

## **US STEEL KOSICE, ASU 9, SLOVAKIA ELECTRICAL EQUIPMENT**

### **Control System 6,3 kV – S/S T80**

### **Remote Signalling and Control List**

Revision 05

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**REMOTE CONTROL AND OPERATING SYSTEM FOR 5/5 T80 - SIGNAL LIST**

Alarm	Bay	L01	Autotrans- former	L02	Starpoint Connection	L03	L04	L05	L06	L08	L07	L09	L10 Longitudinal Coupler	L11	L12	L13	L14	L15
Type		Incoming				Motor	Motor	Capacitor	Outgoing to T81	Outgoing to T40	Measure- ment	Busbar Coupler	Longitudinal Coupler	Busbar Riser	Incoming	Outgoing to T81	Busbar Coupler	Measure- ment
<b>Analogue inputs</b>																		
Current I, phase L2		x	x			x		x	x	x					x			
Voltage U, phase L1-L2		x	x			x		x	x	x					x			
Active Power P2		x	x			x		x	x	x					x			
Reactive Power Q2		x	x			x		x	x	x					x			
<b>Summarized Number of processed analogue signals:</b>																		
		4		4		4		4	4	4		0	0		4	4		0
<b>Binary inputs</b>																		
Status indication CB: Q0 open					x							x					x	
Status indication CB: Q0 closed					x							x					x	
Status indication CB: Q01 open		x	x			x		x	x	x			x		x			
Status indication CB: Q01 closed		x	x			x		x	x	x			x		x			
Status indication CB: Q02 open		x	x			x		x	x	x			x		x			
Status indication CB: Q02 closed		x	x			x		x	x	x			x		x			
Status indication Truck: X0 open					x													
Status indication Truck: X0 closed					x													
Status indication Truck: X01 open		x	x			x		x	x	x		x	x		x		x	
Status indication Truck: X01 closed		x	x			x		x	x	x		x	x		x		x	
Status indication Truck: X02 open		x	x			x		x	x	x		x	x		x		x	
Status indication Truck: X02 closed		x	x			x		x	x	x		x	x		x		x	
Status indication ES: Q8 open		x	x			x		x	x	x					x			
Status indication ES: Q8 closed		x	x			x		x	x	x					x			
Status indication ES: Q15 open													x					
Status indication ES: Q15 closed													x					
Status indication ES: Q16 open													x					
Status indication ES: Q16 closed													x					
Status indication ES: Q25 open																		
Status indication ES: Q25 closed																		
Status indication ES: Q26 open																		
Status indication ES: Q26 closed																		
CB: Motor Drive Failure		x	x			x		x	x	x		x	x		x		x	
CB: Spring not charged		x	x			x		x	x	x		x	x		x		x	
MCB-Trip Voltage Transformer BB1																		
MCB-Trip Voltage Transformer BB2																		
MCB-Trip Voltage Transformer		x																
CB: Local Control		x	x			x		x	x	x		x	x		x		x	
Circuit Breaker Tripped		x	x			x		x	x	x					x			
Protection Trip Command		x	x			x		x	x	x					x			
Protection Start		x	x			x		x	x	x					x			
Star Point Unbalance Protection: Start																		
Arc detection system IUS: Trip		x	x			x		x	x	x		x	x		x		x	
Protection Relays: Failure/Blocked																		
Arc detection system IUS: Failure/Blocked		x	x			x		x	x	x		x	x		x		x	
Eberle REGDP: Failure/Blocked		x	x			x		x	x	x		x	x		x		x	
Bay alarm (MCB-Trip AC/DC /Ventilation failure)		x	x			x		x	x	x		x	x		x		x	
<b>Power Transformer</b>																		
Buchholz Protection: Alarm		x																
Buchholz Protection: Trip		x																
Oil temperature Protection: Alarm		x																
Oil temperature Protection: Trip		x																
Oil level: Alarm		x																
Pressure Relief Relay: Trip		x																
Winding temperature Protection: Alarm		x																
Winding temperature Protection: Trip		x																
Cooling: Failure		x																
Cooling: In operation		x																

Alarm	Bay	L01	L02	L03	L04	L05	L06	L08	L07	L09	L10	L11	L12	L13	L14	L15
Type	Incoming	Autotrans- former	Starpoint Connection	Motor	Motor	Capacitor	Outgoing to T81	Outgoing to T40	Measure- ment	Busbar Coupler	Longitudina l Coupler	Busbar Riser	Incoming	Outgoing to T81	Busbar Coupler	Measure- ment
Cooling Off	x												x			
<b>Neutral Transformer</b>																
Temperature Protection: Alarm	x												x			
Temperature Protection: Trip	x												x			
<b>Neutral Reactor</b>																
Oil level: Alarm	x												x			
Buchholz Protection: Alarm	x												x			
Temperature Protection: Alarm	x												x			
Buchholz Protection: Trip	x												x			
Temperature Protection: Trip	x												x			
Motor drive failure	x												x			
MCB-Trip Voltage Transformer Un	x												x			
MCB-Trip AC/DC Power Supply	x												x			
<b>Summarized Number of processed binary signals:</b>	<b>42</b>	<b>31</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>28</b>	<b>42</b>	<b>19</b>	<b>20</b>		
<b>Binary Outputs</b>																
Command CB: Q0 open			x							x					x	
Command CB: Q0 close			x							x					x	
Command CB: Q01 open	x	x			x	x	x	x			x		x	x		
Command CB: Q01 close	x	x			x	x	x	x			x		x	x		
Command CB: Q02 open	x	x			x	x	x	x			x		x	x		
Command CB: Q02 close	x	x			x	x	x	x			x		x	x		
<b>Summarized Number of processed binary commands:</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2</b>	
Peripheral Elements TM1703, consisting of																
PS-6632 Power Supply Unit 110-220 VDC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PE-6401 Peripheral Coupling, Ax-Bus 1x optical	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DL-6103 Binary Input Module, 2x8, 110/220 VCD, 1 ms	3	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2
DO-6212 Binary Output Module, 1x8, 24-220 VDC/230 VAC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AI-6300 Analogue Input Module 2x2 +/-20 mA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST

Alarm	Bay	SAT - Peripheral Elements				L01	L12	Type of Signal		Range/Scaling of measuring values [cf Transducer SINEAX DME 442] 1)												
		Model 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 3 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC			Alarm	Failure/Trip	Information	Secondary Minimum value X0 [equ. to 0 mA]	Primary	Secondary									
Analogue Inputs	Type	Model 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 3 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA																
Summarized Number of processed analogue signals:																						
Binary Inputs																						

Alarm	Bay	SAT - Peripheral Elements					L01	L12	Type of Signal		Range/Scaling of measuring values [of Transducer SINEAX DME 442] <sup>1)</sup>		
		Model 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 3 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Incoming	Incoming	Alarm	Failure/Trip	Information	Minimum value X0 [equ. to 0 mA]	Maximum value X2 [equ. to 20 mA]
Type													
Neutral Reactor													
Oil level: Alarm													
Buchholz Protection: Alarm													
Temperature Protection: Alarm													
Buchholz Protection: Trip													
Temperature Protection: Trip													
Motor drive failure													
MCB-Trip Voltage Transformer Un													
MCB-Trip AC/DC Power Supply													
Signalling Voltage													
Summarized Number of processed binary signals.													
Binary Outputs													
Command CB: Q01 open													
Command CB: Q01 close													
Command CB: Q02 open													
Command CB: Q02 close													
Summarized Number of processed binary commands:													
1) Parameterisation/Measuring ranges of measuring transducers is selected as follows, confirmed by Air Liquide													
Current channel													
Voltage channel													
Active Power channel													
Reactive Power channel													
Ur = 6.30 kV													
Ir = 4.000.00 A													

[illegible]

Alarm	Bay	SAT - Peripheral Elements				102		Type of Signal			Range/Scaling of measuring values	
	Type	Modul 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Modul 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Autotrans- former	Starpoint Connection	Alarm	Failure/Trip	Information	Minimum value X0 [equ. to 0 mA]	Maximum value X2 [equ. to 20 mA]
<b>Summarized Number of processed binary signals:</b>												
<b>Binary Outputs</b>												
	Command CB: Q0 open			OUT D00			x					
	Command CB: Q0 close			OUT D01			x					
	Command CB: Q01 open			OUT D02		x						
	Command CB: Q01 close			OUT D03		x						
	Command CB: Q02 open			OUT D04		x						
	Command CB: Q02 close			OUT D05		x						
<b>Summarized Number of processed binary commands:</b>												
1)	Parameterisation/Measuring ranges of measuring transducers is selected as follows, confirmed by Air Liquide											
	Current channel	$0 \geq I2 \leq$	$0 \geq I2 \leq$		1,5 Ir							
	Voltage channel	$0 \geq U12 \leq$	$0 \geq U12 \leq$		1,2 Ur							
	Active Power channel	$0 \geq P2 \leq$	$0 \geq P2 \leq$		0,5 Sr							
	Reactive Power channel	$0 \geq Q2 \leq$	$0 \geq Q2 \leq$		0,5 Sr							
	Ur =	6,30 kV										
	Ir =	1.250,00 A										

**REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

Alarm	Bay	SAT - Peripheral Elements			L03	Type of Signal			Range/Scaling of measuring values		
	Type	Module 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Motor	Alarm	Failure/Trip	Information	Secondary	Primary
<b>Analogue inputs</b>											
	Current I, phase L2				IN V0	x				0,00 A	1,125,00 A
	Voltage U, phase L1-L2				IN V1	x				0,00 V	120,00 V
	Active Power P2				IN V2	x				0,00 W	86,60 W
	Reactive Power Q2				IN V3	x				0,00 Var	86,60 Var
<b>Summarized Number of processed analogue signals:</b>											
						4					
<b>Binary inputs</b>											
	Status indication CB: Q01 open	IN D00				x					
	Status indication CB: Q01 closed	IN D01				x					
	Status indication CB: Q02 open	IN D02				x					
	Status indication CB: Q02 closed	IN D03				x					
	Status indication Truck: X01 open	IN D04				x					
	Status indication Truck: X01 closed	IN D05				x					
	Status indication Truck: X02 open	IN D06				x					
	Status indication Truck: X02 closed	IN D07				x					
	Status indication ES: Q8 open	IN D10				x					
	Status indication ES: Q8 closed	IN D11				x					
	CB: Motor Drive Failure	IN D12				x		x			
	CB: Spring not charged	IN D13				x		x			
	CB: Local Control	IN D14				x			x		
	Circuit Breaker Tripped										
	Protection Trip Command	IN D00				x		x			
	Protection Start	IN D01				x		x			
	Arc detection system ILS: Trip	IN D02				x		x			
	Protection Relays: Failure/Blocked	IN D03				x		x			
	Arc detection system ILS: Failure/Blocked	IN D04				x		x			
	Bay alarm (MCB-Trips AC/DC)/Ventilation failure	IN D05				x		x			
	Signalling Voltage	IN D17				x		x			
<b>Summarized Number of processed binary signals:</b>											
						20					

Alarm	Bay	SAT - Peripheral Elements				L03	Type of Signal			Range/Scaling of measuring values	
		Module 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Motor	Alarm	Failure/Trip	Information	Secondary [equ. to 0 mA]	Primary Maximum value X2 [equ. to 20 mA]
Binary Outputs	Type										
	Command CB: Q01 open										
	Command CB: Q01 close										
	Command CB: Q02 open										
	Command CB: Q02 close										
Summarized Number of processed binary commands:											
1)	Parameterisation/Measuring ranges of measuring transducers is selected as follows, confirmed by Air Liquide					0					
	Current channel	$0 \leq I_2 \leq$	$0 \leq I_2 \leq$	$1,5 \text{ Ir}$							
	Voltage channel	$0 \leq U_{12} \leq$	$0 \leq U_{12} \leq$	$1,2 \text{ Ur}$							
	Active Power channel	$0 \leq P_2 \leq$	$0 \leq P_2 \leq$	$0,5 \text{ Sr}$							
	Reactive Power channel	$0 \leq Q_2 \leq$	$0 \leq Q_2 \leq$	$0,5 \text{ Sr}$							
	Ur =	6,30 kV									
	Ir =	750,00 A									

**REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

Alarm	Bay	SAT - Peripheral Elements			L04	Type of Signal			Range/Scaling of measuring values			
	Type	Module 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Motor	Alarm	Failure/Trip	Information	Secondary	Primary	Secondary
<b>Analogue inputs</b>												
	Current I, phase L2				IN V0	x				0,00 A	0,00 A	1,50 A
	Voltage U, phase L1-L2				IN V1	x				0,00 V	0,00 kV	120,00 V
	Active Power P2				IN V2	x				0,00 W	0,00 kW	86,60 W
	Reactive Power Q2				IN V3	x				0,00 Var	0,00 kVar	86,60 Var
<b>Summarized Number of processed analogue signals:</b>												
<b>Binary inputs</b>												
	Status indication CB: Q01 open	IN D00				x						
	Status indication CB: Q01 closed	IN D01				x						
	Status indication CB: Q02 open	IN D02				x						
	Status indication CB: Q02 closed	IN D03				x						
	Status indication Truck: X01 open	IN D04				x						
	Status indication Truck: X01 closed	IN D05				x						
	Status indication Truck: X02 open	IN D06				x						
	Status indication Truck: X02 closed	IN D07				x						
	Status indication ES: Q8 open	IN D10				x						
	Status indication ES: Q8 closed	IN D11				x						
	CB: Motor Drive Failure	IN D12				x		x				
	CB: Spring not charged	IN D13				x		x				
	CB: Local Control	IN D14				x			x			
	Circuit Breaker Tripped		IN D00			x						
	Protection Trip Command		IN D01			x		x				
	Protection Start		IN D02			x		x				
	Arc detection system ILS: Trip		IN D03			x		x				
	Protection Relays: Failure/Blocked											
	Arc detection system ILS: Failure/Blocked		IN D04			x		x				
	Bay alarm (MCB-Trips AC/DC)/Ventilation failure		IN D05			x		x				
	Signalling Voltage		IN D17			x						
<b>Summarized Number of processed binary signals:</b>												
						20						



# **REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

Alarm	Bay	SAT - Peripheral Elements		L05	Type of Signal		Range/Scaling of measuring values		Primary	Secondary
	Type	Module 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Capacitor	Alarm	Failure/Trip	Information	
<b>Analogue inputs</b>										
	Current I, phase L2									
	Voltage U, phase L1-L2									
	Active Power P2									
	Reactive Power Q2									
<b>Summarized Number of processed analogue signals:</b>										
<b>Binary inputs</b>										
	Status indication CB: Q01 open	IN D00								
	Status indication CB: Q01 closed	IN D01								
	Status indication CB: Q02 open	IN D02								
	Status indication CB: Q02 closed	IN D03								
	Status indication Truck: X01 open	IN D04								
	Status indication Truck: X01 closed	IN D05								
	Status indication Truck: X02 open	IN D06								
	Status indication Truck: X02 closed	IN D07								
	Status indication ES: Q8 open	IN D10								
	Status indication ES: Q8 closed	IN D11								
	CB: Motor Drive Failure	IN D12								
	CB: Spring not charged	IN D13								
	CB: Local Control	IN D14								
	Circuit Breaker Tripped									
	Protection Trip Command	IN D00								
	Protection Start	IN D01								
	Star Point Unbalance Protection: Start	IN D02								
	Arc detection system ILLS: Trip	IN D03								
	Protection Relays: Failure/Blocked									
	Arc detection system ILLS: Failure/Blocked	IN D04								
	Bay alarm ( MCB-Trips AC/DC )/Ventilation failure	IN D05								
	Signalling Voltage	IN D17								
<b>Summarized Number of processed binary signals:</b>										
						20				

Bay L05

**REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST												
Alarm	Bay	SAT - Peripheral Elements			L06	L13	Type of Signal	Range/Scaling of measuring values				
		Module 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Outgoing to T81	Outgoing to T81	Alarm	Failure/Trip	Information	Secondary	Primary
Type												
Analogue inputs												
	Current I, phase L2				IN V0	x	x				0,00 A	0,00 A
	Voltage U, phase L1-L2				IN V1	x	x				0,00 V	120,00 V
	Active Power P2				IN V2	x	x				-86,60 W	0,00 kW
	Reactive Power Q2				IN V3	x	x				-86,60 Var	86,60 Var
Summarized Number of processed analogue signals:												
						4	4					
Binary inputs												
	Status indication CB: Q01 open	IN D00				x	x					
	Status indication CB: Q01 closed	IN D01				x	x					
	Status indication CB: Q02 open	IN D02				x	x					
	Status indication CB: Q02 closed	IN D03				x	x					
	Status indication Truck: X01 open	IN D04				x	x					
	Status indication Truck: X01 closed	IN D05				x	x					
	Status indication Truck: X02 open	IN D06				x	x					
	Status indication Truck: X02 closed	IN D07				x	x					
	Status indication ES: Q8 open	IN D10				x	x					
	Status indication ES: Q8 closed	IN D11				x	x					
	CB: Motor Drive Failure	IN D12				x	x		x			
	CB: Spring not charged	IN D13				x	x		x			
	CB: Local Control	IN D14				x	x			x		
	Circuit Breaker Tripped		IN D00			x	x					
	Protection Trip Command		IN D01			x	x		x			
	Protection Start		IN D02			x	x		x			
	Arc detection system ILS: Trip		IN D03			x	x		x			
	Protection Relays: Failure/Blocked											
	Arc detection system ILS: Failure/Blocked		IN D04			x	x		x			
	Bay alarm (MCB-Trips AC/DC )/Ventilation failure		IN D05			x	x		x			
	Signalling Voltage		IN D17			x	x		x			
Summarized Number of processed binary signals:												
						20	20					
Binary Outputs												

Bay L06+L13

**REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST													
Alarm	Bay	SAT - Peripheral Elements				L08	Type of Signal			Range/Scaling of measuring values			
		Model 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Model 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	AI-6300 Analogue Input Module 2x2 +/-20 mA	Outgoing to T40	Alarm	Failure/Trip	Information	Secondary	Primary	Minimum value X0	Maximum value X2
	Type												
Analogue inputs													
	Current I, phase L2				IN V0	x						0,00 A	1,50 A
	Voltage U, phase L1-L2				IN V1	x						0,00 V	120,00 V
	Active Power P2				IN V2	x						-86,60 W	86,60 W
	Reactive Power Q2				IN V3	x						-86,60 Var	86,60 Var
Summarized Number of processed analogue signals:													
						4							
Binary inputs													
	Status indication CB: Q01 open	IN D00				x							
	Status indication CB: Q01 closed	IN D01				x							
	Status indication CB: Q02 open	IN D02				x							
	Status indication CB: Q02 closed	IN D03				x							
	Status indication Truck: X01 open	IN D04				x							
	Status indication Truck: X01 closed	IN D05				x							
	Status indication Truck: X02 open	IN D06				x							
	Status indication Truck: X02 closed	IN D07				x							
	Status indication ES: Q8 open	IN D10				x							
	Status indication ES: Q8 closed	IN D11				x							
	CB: Motor Drive Failure	IN D12				x		x					
	CB: Spring not charged	IN D13				x		x					
	MCB-Trip Voltage Transformer	IN D14				x		x					
	CB: Local Control	IN D15				x			x				
	Circuit Breaker Tripped		IN D00			x							
	Protection Trip Command		IN D01			x		x					
	Protection Start		IN D02			x		x					
	Arc detection system ILLS: Trip		IN D03			x		x					
	Protection Relays: Failure/Blocked		IN D04			x		x					
	Arc detection system ILLS: Failure/Blocked		IN D05			x		x					
	Bay alarm ( MCB-Trips AC/DC )/Ventilation failure					x							
	Signalling Voltage		IN D17			x		x					
Summarized Number of processed binary signals:													
						21							

Alarm	Bay	SAT - Peripheral Elements					L08	Type of Signal			Range/Scaling of measuring values	
										Minimum value X0	Maximum value X2	
Binary Outputs	Type						Outgoing to T40		Alarm	Failure/Trip	Information	
	Command CB: Q01 open	Module DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module DO-6212 Binary Output 1x8, 24-220 VDC/230 VAC		x					
	Command CB: Q01 close				OUT D00		x					
	Command CB: Q02 open				OUT D01		x					
	Command CB: Q02 close				OUT D02		x					
Summarized Number of processed binary commands:							4					
1)	Parameterisation/Measuring ranges of measuring transducers is selected as follows, confirmed by Air Liquide											
	Current channel	$0 \geq I2 \leq$										
	Voltage channel	$0 \geq U12 \leq$										
	Active Power channel	$-0,5 \geq P2 \leq$										
	Reactive Power channel	$-0,5 \geq Q2 \leq$										
	Ur =	6,30 kV										
	Ir =	4,000,00 A										

**REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST**

Alarm	Bay	SAT - Peripheral Elements			L07	L09	L15	L14	Alarm	Failure/Trip	Type of Signal
	Type	Modul 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Modul 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	Measure- ment	Busbar Coupler	Measure- ment	Busbar Coupler			
<b>Binary inputs</b>											
	Status indication CB: Q0 open	IN D00									
	Status indication CB: Q0 closed	IN D01				x		x			
	Status indication Truck: X01 open	IN D02/D04				x		x			
	Status indication Truck: X01 closed	IN D03/D05				x		x			
	Status indication Truck: X02 open	IN D06/D10				x		x			
	Status indication Truck: X02 closed	IN D07/D11				x		x			
	CB: Motor Drive Failure	IN D12				x		x		x	
	CB: Spring not charged	IN D13				x		x		x	
	MCB-Trip Voltage Transformer BB1	IN D14				x				x	
	MCB-Trip Voltage Transformer BB2	IN D15				x				x	
	CB: Local Control	IN D17									x
	Arc detection system ILLS: Trip		IN D00/D01								
	Arc detection system ILLS: Failure/Blocked		IN D02/D03			x		x		x	
	Bay alarm ( MCB-Trips AC/DC )/Ventilation failure		IN D04/D05			x		x		x	
	Signalling Voltage		IN D17								
<b>Summarized Number of processed binary signals:</b>											
						21		21			
<b>Binary Outputs</b>											
	Command CB: Q0 open			OUT D00		x			x		
	Command CB: Q0 close			OUT D01		x			x		

Alarm	Bay	SAT - Peripheral Elements				L07	L09	L15	L14	Type of Signal		
	Type	Modul 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Modul 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC		Measure- ment	Busbar Coupler	Measure- ment	Busbar Coupler	Alarm	Failure/Trip	Information
<i>Summarized Number of processed binary commands:</i>												
						2			2			

REMOTE CONTROL AND OPERATING SYSTEM FOR S/S T80 - SIGNAL LIST									
Alarm	Bay	SAT - Peripheral Elements		L10	L11	Type of Signal			
	Type	Module 1 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	Module 2 DI-6103 Binary Input 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	Longitudinal Coupler	Busbar Riser	Alarm	Failure/Trip	Information
<b>Binary inputs</b>									
	Status indication CB: Q01 open	IN D00			x				
	Status indication CB: Q01 closed	IN D01			x				
	Status indication CB: Q02 open	IN D02			x				
	Status indication CB: Q02 closed	IN D03			x				
	Status indication Truck: X01 open	IN D04/D06			x	x			
	Status indication Truck: X01 closed	IN D05/D07			x	x			
	Status indication Truck: X02 open	IN D10/D12			x	x			
	Status indication Truck: X02 closed	IN D11/D13			x	x			
	Status indication ES: Q15 open	IN D14			x				
	Status indication ES: Q15 closed	IN D15			x				
	Status indication ES: Q16 open	IN D16				x			
	Status indication ES: Q16 closed	IN D17				x			
	Status indication ES: Q25 open	IN D00			x				
	Status indication ES: Q25 closed	IN D01			x				
	Status indication ES: Q26 open	IN D02				x			
	Status indication ES: Q26 closed	IN D03				x			
	CB: Motor Drive Failure	IN D04			x			x	
	CB: Spring not charged	IN D05			x			x	
	CB: Local Control	IN D06			x				x

Alarm	Bay	SAT - Peripheral Elements				L10	L11	Type of Signal	
	Type	Modul 1 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	Modul 2 DI-6103 Binary Input Module 2x8, 110/220 VCD, 1 ms	DO-6212 Binary Output Module 1x8, 24-220 VDC/230 VAC	Longitudinal Coupler	Busbar Riser	Alarm	Failure/Trip	Information
	Arc detection system ILS: Trip		IN D07/D10		x	x		x	
	Arc detection system ILS: Failure/Blocked		IN D11				x		
	Bay alarm ( MCB-Trips AC/DC )/Ventilation failure		IN D12/D13		x	x	x		
	Signalling Voltage		IN D17		x				
<b>Summarized Number of processed binary signals:</b>						<b>29</b>			
<b>Binary Outputs</b>									
	Command CB: Q01 open			OUT D00	x				
	Command CB: Q01 close			OUT D01	x				
	Command CB: Q02 open			OUT D02	x				
	Command CB: Q02 close			OUT D03	x				
<b>Summarized Number of processed binary commands:</b>						<b>4</b>			

