MAD	Transport Key	Transport Key Relay On - Channel 2	FDI
MAD	Transport Key	Transport Key Locked Fbk - Channel 1	FDI
MAD	Transport Key	Transport Key Locked Fbk - Channel 2	FDI
MAD	Transport Key	Transport Key End Fbk - Channel 1	FDI
MAD	Transport Key	Transport Key End Fbk - Channel 2	FDI
MAD	Material Transport	Ready for Transport LED	DQ
MAD	Material Transport	Turn Key to Start LED	DQ
MAD	Material Transport	Open MAD and Transport LED	DQ
MAD	Material Transport	Close MAD and Key in End LED	DQ
MAD	Material Transport	Alarm LED	DQ
MAD	Material Transport	Error and Acknowledge LED	DQ
MAD	Escape Route System	Alarm	DI
MAD	Escape Route System	Door closed and locked	DI
MAD	Escape Route System	Temporary unlocked and door opened	DI
MAD	Escape Route System	Permanent unlocked	DI
MAD	Escape Route System	Temporary unlock command	DQ
MAD	Escape Route System	Permanent unlock command	DQ
MAD	Escape Route System	Permanent lock command	DQ
MAD	Escape Route System	Fire System	DQ
MAD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 1	FDI
MAD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 2	FDI
MAD	Door Monitoring - SSP	OD - Door closed	DI

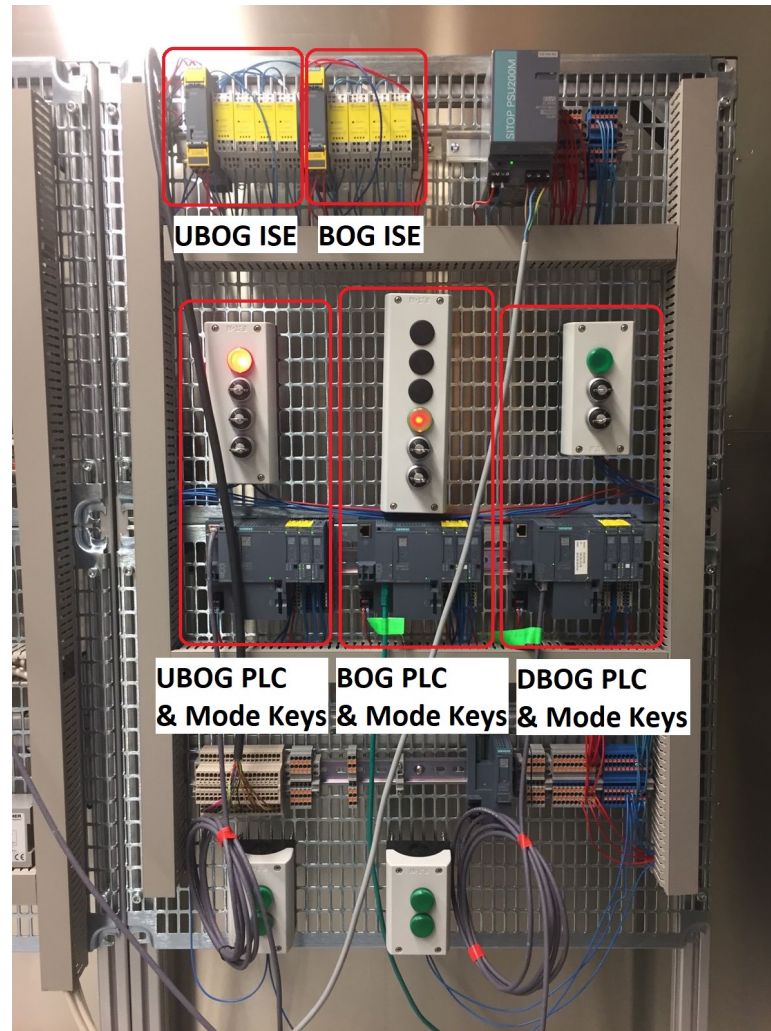
BOG Cabinet

- Used to control Safety Relays connected to Important Safety Equipment
- In total 8 Safety Relays should be connected per each BOG; 4 for Dipole Magnets Contactors Power Supplies and 4 for Additional Equipment
- Analog Measurement of Current through Dipole Magnets
- Fed with 230 VAC and 24 VDC

BOG Schrank - 12 Cabinets	
CPU 1515F-2 PN	
IM 155-6 PN HF	
F-DI 8x24VDC HF	BOG
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
F-DQ 8x24VDC/0.5A PP HF	
F-DQ 8x24VDC/0.5A PP HF	
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	
CM 4xIO-Link	
F-AI 4xU HF	Analog Meas

Door/Device	Equipment	Signal Name	Type	Comment
BOG	ISE	Output Relay - ISE 1	FDQ	
BOG	ISE	Output Relay - ISE 2	FDQ	
BOG	ISE	Output Relay - ISE 3	FDQ	
BOG	ISE	Output Relay - ISE 4	FDQ	
BOG	ISE	Output Relay - Additional Equipment 1	FDQ	
BOG	ISE	Output Relay - Additional Equipment 2	FDQ	
BOG	ISE	Output Relay - Additional Equipment 3	FDQ	
BOG	ISE	Output Relay - Additional Equipment 4	FDQ	
BOG	ISE	Feedback Relay - ISE 1	FDI	
BOG	ISE	Feedback Relay - ISE 2	FDI	
BOG	ISE	Feedback Relay - ISE 3	FDI	
BOG	ISE	Feedback Relay - ISE 4	FDI	
BOG	ISE	Feedback Relay - Additional Equipment 1	FDI	
BOG	ISE	Feedback Relay - Additional Equipment 2	FDI	
BOG	ISE	Feedback Relay - Additional Equipment 3	FDI	
BOG	ISE	Feedback Relay - Additional Equipment 4	FDI	
BOG	ISE	Output Relay Energized LED - ISE 1	DQ	
BOG	ISE	Output Relay Energized LED - ISE 2	DQ	
BOG	ISE	Output Relay Energized LED - ISE 3	DQ	
BOG	ISE	Output Relay Energized LED - ISE 4	DQ	
BOG	ISE	Output Relay Energized LED - Additional Equipment 1	DQ	
BOG	ISE	Output Relay Energized LED - Additional Equipment 2	DQ	
BOG	ISE	Output Relay Energized LED - Additional Equipment 3	DQ	
BOG	ISE	Output Relay Energized LED - Additional Equipment 4	DQ	
BOG	Mode Key Switch	Normal Operation Key Switch - Channel 1	FDI	
BOG	Mode Key Switch	Normal Operation Key Switch - Channel 2	FDI	
BOG	Mode Key Switch	Normal Operation Confirmation - Channel 1	FDI	
BOG	Mode Key Switch	Normal Operation Confirmation - Channel 2	FDI	
BOG	Mode Key Switch	Beam Blocking Key Switch - Channel 1	FDI	
BOG	Mode Key Switch	Beam Blocking Key Switch - Channel 2	FDI	
BOG	Mode Key Switch	Beam Blocking Confirmation - Channel 1	FDI	
BOG	Mode Key Switch	Beam Blocking Confirmation - Channel 2	FDI	
BOG	Mode Key Switch	Test Key Switch - Channel 1	FDI	
BOG	Mode Key Switch	Test Key Switch - Channel 2	FDI	
BOG	Mode Key Switch	Test Key Confirmation - Channel 1	FDI	
BOG	Mode Key Switch	Test Key Confirmation - Channel 2	FDI	
BOG	Test Key Switch	Interface Check - Channel 1	FDI	
BOG	Test Key Switch	Interface Check - Channel 2	FDI	
BOG	Test Key Switch	Interface Check Confirmation - Channel 1	FDI	
BOG	Test Key Switch	Interface Check Confirmation - Channel 2	FDI	
BOG	Test Key Switch	ISE Check - Channel 1	FDI	
BOG	Test Key Switch	ISE Check - Channel 2	FDI	
BOG	Test Key Switch	ISE Check Confirmation - Channel 1	FDI	
BOG	Test Key Switch	ISE Check Confirmation - Channel 2	FDI	
BOG	Beam Stoppers			Flexible F Link
BOG	Diffusers			Included in the ISEs Output and Feedback Relay
BOG	LEDs	BOG in Normal Operation Mode LED	DQ	
BOG	LEDs	BOG in Beam Blocking Mode LED	DQ	
BOG	LEDs	BOG in Test Mode LED	DQ	
BOG	LEDs	BOG in Error LED	DQ	
BOG	Fuses	Fuses - 1	DI	
BOG	Fuses	Fuses - 2	DI	
BOG	Fuses	Fuses - 3	DI	
BOG	Fuses	Fuses - 4	DI	
BOG	Fuses	Fuses - 5	DI	
BOG	Fuses	Fuses - 6	DI	
BOG	Fuses	Fuses - 7	DI	
BOG	Fuses	Ventilation - 1	DI	

BOG Equipment



Steuerschrank SAD

Sub-Areas Internal and External

SAD Steuerschrank - 5 Cabinets	
IM 155-6 PN HF	
F-DI 8x24VDC HF	SAD
F-DI 8x24VDC HF	
F-DI 8x24VDC HF	
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	
DQ 16x24VDC/0.5A ST	
CM 4xIO-Link	
F-DI 8x24VDC HF	AAD
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	

Steuerschrank SAD – Signals

Door/Device	Equipment	Signal Name	Type	Comment
SADI	Door Monitoring REER	FO1A - Door closed - Channel 1	FDI	
SADI	Door Monitoring REER	FO1B - Door closed - Channel 2	FDI	
SADI	Escape Route System	Alarm	DI	
SADI	Escape Route System	Door closed and locked	DI	
SADI	Escape Route System	Temporary unlocked and door opened	DI	Not used
SADI	Escape Route System	Permanent unlocked	DI	Not used
SADI	Escape Route System	Temporary unlock command	DQ	
SADI	Escape Route System	Permanent unlock command	DQ	
SADI	Escape Route System	Permanent lock command	DQ	
SADI	Escape Route System	Fire System	DQ	Not used
SADI	Search Panel	Start Search Key - Channel 1	FDI	
SADI	Search Panel	Start Search Key - Channel 2	FDI	
SADI	Search Panel	Searched Successful Key - Channel 1	FDI	
SADI	Search Panel	Searched Successful Key - Channel 2	FDI	
SADI	Search Panel	arched Successful Key Confirm - Channel 1	FDI	
SADI	Search Panel	arched Successful Key Confirm - Channel 2	FDI	
SADI	Search Panel	Searched LED	DQ	
SADI	Search Panel	Not Searched LED	DQ	
SADI	Search Panel	Exit Search Button	DI	
SADI	Activation Panel	Activation Necessary Key - Channel 1	FDI	
SADI	Activation Panel	Activation Necessary Key - Channel 2	FDI	
SADI	Activation Panel	Start Activation Key - Channel 1	FDI	
SADI	Activation Panel	Start Activation Key - Channel 2	FDI	
SADI	Activation Panel	Activation OK Key - Channel 1	FDI	
SADI	Activation Panel	Activation OK Key - Channel 2	FDI	
SADI	Activation Panel	Activation OK Key Confirm - Channel 1	FDI	
SADI	Activation Panel	Activation OK Key Confirm - Channel 2	FDI	
SADI	Activation Panel	Activation Necessary LED	DQ	
SADI	Activation Panel	Activation Not Necessary LED	DQ	
SADI	Activation Panel	Activation OK LED	DQ	
SADI	Activation Panel	Activation Not OK LED	DQ	
SADI	Activation Panel	Exit Activation Button	DI	
SADI	LED	LED 1	DQ	
SADI	LED	LED 2	DQ	
SADI	LED	LED 3	DQ	
SADI	LED	LED 4	DQ	
SADI	LED	LED 5	DQ	
SADI	LED	LED 6	DQ	
SADI	LED	LED 7	DQ	
SADI	LED	LED 8	DQ	
SADI	Fuses	Fuses - 1	DI	
SADI	Fuses	Fuses - 2	DI	
SADI	Fuses	Fuses - 3	DI	
SADI	Fuses	Fuses - 4	DI	
SADI	Fuses	Ventilation - 1	DI	

Door/Device	Equipment	Signal Name	Type	Comment
SAD E	Door Monitoring - SSP	OSSD1 - Door closed - Channel 1	FDI	
SAD E	Door Monitoring - SSP	OSSD1 - Door closed - Channel 2	FDI	
SAD E	Door Monitoring - SSP	OD - Door closed	DI	
SAD E	Escape Route System	Alarm	DI	
SAD E	Escape Route System	Door closed and locked	DI	
SAD E	Escape Route System	Temporary unlocked and door opened	DI	Not used
SAD E	Escape Route System	Permanent unlocked	DI	Not used
SAD E	Escape Route System	Temporary unlock command	DQ	
SAD E	Escape Route System	Permanent unlock command	DQ	
SAD E	Escape Route System	Permanent lock command	DQ	
SAD E	Escape Route System	Fire System	DQ	Not used
SAD E	Search Panel	Start Search Key - Channel 1	FDI	
SAD E	Search Panel	Start Search Key - Channel 2	FDI	
SAD E	Search Panel	Searched Successful Key - Channel 1	FDI	
SAD E	Search Panel	Searched Successful Key - Channel 2	FDI	
SAD E	Search Panel	arched Successful Key Confirm - Channel 1	FDI	
SAD E	Search Panel	arched Successful Key Confirm - Channel 2	FDI	
SAD E	Search Panel	Searched LED	DQ	
SAD E	Search Panel	Not Searched LED	DQ	
SAD E	Search Panel	Exit Search Button	DI	
SAD E	Activation Panel	Activation Necessary Key - Channel 1	FDI	
SAD E	Activation Panel	Activation Necessary Key - Channel 2	FDI	
SAD E	Activation Panel	Start Activation Key - Channel 1	FDI	
SAD E	Activation Panel	Start Activation Key - Channel 2	FDI	
SAD E	Activation Panel	Activation OK Key - Channel 1	FDI	
SAD E	Activation Panel	Activation OK Key - Channel 2	FDI	
SAD E	Activation Panel	Activation OK Key Confirm - Channel 1	FDI	
SAD E	Activation Panel	Activation OK Key Confirm - Channel 2	FDI	
SAD E	Activation Panel	Activation Necessary LED	DQ	
SAD E	Activation Panel	Activation Not Necessary LED	DQ	
SAD E	Activation Panel	Activation OK LED	DQ	
SAD E	Activation Panel	Activation Not OK LED	DQ	
SAD E	Activation Panel	Exit Activation Button	DI	
SAD E	Extra Button Search and RPA	Button Channel 1	FDI	
SAD E	Extra Button Search and RPA	Button Channel 2	FDI	
SAD E	LED	LED 1	DQ	
SAD E	LED	LED 2	DQ	
SAD E	LED	LED 3	DQ	
SAD E	LED	LED 4	DQ	
SAD E	LED	LED 5	DQ	
SAD E	LED	LED 6	DQ	
SAD E	LED	LED 7	DQ	
SAD E	LED	LED 8	DQ	
SAD E	Fuses	Fuses - 1	DI	
SAD E	Fuses	Fuses - 2	DI	
SAD E	Fuses	Fuses - 3	DI	
SAD E	Fuses	Fuses - 4	DI	
SAD E	Fuses	Ventilation - 1	DI	

Steuerschrank SAD – Equipment



Door Monitoring
Device for Internal Sub-Areas



Door Monitoring
Device for External Sub-Areas



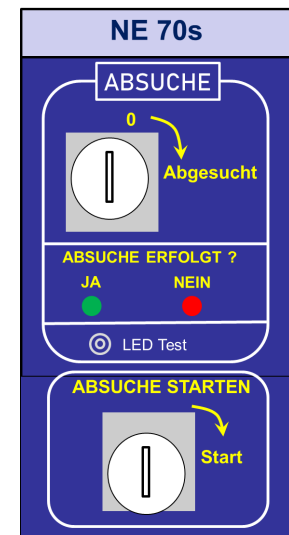
Escape Route System



Escape Route System
Terminal



Activation
Panel



Search
Panel

Steuerschrank AAD

Some AAD Cabinets have their own PLC
 Some AAD Cabinets only have an Interface Module

Type 1 - 11 Cabinets		Type 2 - 2 Cabinets		Type 3 - 2 Cabinets	
CPU 1510SP F-1 PN		IM 155-6 PN HF		CPU 1510SP F-1 PN	
F-DI 8x24VDC HF		F-DI 8x24VDC HF		F-DI 8x24VDC HF	
DI 16x24VDC ST	AAD	DI 16x24VDC ST	AAD	DI 16x24VDC ST	AAD
DQ 16x24VDC/0.5A ST		DQ 16x24VDC/0.5A ST		DQ 16x24VDC/0.5A ST	
F-DI 8x24VDC HF	RSD	F-DI 8x24VDC HF	RSD	F-DI 8x24VDC HF	
				DI 16x24VDC ST	AAD
				DQ 16x24VDC/0.5A ST	
				F-DI 8x24VDC HF	RSD

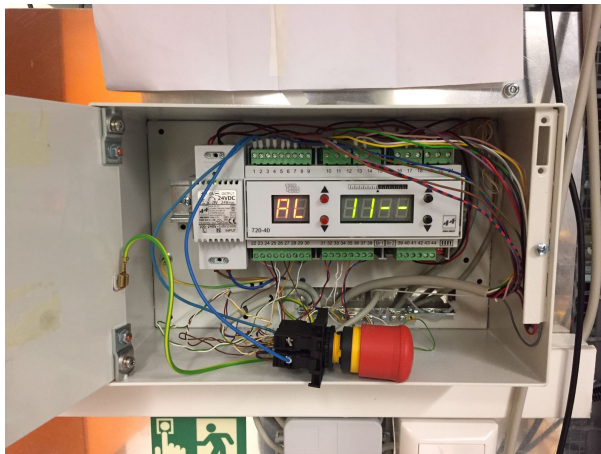
Steuerschrank AAD – Signals

Door/Device	Equipment	Signal Name	Type	Comment
AAD	Door Monitoring REER	FO1A - Door closed - Channel 1	FDI	
AAD	Door Monitoring REER	FO1B - Door closed - Channel 2	FDI	
AAD	Escape Route System	Alarm	DI	
AAD	Escape Route System	Door closed and locked	DI	
AAD	Escape Route System	Temporary unlocked and door opened	DI	Not used
AAD	Escape Route System	Permanent unlocked	DI	Not used
AAD	Escape Route System	Temporary unlock command	DQ	
AAD	Escape Route System	Permanent unlock command	DQ	
AAD	Escape Route System	Permanent lock command	DQ	
AAD	Escape Route System	Fire System	DQ	Not used
AAD	LED	LED 1	DQ	
AAD	LED	LED 2	DQ	
AAD	LED	LED 3	DQ	
AAD	LED	LED 4	DQ	
AAD	LED	LED 5	DQ	
AAD	LED	LED 6	DQ	
AAD	LED	LED 7	DQ	
AAD	LED	LED 8	DQ	
AAD	Fuses	Fuses - 1	DI	
AAD	Fuses	Fuses - 2	DI	
AAD	Fuses	Fuses - 3	DI	
AAD	Fuses	Fuses - 4	DI	
AAD	Fuses	Ventilation - 1	DI	

Steuerschrank AAD – Equipment



Door Monitoring Device



Escape Route System



Escape Route System Terminal Area 1



Escape Route System Terminal Area 2

Steuerschrank ECD

Escape Doors

ECD Schrank - 3 Cabinets	
IM 155-6 PN HF	
F-DI 8x24VDC HF	ECD
DI 16x24VDC ST	
DQ 16x24VDC/0.5A ST	
F-DI 8x24VDC HF	RSD

Steuerschrank ECD – Signals

Door/Device	Equipment	Signal Name	Type	Comment
ECD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 1	FDI	
ECD	Door Monitoring - SSP	OSSD1 - Door closed - Channel 2	FDI	
ECD	Door Monitoring - SSP	OD - Door closed	DI	
ECD	Escape Route System	Alarm	DI	
ECD	Escape Route System	Door closed and locked	DI	
ECD	Escape Route System	Temporary unlocked and door opened	DI	Not used
ECD	Escape Route System	Permanent unlocked	DI	Not used
ECD	Escape Route System	Temporary unlock command	DQ	
ECD	Escape Route System	Permanent unlock command	DQ	
ECD	Escape Route System	Permanent lock command	DQ	
ECD	Escape Route System	Fire System	DQ	Not used
ECD	LED	LED 1	DQ	
ECD	LED	LED 2	DQ	
ECD	LED	LED 3	DQ	
ECD	LED	LED 4	DQ	
ECD	Fuses	Fuses - 1	DI	
ECD	Fuses	Fuses - 2	DI	
ECD	Fuses	Fuses - 3	DI	
ECD	Fuses	Fuses - 4	DI	
ECD	Fuses	Ventilation - 1	DI	

Steuerschrank ECD – Equipment



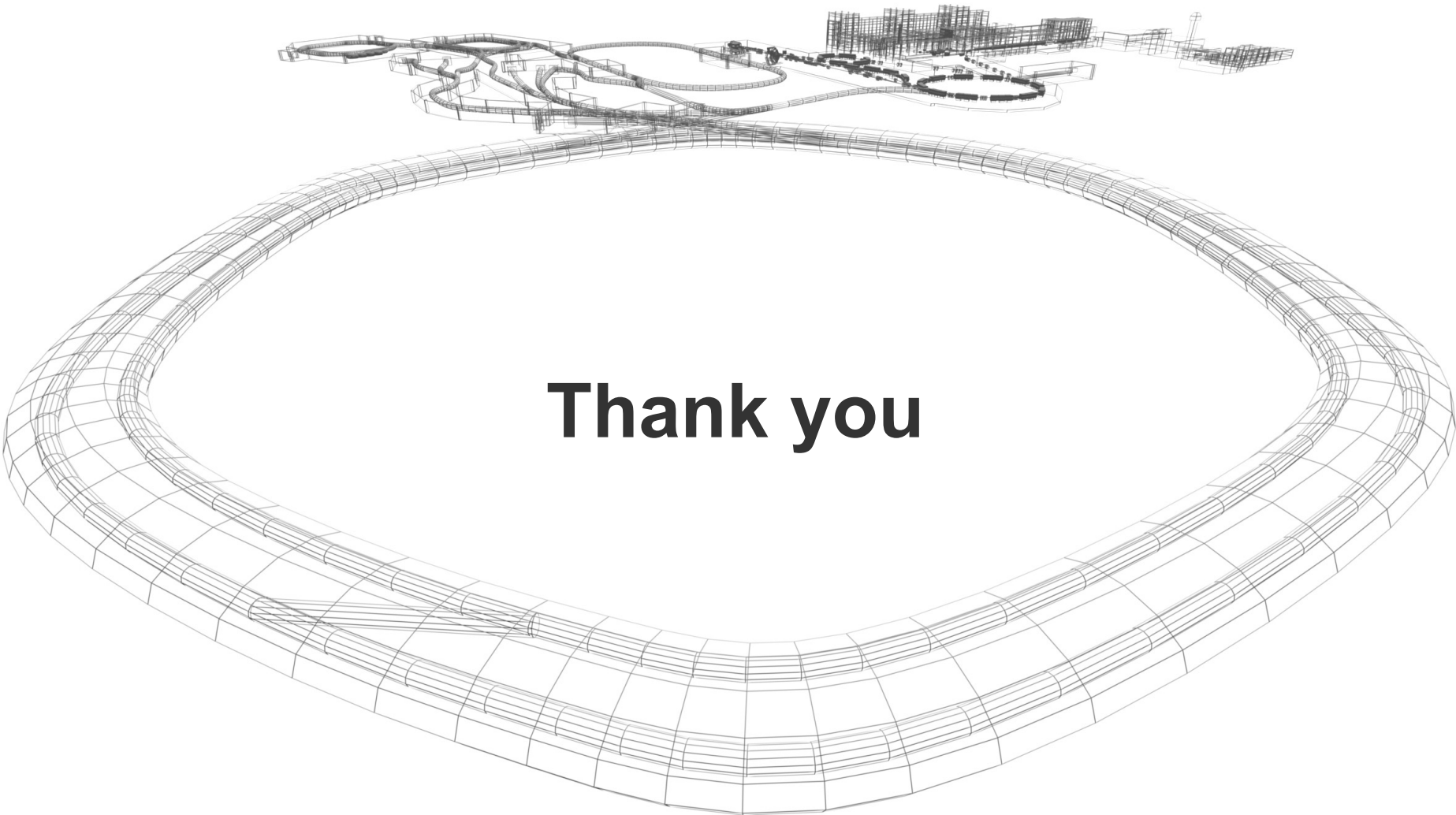
Door Monitoring Device



Escape Route System



Escape Route System Terminal



Thank you