MRP Ring 1 mit insg. 5 VLANs
(CRY, VAC, PAS, BEA, ILK)

Scalance XR524-8C

ILK VLAN
iDevice

local Interlockstation w. CPU
CPU 1510SP-1 PN

PAS VLAN
iDevice to ILK Master
PAS CPU/CP
failsafe

CRY VLAN
iDevice to ILK Master
CRY CPU/CP

BEA VLAN
iDevice to ILK Master
BEA CPU/CP

VAC VLAN
iDevice to ILK Master
VAC CPU/CP

Scalance XR524-8C

ILK VLAN
iDevice

local Interlockstation w. CPU
CPU 1510SP-1 PN

PAS VLAN
iDevice to ILK Master
PAS CPU/CP
failsafe

CRY VLAN
iDevice to ILK Master
CRY CPU/CP

BEA VLAN
iDevice to ILK Master
BEA CPU/CP

VAC VLAN
iDevice to ILK Master
VAC CPU/CP

Scalance XR524-8C

ILK VLAN
iDevice

local Interlockstation w. CPU
CPU 1510SP-1 PN

PAS VLAN
CRY VLAN
VAC VLAN
BEA VLAN
ILK VLAN

X1/CM4
X1/CM3
X1/CM2
X1/CM1
X1/CPU

X2/CPU
CPU ILK Master
CPU 1516-3 PN/DP + 4x CM 1542-1

MRP Ring 2 mit insg. 5 VLANs
(CRY, VAC, PAS, BEA, ILK)

X2/CPU
CPU ILK Master
CPU 1516-3 PN/DP + 4x CM 1542-1

MRP Ring 3 mit insg. 5 VLANs
(CRY, VAC, PAS, BEA, ILK)

X2/CPU
CPU ILK Master
CPU 1516-3 PN/DP + 4x CM 1542-1

MRP Ring 4 mit insg. 5 VLANs
(CRY, VAC, PAS, BEA, ILK)

X2/CPU
CPU ILK Master
CPU 1516-3 PN/DP + 4x CM 1542-1

MRP Ring 5 mit insg. 5 VLANs
(CRY, VAC, PAS, BEA, ILK)

X2/CPU
CPU ILK Master
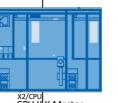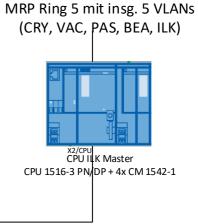CPU 1516-3 PN/DP + 4x CM 1542-1

FESA/MASP Server

Tasks of the ILK inside Ind. Ethernet:

- The Ind. Ethernet is the communication platform for PLC CPUs of various systems. These are the VACcuum control system, the CRYo control system, the PAS control system, the BEA control system and the InterLocK system.
- The Scalance XR524s are interconnected in a total of 5 MRP rings, all PLC CPUs are connected as stubs to one of the MRP rings and its VLANs, the timeout of the connections described below should be longer than the 200ms switching time.
- Collection of the interlocks by the 5 ILK masters from the different CPUs of the VLANs CRY/VAC/ BEA of the respective MRP ring with a reaction time <= 250ms, iDevice is used, telegram length should be <= 64Byte with approx. 32Byte user data, send clock ~50ms (5 repetitions)
- Collection of the interlocks by the 5 ILK masters from the PAS BOG stations with a reaction time <= 100ms by means of iDevice, telegram length should be <= 64Byte with approx. 32Byte user data, transmission clock ~20ms (11 repetitions)
- Collection of the interlocks by the 5 ILK masters from the local interlock stations with CPUs instead of IMs in the ILK VLAN of the respective MRP ring with a reaction time <= 100ms via iDevice, telegram length should be <= 64Byte with approx. 32Byte user data, transmission clock ~10ms (21 repetitions)
- Spare CPUs for each Ring and VLAN should be foreseen, therefore activation and deactivation methods for the different connections via the ILK GUI is required
- Graphic representation at the GUI regarding the interlock status of different client types have to be discussed and done
- SW for local Interlockstations with CPU instead of IM has to be done, actually planned are 3 DQ with in total 24 DI cards = 192 interlocks/station

		central systems			systems of the VLANs					
		Qty. switches	ILK Master		PAS BOG	CRY	VAC	ILK stations	BEA	Qty. iDevice clients wo BEA
Ring 1	GSI + D715A	30	1		10	2	5	5	?	22
Ring 2	North (only SIS100/300)	31	1		1	9	20	11	?	41
Ring 3	Transfer	24	1		8	12	6	6	?	32
Ring 4	Mid	31	1		7	13	8	6	?	34
Ring 5	South	30	1		3	10	13	9	?	35
					VLAN PAS	VLAN CRY	VLAN VAC	VLAN ILK	VLAN BEA	