



TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td
Q 22011_T		ANALYTIC VAPORIZER	0...50 °C																		014		
TIC																							
Q 23013		PPM O2 IN LIN TO STORAGE	0...10 ppm																		011		
QIAHSAHH																							
Q 23013_2		PPM O2 IN LIN TO STORAGE	0...1000 ppm																		011		
QIAHSAHH																							
Q 23013_T		ANALYTIC VAPORIZER	0...50 °C																		011		
TIC																							
Q 23016		% O2 IN LOX TO STORAGE	98...100 %	SA	PCS	1	A	PCS	3												011		
QIALSALL																							
Q 23016_2		% O2 IN LOX TO STORAGE	0...100 %	SA	PCS	1	A	PCS	3												011		
QIALSALL																							
Q 23016_T		ANALYTIC VAPORIZER	0...50 °C																		011		
TIC																							
Legend:																							
F = local, V = local cabinet, S = control room, PCS = process control system																							
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																							
2				24.02.2006		Frohn		Rev. 2		Project: K70101				ASU No.09 Kosice				AIR LIQUIDE		Dwg.- No.:			
3				16.11.2006		Möller		As Buildt															
0				21.12.2004		Frohn		Initial version															
Rev.		Date		Name		Checked		MEASURING RANGE & LIMIT VALUES				Air Liquide AGS GmbH Füdlingsweg 34 D-47805 Krefeld, Germany				Page		51		Number of pages		97	

TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
FUNCTION	S/A			loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td			
	threshold			threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold							
Q 40011	QICAHL	% O2 IN SIDEARM LIQUID	80...100 %				A	PCS	3	A	PCS	3							016		
Q 40011_2	QICAHL	% O2 IN SIDEARM LIQUID	0...100 %				A	PCS	3	A	PCS	3			90%				016		
Q 40012	QIAHSAHH	PPM O2 IN CAR COLUMN K40002	0...10 ppm							A	PCS	3	SA	PCS	1				017		
Q 40012_2	QIAHSAHH	PPM O2 IN CAR COLUMN K40002	0...1000 ppm							A	PCS	3	SA	PCS	1				017		
Q 40014_T	TIC	ANALYTIC VAPORIZER	0...50 °C																017		
Q 43033	QIAHSAHH	PPM O2 IN LAR PRODUCT	0...10 ppm							A	PCS	3	SA	PCS	1				018		
Q 43033_2	QIAHSAHH	PPM O2 IN LAR PRODUCT	0...1000 ppm							A	PCS	3	SA	PCS	1				018		
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																					
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE		Drwg.- No.:					
3	16.11.2006	Möller	As Build	ASU No.09 Kosice																	
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füßingweg 34 D-47805 Krefeld, Germany		Page		Number of pages			
Rev.	Date	Name	Checked													52		97			

Legend:										F = local, V = local cabinet, S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
2	24.02.2006	Frohn	Rev. 2	Project: K70101										<div><div>AIR LIQUIDE</div><div></div></div>										Dwg.- No.:					
3	16.11.2006	Möller	As Built	ASU No.09 Kosice										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany										Page		Number of pages			
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES																				52		97			
Rev.	Date	Name	Checked																										

TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS
				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn		
FUNCTION				threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold					
Q 43033_ T		ANALYTIC VAPORIZER	0...50 °C														
TIC																	
Q 43034_ 1		PPM H2 IN LAR	0...10 ppm														
QI																	
Q 43034_ 2		PPM N2 IN LAR	0...10 ppm						A	PCS	3	SA	PCS	1			
QIAHSAHH																	
Q 43034_ 3		PPM CO2 IN LAR	0...5 ppm														
QIAH																	
Q 43034_ 4		PPM CO IN LAR	0...2 ppm						A	PCS	3	SA	PCS	1			
QIAHSAHH																	
Q 43034_ 5		PPM NMHC IN LAR	0...2 ppm						A	PCS	3	A	PCS	1			
QIAHSAHH																	
Q 43034_ 6		PPM CH4 IN LAR	0...2 ppm														
QI																	
Legend:																	
F = local, V = local cabinet , S = control room, PCS = process control system																	
Annotation on column "Hook Up": (FPr) = Frost Protection recommended																	
2		24.02.2006	Frohn	Rev. 2	Project:			K70101			AIR LIQUIDE			Dwg.-No.:		P&I SHEET	
3		16.11.2006	Möller	As Built				ASU No.09 Kosice						Page		53	
0		21.12.2004	Frohn	Initial version				MEASURING RANGE & LIMIT VALUES			Air Liquide AGS GmbH Fühgsweg 34 D-47805 Krefeld, Germany			Number of pages		97	
Rev.		Date	Name	Checked													

**Annotation on column "Hook Up":**  
(FP\*) = Frost Protection recommended

F = local, V = local cabinet, S = control room, PCS = process control system

**AIR LIQUIDE**

Project: K70101

ASU No.09 Kosice

Drwg.-

**Vir Liquide AGS GmbH**  
Füttingsweg 34  
D-47805 Krefeld, Germany

## MEASURING RANGE & LIMIT VALUES

Checked	Change
---------	--------

Name \_\_\_\_\_

Date \_\_\_\_\_

Number of pages

53

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS								
FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td				
Q 64051		% O2 IN GOX OUTLET W64001	98...100 %	SA	PCS	1	A	PCS	3										034						
QIALSALL																									
Q 64051_2		% O2 IN GOX OUTLET W64001	0...100 %																034						
QI																									
Q 74090		PPM O2 IN MP GAN	0...10 ppm																036						
QIAHSAHH								A	PCS	3	A	PCS	1												
Q 74090_2		PPM O2 IN MP GAN	0...1000 ppm																036						
QI																									
S 24124		SPEED EXPANDER TURBINE 1	0...50000 rpm	SA	PCS	1	SA	PCS	3	SA	PCS	3	SA	PCS	1				029	HARD SWITCH: SHH = 37964					
SISAHLSAHHLL																									
S 24224		SPEED EXPANDER TURBINE 2	0...50000 rpm/m in	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	1				030	HARD SWITCH: SHH = 37964					
SISAHLSAHHLL																									
S 73101		SPEED LIN BACKUP PUMP P73100	0...84 Hz				S	PCS	4										037						
SISL																									
Legend:																		F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: K70101														Dwg.- No.:		Page		Number of pages			
3	16.11.2006	Möller	As Build	ASU No.09 Kosice														AIR LIQUIDE		Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany					
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES																					
Rev.	Date	Name	Checked																						



TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS				
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td		
T 11022		AIR INLET VW11022	0...160 °C														001				
TIAH																					
T 11026		AIR OUTLET VW11021	0...160 °C														001				
TIAH																					
T 11027		AIR OUTLET VW11022	0...160 °C														001				
TIAH																					
T 11031		AIR INLET VW11031	0...160 °C														001				
TIAH																					
T 11032		AIR INLET VW11032	0...160 °C														001				
TIAH																					
T 11036		AIR OUTLET VW11031	0...160 °C														001				
TIAH																					
T 11037		AIR OUTLET VW11032	0...160 °C														001				
TIAH																					
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up*": (FP*) = Frost Protection recommended																					
2 24.02.2006				Frohn				Rev. 2				Project: K70101				Dwg.-No.:		56		97	
3 16.11.2006				Möller				As Build				ASU No.09 Kosice				AIR LIQUIDE		Page		Number of pages	
0 21.12.2004				Frohn				Initial version				MEASURING RANGE & LIMIT VALUES				Air Liquide AGS GmbH Füßingsweg 34 D-47805 Krefeld, Germany					
Rev.				Date				Name				Checked				Change					

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

F = local, V = local cabinet, S = control room, PCS = process control system

**Legend:**

**Project:**

K70101

ASU No.09 Kosice

## MEASURING RANGE & LIMIT VALUES

Initial version	Change
Checked	

Name \_\_\_\_\_  
From \_\_\_\_\_

0	Rev.	21.12.2007
	Date	

**AIR LIQUIDE**

**air Liquide AGS GmbH**  
Füttingsweg 34  
D-47805 Krefeld, Germany

Drwg.-  
No.:

Number of pages


97

TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W	Kp	Tn	Td			
T 11041		AIR DISCHARGE 4TH STAGE MAC	0...160 °C																001					
TIAHSAHH																								
T 11505		COOLING WATER MAC	0...60 °C																001	local indicator				
TI																								
T 11515		COOLING WATER BEHIND VW11011	0...60 °C																001	local indicator				
TI																								
T 11516		COOLING WATER BEHIND VW11012	0...60 °C																001	local indicator				
TI																								
T 11525		COOLING WATER BEHIND VW11021	0...60 °C																001	local indicator				
TI																								
T 11526		COOLING WATER BEHIND VW11022	0...60 °C																001	local indicator				
TI																								
T 11535		COOLING WATER BEHIND VW11031	0...60 °C																001	local indicator				
TI																								
Legend:																								
F = local, V = local cabinet , S = control room, PCS = process control system																								
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																								
2		24.02.2006	Frohn	Rev. 2	Project: K70101																Drwg.-No.:			
3		16.11.2006	Möller	As Build	ASU No.09 Kosice																			
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES																			
Rev.		Date	Name	Checked																	Page		Number of pages	
				Change																	57		97	

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&J SHEET	REMARKS
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn		
				threshold			threshold				threshold						
T 11536		COOLING WATER BEHIND VW11032	0...60 °C												001	local indicator	
TI																	
T 11621		COOLING WATER RETURN MOTOR MAC	0...60 °C												001	local indicator	
TI																	
T 11632		COOLING WATER RETURN OIL- COOLER MAC	0...60 °C												001	local indicator	
TI																	
T 11701		BEARING MAIN MOTOR MAC	0...150 °C						A	PCS	3				027		
TIAH																	
T 11703		BEARING MAIN MOTOR MAC	0...150 °C						A	PCS	3				027		
TIAH																	
T 11715		MOTOR WINDING U MAC	0...200 °C						A	PCS	3	SA	PCS	1	027		
TIAHSAH																	
T 11718		MOTOR WINDING V MAC	0...200 °C						A	PCS	3	SA	PCS	1	027		
TIAHSAH																	
Legend:																	
F = local, V = local cabinet, S = control room, PCS = process control system																	
Annotation on column "Hook Up": (F-P*) = Frost Protection recommended																	
Project: K70101				ASU No.09 Kosice				AIR LIQUIDE				Dwg.- No.:		Page 58			
Rev. 2				As Build				Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany				Page 58		Number of pages 97			
24.02.2006				Frohn				Initial version				Page 58		Number of pages 97			
16.11.2006				Möller				Change				Page 58		Number of pages 97			
21.12.2004				Frohn				Change				Page 58		Number of pages 97			
Rev.				Name				Checked				Page 58		Number of pages 97			



TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
				threshold			threshold			threshold			threshold								
T 11721		MOTOR WINDING W MAC	0...200 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																					
T 11730		BEARING MAIN SHAFT MAC	0 .. 160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						
T 11733		BEARING MAIN SHAFT MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						
T 11735		BEARING MAIN SHAFT MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						
T 11737		BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						
T 11740		BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						
T 11743		BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH															120						

Legend:				F = local, V = local cabinet , S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended					
2	24.02.2006	Frohn	Rev. 2	Project: K70101				AIR LIQUIDE				Dwg.-No.:	
3	16.11.2006	Möller	As Built	ASU No.09 Kosice									
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES				Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany				Page	
Rev.	Date	Name	Checked									59	
			Change									Number of pages	
												97	

Legend:										F = local, V = local cabinet, S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
2	24.02.2006	Frohn	Rev. 2	Project: K70101												AIR LIQUIDE												Drwg.- No.:	
3	16.11.2006	Möller	As Build	ASU No.09 Kosice												Air Liquide AGS GmbH												Page	
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES												Füttingsweg 34												Number of pages	
Rev.	Date	Name	Checked													D-47805 Krefeld, Germany												97	



TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS	
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
				threshold			threshold			threshold								
T 12072		COOLING WATER TO KA12002	0...60 °C														002	local indicator
T 13005		AIR BEHIND DC/AC	-30...+50 °C							A	PCS	3	SA	PCS	1		002	
T 13026		CHILLED WATER TO DC/AC	-30...+50 °C							A	PCS	3			20		002	
T 15011		REGEN GAS DISCHARGE A15001	0...250 °C							A	PCS	3	A	PCS	1		004	
T 15021		REGEN GAS DISCHARGE MS15002	0...250 °C												100		004	
T 15035		AIR BEHIND MOL SIEVE	0...100 °C							A	PCS	3	SA	PCS	1		004	
T 15040		REGENERATION GAS HEATER HE15001	0...250 °C												65		005	

Legend:

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up": (FP\*) = Frost Protection recommended

Project: K70101

ASU No.09 Kosice

MEASURING RANGE & LIMIT VALUES

Rev. 2

As Build

Initial version

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006

16.11.2006

21.12.2004

Frohn

Möller

Frohn

Date

Name

Checked

Rev.

2

3

0

24.02.2006


16.11.2006

21.12.2004

Fro

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td						
T 15043		REGENERATIO N GAS	0...250 °C				A	PCS	3	A	PCS	3	SA	PCS	1	005								
TICAHLSAHH																								
T 16007		AIR INLET BAC	0...60 °C							A	PCS	3	S	PCS	1	006								
TIAHLAHH																								
T 16011		AIR BEHIND 1ST STAGE BAC	0...60 °C													006								
TI																								
T 16012		AIR BEHIND 1ST STAGE BAC	0...60 °C													006	local indicator							
TI																								
T 16015		AIR BEHIND 1ST STAGE VW16001	0...60 °C							A	PCS	3	SA	PCS	1	006								
TIAHSAHH																								
T 16016		AIR BEHIND 1ST STAGE VW16001	0...60 °C													006	local indicator							
TI																								
T 16021		AIR BEHIND 2ND STAGE BAC	0...200 °C													006								
TI																								
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:						
3	16.11.2006	Möller	As Build	ASU No.09 Kosice										AIR LIQUIDE				Page		62				
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany				Number of pages		97				
Rev.	Date	Name	Checked																					

TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td			
FUNCTION																								
T 16022		AIR BEHIND 2ND STAGE BAC	0...60 °C															local indicator						
T 16025		AIR BEHIND 2ND STAGE VW16002	0...60 °C																					
T 16026		AIR BEHIND 2ND STAGE VW16002	0...60 °C															local indicator						
T 16031		AIR BEHIND 3RD STAGE BAC	0...200 °C																					
T 16032		AIR BEHIND 3RD STAGE BAC	0...60 °C															local indicator						
T 16035		AIR BEHIND 3RD STAGE VW16003	0...60 °C																					
T 16036		AIR BEHIND 3RD STAGE VW16003	0...60 °C															local indicator						
Legend:																								
F = local, V = local cabinet, S = control room, PCS = process control system																								
Annotation on column "Hook Up": (F-P) = Frost Protection recommended																								
24.02.2006		Frohn		Rev. 2		Project: K70101													Dwg.-No.:		63		97	
16.11.2006		Möller		As Built		ASU No.09 Kosice													Page		Number of pages			
21.12.2004		Frohn		Initial version		MEASURING RANGE & LIMIT VALUES													Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany					
Rev.	Date	Name		Checked																				

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W			Kp	Tn
T 16041		AIR BEHIND 4TH STAGE BAC	0...200 °C															006	
T1																			
T 16042		AIR BEHIND 4TH STAGE BAC	0...60 °C															006	local indicator
T1																			
T 16045		AIR BEHIND 4TH STAGE VW16004	0...60 °C															006	
T1A5AHH									A	PCS	3	A	PCS	1					
T 16046		AIR BEHIND 4TH STAGE VW16004	0...60 °C															006	local indicator
T1																			
T 16512		COOLING WATER BEHIND VW16001	0...60 °C															006	local indicator
T1																			
T 16522		COOLING WATER BEHIND VW16002	0...60 °C															006	local indicator
T1																			
T 16532		COOLING WATER BEHIND VW16003	0...60 °C															006	local indicator
T1																			
Legend:																			
F = local, V = local cabinet, S = control room, PCS = process control system																			
Annotation on column "Hook Up": (F-P*) = Frost Protection recommended																			
2 24.02.2006				Frohn		Rev. 2		Project: K70101				 AIR LIQUIDE		Drwg.- No.:					
3 16.11.2006				Möller		As Built		ASU No.09 Kosice						Page		64			
0 21.12.2004				Frohn		Initial version		MEASURING RANGE & LIMIT VALUES				Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany		Number of pages		97			
Rev.				Date		Checked		Name		Change									

[illegible]

TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td				
				threshold			threshold			threshold			threshold										
T 16730		BEARING MAIN SHAFT BAC	0...150 °C							A	PCS	3	SA	PCS	1					028			
TIAHSAHH																							
T 16733		BEARING MAIN SHAFT BAC	0...150 °C							A	PCS	3	SA	PCS	1					028			
TIAHSAHH																							
T 16734		BEARING MAIN SHAFT BAC	0...150 °C							A	PCS	3	SA	PCS	1					028			
TIAHSAHH																							
T 16735		BEARING MAIN SHAFT BAC	0...150 °C							A	PCS	3	A	PCS	1					028			
TIAHSAHH																							
T 16736		BEARING 1ST STAGE BAC	0...150 °C							A	PCS	3	SA	PCS	1					028			
TIAHSAHH																							
T 16738		BEARING 2ND STAGE BAC	0...150 °C							A	PCS	3	A	PCS	1					028			
TIAHSAHH																							
T 16740		BEARING 3RD STAGE BAC	0...150 °C							A	PCS	3	SA	PCS	1					028			
TIAHSAHH																							
Legend:																							
F = local, V = local cabinet, S = control room, PCS = process control system																							
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																							
2		24.02.2006	Frohn	Rev. 2		Project: K70101										AIR LIQUIDE				Dwg.-No.:			
3		16.11.2006	Möller	As Build		ASU No.09 Kosice										Air Liquide AGS GmbH				Page		66	
0		21.12.2004	Frohn	Initial version		MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH				Number of pages		97	
Rev.		Date	Name	Checked												Fittingsweg 34				Page		66	
				Change												D-47805 Krefeld, Germany							



TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
T 16743		BEARING 4TH STAGE BAC	0...150 °C																028		
TIAHSAHH																					
T 16810		OIL HEATING W16810 BAC	0...100 °C																028		
TCAHSHH																					
T 16812		LUBE OIL TANK BAC	°C																028		
TI																			local indicator		
T 16813		LUBE OIL TANK BAC	0...60 °C																028		
TI																					
T 16854		LUBE OIL BAC	0...100 °C																028		
TIAHLSAHH																					
T 16855		LUBE OIL BAC	0...60 °C																028		
TI																			local indicator		
T 20001		HP-GAN OUTLET COLDBOX	-50...+50 °C																010		
TIALSELL																					
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																					
2		24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:		
3		16.11.2006	Möller	As Build	ASU No.09 Kosice										Air Liquide AGS GmbH				Page		
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH				Number of pages		
Rev.		Date	Name	Checked											Fittingsweg 34 D-47805 Krefeld, Germany				97		

TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	threshold			W	Kp	Tn	Td			
T 20003		HP-GAN TO CUSTOMER	-20...+40 °C																010					
TI																								
T 20004		HP-LIN FROM LIN-PUMPS	-200...+50 °C																009					
TI																								
T 20005		LP-GAN OUTLET COLDBOX	-50...+50 °C	SA	PCS	1	A	PCS	3										010					
TIALSALL																								
T 20006		AIR TO HP-COLUMN C21001	-200...+50 °C																009					
TI																								
T 20007		HP-LOX FROM LOX-PUMPS	-200...+50 °C																009					
TI																								
T 20008		HP-AIR OUTLET MHE	-200...+50 °C																009					
TIC																								
T 20009		WASTE N2 INLET MHE	-200...+50 °C																009					
TI																								
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: K70101				ASU No.09 Kosice				AIR LIQUIDE				Dwg.-No.:								
3	16.11.2006	Möller	As Build																					
0	21.12.2004	Frohn	Initial version																					
Rev.	Date	Name	Checked	MEASURING RANGE & LIMIT VALUES												Page 68 Number of pages 97								


TAG-NO.	DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS		
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W
<b>FUNCTION</b>																		
<b>T 20010</b>	<b>GAN FROM W2301</b>	<b>-200...+50 °C</b>																
<b>T 20011</b>	<b>GOX OUTLET COLDBOX</b>	<b>-50...+50 °C</b>	SA	PCS	1	A	PCS	3										
<b>T 20013</b>	<b>GOX TO CUSTOMER</b>	<b>-20...+40 °C</b>																
<b>T 20023</b>	<b>LP-GAN OUTLET COLDBOX</b>	<b>-50...+50 °C</b>				A	PCS	3										
<b>T 20025</b>	<b>HP-GAN OUTLET COLDBOX</b>	<b>-50...+50 °C</b>	ZA	S	1	A	PCS	3										
<b>T 20026</b>	<b>HP-GAN OUTLET COLDBOX</b>	<b>-50...+50 °C</b>																
<b>T 20027</b>	<b>GOX OUTLET COLDBOX</b>	<b>-50...+50 °C</b>	ZA	S	1	A	PCS	3										
<b>Legend:</b> F = local, V = local cabinet, S = control room, PCS = process control system																		
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																		
<b>Project:</b>			<b>AIR LIQUIDE</b>															
<b>ASU No.09 Kosice</b>			<b>Drwg.-No.:</b>															
<b>MEASURING RANGE &amp; LIMIT VALUES</b>			<b>Page</b>															
<b>Rev.</b>			<b>Number of pages</b>															

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS					
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td			
T 20028		GOX OUTLET COLD BOX	-50...+50 °C	ZA	S	1	A	S	3								009					
TIALZALL																						
T 20029		WASTE N2 OUTLET MHE	-50...+50 °C				A	PCS	3								009					
TIAL																						
T 21006		LIN TO B21002	-200...+50 °C														014					
TI																						
T 23013		LIN PRODUCT TO STORAGE	-200...+50 °C														011					
TI																						
T 23014		CRUDE LOX BEHIND SUBCOOLER	-200...+50 °C														011					
TI																						
T 23015		LIQUID AIR BEHIND SUBCOOLER	-200...+50 °C														011					
TI																						
T 24101		AIR TO EXPANDER TURBINE 1	-150...+50 °C	S	PCS	1	A	PCS	3								007	*) LL = 37,253 * LN(P24101/P24102 + P24101 - P24102) + 26,688 - 273,15				
TIALSLL																						
Legend:																	Annotation on column "Hook Up": (FP*) = Frost Protection recommended					
F = local, V = local cabinet, S = control room, PCS = process control system																	Dwg.- No.:		Page		Number of pages	
Project: K70101																	AIR LIQUIDE		Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany		97	
ASU No.09 Kosice																	MEASURING RANGE & LIMIT VALUES					
Rev. 2																	As Build		Initial version		Change	
Frohn																	Möller		Frohn		Name	
24.02.2006																	16.11.2006		21.12.2004		Date	
2																	3		0		Rev.	

TAG-NO.	DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS							
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td									
																					threshold	threshold	threshold	threshold	threshold	threshold	
T 24102	AIR OUTLET EXPANDER TURBINE 1	-200...+50 °C				A	PCS	3											007	*) LL = -0,2332 * P24102^2 + 4,8877 * P24102 + 79,942 - 273,15							
TIAL																											
T 24120	BEARING EXPANDER TURBINE 1	-50...+150 °C				A	PCS	3	A	PCS	3	A	PCS	3					029								
TIAHSAHH															20												
T 24121	BEARING EXPANDER TURBINE 1	-50...+150 °C				A	PCS	3	A	PCS	3	A	PCS	3					029								
TIAHSAHH															20												
T 24122	BEARING EXPANDER TURBINE 1	-50...+150 °C							A	PCS	3	A	PCS	3					029								
TIAHSAHH																											
T 24123	BEARING EXPANDER TURBINE 1	-50...+150 °C				A	PCS	3	A	PCS	3	A	PCS	3					029								
TIAHSAHH															20												
T 24130	COOLING WATER REFLUX TURBINE 1	0...60 °C																	029	local indicator							
TI																											
T 24151	OIL BEHIND GEARBOX TURBINE 1	0...100 °C																	029								
TI																											
Legend:																			F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
2	24.02.2006	Frohn	Rev. 2	Project: K70101										ASU No.09 Kosice				AIR LIQUIDE		Drwg.- No.:		Page		Number of pages		97	
3	16.11.2006	Möller	As Build																								
0	21.12.2004	Frohn	Initial version																								
Rev.	Date	Name	Checked																								

TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td									
T 24160		OIL HEATING W24160 TURBINE 1	0...100 °C																029									
TCAHSAHH																												
T 24161		OIL CONTAINER EXPANDER TURBINE 1	0...100 °C				A	PCS	3										029									
TAL																												
T 24162		OIL CONTAINER EXPANDER TURBINE 1	0...120 °C																029	local indicator								
TI																												
T 24168		OIL BEHIND OILFILTER TURBINE 1	0...120 °C																029	local indicator								
TI																												
T 24169		LUBE OIL EXPANDER TURBINE 1	0...100 °C	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1				029									
TIAHLSAHHLL																												
T 24171		BEARING MOTOR TURBINE 1	0...+150 °C																029									
TIAHSAHH																												
T 24173		BEARING MOTOR TURBINE 1	0...+150 °C																029									
TIAHSAHH																												
Legend:																					F = local, V = local cabinet , S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:										
3	16.11.2006	Möller	As Buildt	ASU No.09 Kosice										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany				Page										
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES														72			Number of pages							
Rev.	Date	Name	Checked															97										



TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS			
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td		
				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold									
T 24222		BEARING EXPANDER TURBINE 2	-50...+150 °C						A	PCS	3	A	PCS	1		030				
TIAHSAHH																				
T 24223		BEARING EXPANDER TURBINE 2	0...+150 °C				A	PCS	3	A	PCS	3	SA	PCS	1	030				
TIAHLSAHH																				
T 24230		COOLING WATER REFLUX TURBINE 2	0...60 °C													030	local indicator			
TI																				
T 24251		OIL BEHIND GEARBOX TURBINE 2	0...100 °C				A	PCS	3	A	PCS	3	S	PCS	1	030				
TIAHLSHH																				
T 24260		OIL HEATING W24260 TURBINE 2	°C						A	PCS	3	SA	PCS	1		030				
TCAHSAHH																				
T 24261		OIL CONTAINER EXPANDER TURBINE 2	0...120 °C				A	PCS	3							030	local indicator			
TIAL																				
T 24262		OIL CONTAINER EXPANDER TURBINE 2	0...100 °C													030				
TI																				
Legend: F = local, V = local cabinet , S = control room, PCS = process control system																	Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2		24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE		Drwg.-No.:			
3		16.11.2006	Möller	As Build	ASU No.09 Kosice															
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Fühlingweg 34 D-47805 Krefeld, Germany					
Rev.		Date	Name	Checked													Page		74	
																	Number of pages		97	





TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W	Kp	Tn	Td			
T 24268		OIL BEHIND OILFILTER TURBINE 2	0...100 °C																030	local indicator				
TI																								
T 24269		LUBE OIL EXPANDER TURBINE 2	0...100 °C	SA	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1				030					
TIAHLSAHL																								
T 24271		BEARING MOTOR TURBINE 2	0...+150 °C																030					
TIAHSAH																								
T 24273		BEARING MOTOR TURBINE 2	0...+150 °C																030					
TIAHSAH																								
T 24275		MOTOR WINDING U TURBINE 2	0...+200 °C																030					
TIAHSAH																								
T 24276		MOTOR WINDING V TURBINE 2	0...+200 °C																030					
TIAHSAH																								
T 24277		MOTOR WINDING W/ TURBINE 2	0...+200 °C																030					
TIAHSAH																								
Legend:																	F = local, V = local cabinet , S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2		24.02.2006	Frohn	Rev. 2	Project: K70101										Drwg.- No.:				Page		Number of pages			
3		16.11.2006	Möller	As Build	ASU No.09 Kosice										AIR LIQUIDE				Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany					
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES																			
Rev.		Date	Name	Checked																				

TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS	
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td
T 40009		CR-LOX BEHIND B40001	-200...+50 °C																	017		
TIAH																						
T 40011		SIDEARMLIQUID FROM LP-COLUMN	-200...+50 °C																	016		
TI																						
T 40013		LAR PREPRODUCT DISCHARGE CAR-COLUMN	-200...+50 °C																	017		
TI																						
T 40014		LAR BEHIND CONDENSER BL40001	-200...+50 °C																	017		
TI																						
T 40130		COOLING DOWN TEMP. P40100	-200...+50 °C				S	PCS	3											016		
TISL																						
T 40140		BEARING TEMP. P40100	-100...+50 °C	S	PCS	1	A	PCS	3											016		
TALSLL																						
T 40141		BEARING TEMP. P40100	-100...+100 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1					016		
TIAHSHLL																						
Legend:		F = local, V = local cabinet, S = control room, PCS = process control system																			Annotation on column "Hook Up": (FP*) = Frost Protection recommended	
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE		Dwg.-No.:						
3	16.11.2006	Möller	As Built	ASU No.09 Kosice																		
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany		Page		Number of pages				
Rev.	Date	Name	Checked													76		97				


TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS										
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td								
T 43034		LAR PRODUCT TO STORAGE	-200...+50 °C															018									
T 44104		OVERFLOW LP LAR TANK 1 B44101	-200...+50 °C				SA	PCS	1									041									
T 44204		OVERFLOW LP LAR TANK 2 B44201	-200...+50 °C				SA	PCS	1									042									
T 48004		OVERFLOW HP LAR TANK B48001	-200...+50 °C				SA	PCS	1									044									
T 48050		COOL DOWN TEMP. P48001	-200...+50 °C				S	PCS	4									043									
T 49020		HP-GAR DISCHARGE EVAPORIZERS	-40...+60 °C	ZA	S	1	A	PCS	3									044									
T 49021		HP-GAR DISCHARGE EVAPORIZERS	-40...+60 °C	ZA	S	1	A	PCS	3									044									
Legend:																				F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (F-P*) = Frost Protection recommended			
2		24.02.2006	Frohn	Rev. 2		Project: K70101														Drwg.- No.:		Page		Number of pages			
3		16.11.2006	Möller	As Build		ASU No.09 Kosice																					
0		21.12.2004	Frohn	Initial version		MEASURING RANGE & LIMIT VALUES																					
Rev.	Date	Name	Checked	Change																							
AIR LIQUIDE																				Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany							

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS			
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W	Kp	Tn
T 61130		COOLING DOWN TEMP. P61100	-200...+50 °C				S	PCS	3										012	
TISL																				
T 61140		BEARING TEMP. P61100	-200...+50 °C	S	PCS	1	A	PCS	3										012	
TALSLL																				
T 61141		BEARING TEMP. P61100	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1				012	
TIAHLSHLL																				
T 61230		COOLING DOWN TEMP. P61200	-200...+50 °C				S	PCS	3										012	
TISL																				
T 61240		BEARING TEMP. P61200	-200...+50 °C	S	PCS	1	A	PCS	3										012	
TALSLL																				
T 61241		BEARING TEMP. P61200	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1				012	
TIAHLSHLL																				
T 62001		COOLING DOWN TEMP. P62001	-200...+50 °C				S	PCS	4										032	
TISL																				
Legend:																				
F = local, V = local cabinet, S = control room, PCS = process control system																				
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																				
2	24.02.2006	Frohn	Rev. 2	Project: K70101			ASU No.09 Kosice			AIR LIQUIDE			Dwg.- No.:			78				
3	16.11.2006	Möller	As Build													Page				
0	21.12.2004	Frohn	Initial version													Number of pages				
Rev.	Date	Name	Checked													97				

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS			
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td		
T 62020		LOX TANK B62001	-200...+50 °C													032				
TI																				
T 62021		BOTTOM LOX TANK B62001	-200..+50 °C													032				
TI																				
T 62022		OVERFLOW PIPE LOX TANK B62001	-200...+50 °C	ZA	S	1	A	PCS	3							032				
TALZALL																				
T 62041		SEAL LEAKAGE	-200...+50 °C	SA	PCS	1	A	PCS	3							032				
TIALSALL																				
T 63001		COOL DOWN TEMP. P63001	-200...+50 °C				S	PCS	4							032				
TISL																				
T 63041		SEAL LEAKAGE	-200...+50 °C	SA	PCS	1	A	PCS	3							032				
TIALSALL																				
T 64030		LOX WATER BATH VAPORIZER	0...100 °C													034	local indicator			
TI																				
Legend: F = local, V = local cabinet , S = control room, PCS = process control system																				
Annotation on column "Hook Up": (FP) = Frost Protection recommended																				
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE			Drwg.- No.:			
3	16.11.2006	Möller	As Build	ASU No.09 Kosice										 AIR LIQUIDE						
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany			Page	79	Number of pages	
Rev.	Date	Name	Checked	Change																97

TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td	
T 64031		WATER BATH VAPORIZER GOX	0...100 °C				SA	PCS	3	A	PCS	3				40/60				034			
TICSAHL																							
T 64032		WATER BATH VAPORIZER GOX	0...100 °C				SA	PCS	3	A	PCS	3				80				034			
TISAHL																							
T 64050		GOX BEHIND WATER BAD VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3							-10				034	TIC64055 SP15°C; Kp=2, Tn=1min		
TIALZALL																							
T 64051		GOX BEHIND WATER BAD VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3							-10				034			
TIALZALL																							
T 64130		COOL DOWN TEMP. P64101	-200...+50 °C				SA	PCS	4	A	PCS	3				-115				033			
TISLAH																							
T 64140		SEAL LEAKAGE LOX PUMP P64101	-200...+100 °C	S	PCS	1	A	PCS	3							-180				033			
TIALSALL																							
T 64141		SEAL LEAKAGE LOX PUMP P64101	-200...+50 °C	SA	PCS	1	A	PCS	3							-160				033			
TIALSALL																							
Legend:																							
F = local, V = local cabinet , S = control room, PCS = process control system																							
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																							
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Dwg.- No.:					
3	16.11.2006	Möller	As Build	ASU No.09 Kosice										 AIR LIQUIDE									
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany									
Rev.	Date	Name	Checked															Page 80				Number of pages 97	

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS				
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td			
T 64230		COOL DOWN TEMP. P64201	-200...+50 °C				SA	PCS	4								033				
TISLAH																					
T 64240		SEAL LEAKAGE LOX PUMP P64201	-200...+50 °C	S	PCS	1	A	PCS	3								033				
TIALSALL																					
T 64241		SEAL LEAKAGE LOX PUMP P64201	-200...+50 °C	SA	PCS	1	A	PCS	3								033				
TIALSALL																					
T 70001		INLET GAN COMPRESSOR 1	0...60 °C														019				
TI																					
T 70015		GAN BEH. COOLER 1ST STAGE	0...200 °C							A	PCS	3	SA	PCS	1		019				
TIAHSAHH																					
T 70025		GAN BEH. COOLER 2ND STAGE	0...200 °C							A	PCS	3	SA	PCS	1		019				
TIAHSAHH																					
T 70035		GAN BEH. COOLER 3RD STAGE	0...200 °C							A	PCS	3	SA	PCS	1		019				
TIAHSAHH																					
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (F-P-V) = Frost Protection recommended																					
2				24.02.2006		Frohn		Rev. 2		Project:				K70101		Dwg.- No.:		81		97	
3				16.11.2006		Möller		As Build		ASU No.09 Kosice				Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany		Page					
0				21.12.2004		Frohn		Initial version		MEASURING RANGE & LIMIT VALUES											
Rev.		Date		Name		Checked		Change													

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS				
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W	Kp	Tn	Td
T 70041		MP-GAN TO CUSTOMER	-20...+40 °C				A	PCS	3										020	local indicator	
TIAL																					019
T 70512		COOLING WATER BEH. VW70001	0...60 °C																019	local indicator	
Ti																					019
T 70522		COOLING WATER BEH. VW70002	0...60 °C																019	local indicator	
Ti																					019
T 70532		COOLING WATER BEH. VW70003	0...60 °C																019	local indicator	
Ti																					019
T 70621		COOLING WATER BEH. MOTOR	0...60 °C																019	local indicator	
Ti																					019
T 70701		BEARING MAIN MOTOR GAN COMP. 1	0...150 °C							A	PCS	3	SA	PCS	1				021		
TIAHSAHH																					021
T 70703		BEARING MAIN MOTOR GAN COMP. 1	0...150 °C							A	PCS	3	SA	PCS	1				021		
TIAHSAHH																					021
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																					
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:			
3	16.11.2006	Möller	As Build	ASU No.09 Kosice										 AIR LIQUIDE							
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füßingsweg 34 D-47805 Krefeld, Germany				Page			
Rev.	Date	Name	Checked															82		Number of pages	
																		97			



TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS				
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td			
				threshold			threshold			threshold			threshold												
T 70715		MOTOR WINDING U COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70718		MOTOR WINDING V COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70721		MOTOR WINDING W COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70736		BEARING 1.ST STAGE GAN COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70737		BEARING 1.ST STAGE GAN COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70738		BEARING 2.ND STAGE GAN COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
T 70739		BEARING 2.ND STAGE GAN COMP. 1	0...200 °C								A	PCS	3			SA	PCS	1			021				
TIAHSAHH																									
Legend:																									
F = local, V = local cabinet, S = control room, PCS = process control system																									
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																									
2				24.02.2006				Frohn				Rev. 2				Project: K70101				AIR LIQUIDE				Dwg.- No.:	
3				16.11.2006				Möller				As Built				ASU No.09 Kosice				Air Liquide AGS GmbH Füßingweg 34 D-47805 Krefeld, Germany				Page	
0				21.12.2004				Frohn				Initial version				MEASURING RANGE & LIMIT VALUES				97					
Rev.				Date				Name				Checked								83					
								Change																	

TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn		
				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold							
T 70740	TIAHSAHH	BEARING 3.RD STAGE GAN COMP. 1	0...200 °C								A	PCS	3	SA	PCS	1				021	
T 70741	TIAHSAHH	BEARING 3.RD STAGE GAN COMP. 1	0...200 °C								A	PCS	3	SA	PCS	1				021	
T 70742	TIAHSAHH	BEARING 4.TH STAGE GAN COMP. 1	0...200 °C								A	PCS	3	SA	PCS	1				021	
T 70743	TIAHSAHH	BEARING 4.TH STAGE GAN COMP. 1	0...200 °C								A	PCS	3	SA	PCS	1				021	
T 70810	TCSAH	OIL HEATING W11810 GAN COMP. 1	°C																	021	
T 70815	TCSAH	OIL HEATING W70815 GAN COMP. 1	°C																	021	
T 70854	TIAHLSAHH	LUBE OIL GAN COMP. 1	0...100 °C					A	PCS	3	A	PCS	3	SA	PCS	1				021	

Legend:

F = local, V = local cabinet , S = control room, PCS = process control system

Annotation on column "Hook Up": (FP\*) = Frost Protection recommended

2

24.02.2006

Frohn

Rev. 2

Project: K70101

AIR LIQUIDE

Air Liquide AGS GmbH  
Füttingsweg 34  
D-47805 Krefeld, Germany

3

16.11.2006

Möller

As Build

ASU No.09 Kosice

0

21.12.2004

Frohn

Initial version

MEASURING RANGE & LIMIT VALUES

Rev.

Date

Name

Checked

Change

Dwg.-No.:

Page

Number of pages

84

97



TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS									
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td							
T 72022		OVERFLOW PIPE LIN TANK B72001	-200...+50 °C	ZA	S	1	A	PCS	3												035									
TALZALL																														
T 73005		OVERFLOW MP LIN TANK BL73001	-200...+50 °C	SA	PCS	1	A	PCS	3												038									
TIALSAL																														
T 73031		WATER BATH VAPORIZER GAN	0...100 °C				SA	PCS	3	A	PCS	1					40/60	0,6	2min 45s		039	TIC73051, W=0°C, Kp=3, Tn=20s								
TICSAHL																														
T 73032		WATER BATH VAPORIZER GAN	0...100 °C																		039									
TISAHL																														
T 73051		GAN BEHIND WATER BATH VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3								0	3	20s		039									
TIALZALL; TIC																														
T 73057		GAN BEHIND WATER BATH VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3												039									
TIALZALL																														
T 73130		COOL DOWN TEMP. P73101	-200...+50 °C				S	PCS	4	A	PCS	3									037									
TISLAH																														
Legend:																							F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:												
3	16.11.2006	Möller	As Build	ASU No.09 Kosice										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany				Page		86										
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES														Page		Number of pages										
Rev.	Date	Name	Checked																	97										

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td
T 73131		WATER BATH NAT. GAS VAP. LIN	°C														040		
TSL																			
T 73132		WATER BATH NAT. GAS VAP. LIN	°C														040		
TSL																			
T 73133		WATER BATH NAT. GAS VAP. LIN	°C														040		
TSL																			
T 73134		WATER BATH NAT. GAS VAP. LIN	0...100 °C														040		
TI																			
T 73135		WATER BATH NAT. GAS VAP. LIN	0...100 °C														040	local indicator	
TI																			
T 73140		SEAL LECKAGE LIN BACK UP PUMP P73101	-200...+50 °C	SA	PCS	1	A	PCS	3								037		
TIALSALL																			
T 73141		SEAL LEAKAGE LIN BACK UP PUMP P73101	-200...+50 °C	SA	PCS	1	A	PCS	3								037		
TIALSALL																			
Legend:																			
F = local, V = local cabinet, S = control room, PCS = process control system																			
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																			
2				24.02.2006		Frohn		Rev. 2		Project: K70101				ASU No.09 Kosice		AIR LIQUIDE		Drwg.- No.:	
3				16.11.2006		Möller													
0				21.12.2004		Frohn													
Rev.				Date		Name		Checked										Page	
																		Number of pages	
																		87	
																		97	
Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany																			

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS					
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W			Kp	Tn	Td		
T 73151		GAN BEHIND W73101	°C	ZA	S		A	PCS										040				
TIALZALL					-10																	
T 73157		GAN BEHIND W73101	°C	ZA	S		A	PCS										040				
TIALZALL					-10																	
T 73159		GAN BEHIND WBV	-40...100 °C	SA	PCS	1	A	PCS	3					0	3	20s		040				
TICALSALL					-20																	
T 73230		COOL DOWN TEMP. P73201	-200...+50 °C				S	PCS	4	A	PCS	3						037				
TISLAH														50								
T 73240		SEAL LEACKAGE LIN BACK UP PUMP P73102	-200...+50 °C	SA	PCS	1	A	PCS	3									037				
TIALSALL					-150																	
T 73241		SEAL LEACKAGE LIN BACK UP PUMP P73201	-200...+50 °C	SA	PCS	1	A	PCS	3									037				
TIALSALL					-150																	
T 74090		GAN BEHIND AIR EVAPORATOR S	-40...+60 °C	ZA	S	1	A	PCS	3									036				
TIALZALL					-40																	
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system			Annotation on column "Hook Up": (FP*) = Frost Protection recommended		
2		24.02.2006	Frohn	Rev. 2	Project: K70101												Dwg.- No.:		88		97	
3		16.11.2006	Möller	As Build	ASU No.09 Kosice														Page		Number of pages	
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES												Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany					
Rev.	Date		Name	Checked																		

TAG-NO.	DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
	FUNCTION		threshold			threshold			threshold			threshold								
T 74095	GAN BEHIND AIR EVAPORATOR S	-40...+60 °C	ZA	S	1	A	PCS	3							-2.0	1	30s		036	
TICALZALL																				
T 74130	COOL DOWN TEMP. P74101	-200...+50 °C				S	PCS	4	A	PCS	3								036	
TISLAH																				
T 74140	SEAL LEAKAGE LIN PUMP P74101	-200...+50 °C	S	PCS	1	A	PCS	3											036	
TIALSALL																				
T 74141	SEAL LEAKAGE LIN PUMP P74101	-200...+50 °C	S	PCS	1	A	PCS	3											036	
TIALSALL																				
T 74230	COOL DOWN TEMP. P74201	-200...+50 °C				SA	PCS	4	A	PCS	3								036	
TISLAH																				
T 74240	SEAL LEAKAGE LIN PUMP P74201	-200...+50 °C	SA	PCS	1	A	PCS	3											036	
TIALSALL																				
T 74241	SEAL LEAKAGE LIN PUMP P74201	-200...+50 °C	SA	PCS	1	A	PCS	3											036	
TIALSALL																				
<b>Legend:</b> F = local, V = local cabinet, S = control room, PCS = process control system Annotation on column "Hook Up": (FP*) = Frost Protection recommended																				
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE				Dwg.-No.:		
3	16.11.2006	Möller	As Built	ASU No.09 Kosice										Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany				Page		
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES														Number of pages		
Rev.	Date	Name	Checked															97		

TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS	
				S/A	loc prio	S/A	loc prio	S/A	loc prio	S/A	loc prio	threshold	threshold	W	Kp			Tn
FUNCTION				threshold		threshold		threshold		threshold								
T 77001		INLET GAN COMPRESSOR 2	0...60 °C													020		
T 77015		GAN BEH. COOLER 1ST STAGE	0...200 °C					A	PCS	3	SA	PCS	1			020		
T 77025		GAN BEH. COOLER 2ND STAGE	0...200 °C					A	PCS	3	SA	PCS	1			020		
T 77035		GAN BEH. COOLER 3RD STAGE	0...200 °C					A	PCS	3	SA	PCS	1			020		
T 77512		COOLING WATER BEH. VW77001	0...60 °C													020	local indicator	
T 77522		COOLING WATER BEH. VW77002	0...60 °C													020	local indicator	
T 77532		COOLING WATER BEH. VW77003	0...60 °C													020	local indicator	
Legend:																		
F = local, V = local cabinet , S = control room, PCS = process control system																		
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																		
2		24.02.2006	Frohn	Rev. 2	Project: K70101				AIR LIQUIDE				Drwg.- No.:		90		97	
3		16.11.2006	Möller	As Build	ASU No.09 Kosice													
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES								Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany					
Rev.		Date	Name	Checked														





TAG-NO.	DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc prio	S/A	loc prio	S/A	loc prio	S/A	loc prio	W	Kp	Tn	Td		
	FUNCTION		threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold						
T 77621	COOLING WATER MOTOR COMP. 2	0...60 °C													020	local indicator
TI																
T 77701	BEARING MAIN MOTOR GAN COMP. 2	0...150 °C													022	
TIAHSAH																
T 77703	BEARING MAIN MOTOR GAN COMP. 2	0...150 °C													022	
TIAHSAH																
T 77715	MOTOR WINDING U COMP. 2	0...200 °C													022	
TIAHSAH																
T 77718	MOTOR WINDING V COMP. 2	0...200 °C													022	
TIAHSAH																
T 77721	MOTOR WINDING W COMP. 2	0...200 °C													022	
TIAHSAH																
T 77736	BEARING 1.ST STAGE GAN COMP. 2	0...200 °C													022	
TIAHSAH																
<b>Legend:</b> F = local, V = local cabinet, S = control room, PCS = process control system Annotation on column "Hook Up": (FP*) = Frost Protection recommended																
2	24.02.2006	Frohn	Rev. 2	Project: K70101				ASU No.09 Kosice				AIR LIQUIDE		Drwg.- No.:		
3	16.11.2006	Möller	As Build													
0	21.12.2004	Frohn	Initial version													
Rev.	Date	Name	Checked	MEASURING RANGE & LIMIT VALUES										Page	91	Number of pages 97




TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS	
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W
				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold							
T 77810		OIL HEATING W11810 GAN COMP. 2	°C															
TCAH																		
T 77815		OIL HEATING W77815 GAN COMP. 2	°C															
TCSAH																		
T 77854		LUBE OIL GAN COMP. 2	0...100 °C															
TIAHLSAHH				A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1			

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS					
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W			Kp	Tn	Td		
T 87078		BOTTOM COLD-BOX	-50...+50 °C				A	PCS	3									024				
TIAL																						
T 90008		DUMP VAPORIZER OUTLET	-200...+50 °C															026				
TIC																						
T 90010		DUMP VAPORIZER OUTLET	-200...+50 °C	S	PCS	1	A	PCS	3									026				
TIALSLL																						
T 90013		DUMP VAPORIZER SUMP	-200...+50 °C	S	PCS	1	A	PCS	3									026				
TIALSLL																						
X 11740		VIBRATION GEARING MAC	0...200 µm							A	PCS	3	SA	PCS	1			027				
XIAHSAHH																						
X 11743		VIBRATION GEARING MAC	0...200 µm							A	PCS	3	SA	PCS	1			027				
XIAHSAHH																						
X 11745		VIBRATION MAIN SHAFT MAC	0...200 µm							A	PCS	3	A	PCS	1			027				
XIAHSAHH																						
Legend:																	F = local, V = local cabinet , S = control room, PCS = process control system			Annotation on column "Hook Up": (FP*) = Frost Protection recommended		
2		24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE		Dwg.- No.:		94		97	
3		16.11.2006	Möller	As Build	ASU No.09 Kosice										Air Liquide AGS GmbH Füttingsweg 34 D-47805 Krefeld, Germany		Page		Number of pages			
0		21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES																	
Rev.		Date	Name	Checked																		

Legend:										F = local, V = local cabinet , S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended																																																						
			24.02.2006			Frohn			Rev. 2			Project: K70101										<div><div></div><div>AIR LIQUIDE</div></div>										Drwg.-No.:																																										
			16.11.2006			Möller			As Build			ASU No.09 Kosice																																																														
			21.12.2004			Frohn			Initial version			MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany										Page										94										Number of pages										97												
Rev.			Date			Name			Checked			Change																																																														

TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS			
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td		
				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold									
X 11747	XIAHSAHH	VIBRATION MAIN SHAFT MAC	0...200 µm						A	PCS	3	SA	PCS	1		027				
X 16736	XIAHSAHH	VIBRATION X 1ST STAGE BAC	0...125 µm						A	PCS	3	SA	PCS	1		028				
X 16737	XIAHSAHH	VIBRATION Y 1ST STAGE BAC	0...125 µm						A	PCS	3	SA	PCS	1		028				
X 16738	XIAHSAHH	VIBRATION X 2ND STAGE BAC	0...200 µm						A	PCS	3	SA	PCS	1		028				
X 16739	XIAHSAHH	VIBRATION Y 2ND STAGE BAC	0...200 µm						A	PCS	3	SA	PCS	1		028				
X 16740	XIAHSAHH	VIBRATION X 3RD STAGE BAC	0...200 µm						A	PCS	3	SA	PCS	1		028				
X 16741	XIAHSAHH	VIBRATION Y 3RD STAGE BAC	0...200 µm						A	PCS	3	SA	PCS	1		028				
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																				
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																				
2	24.02.2006	Frohn	Rev. 2	Project: K70101										AIR LIQUIDE		Dwg.- No.:				
3	16.11.2006	Möller	As Build	ASU No.09 Kosice																
0	21.12.2004	Frohn	Initial version	MEASURING RANGE & LIMIT VALUES										Air Liquide AGS GmbH Füttingweg 34 D-47805 Krefeld, Germany		Page		95	Number of pages	97
Rev.	Date	Name	Checked																	

TAG-NO.	DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
			threshold			threshold			threshold			threshold								
<b>X 16743</b>	<b>VIBRATION X 4TH STAGE BAC</b>	<b>0...200 µm</b>							A	PCS	3	SA	PCS	1					<b>028</b>	
XIAHSAHH																				
<b>X 16744</b>	<b>VIBRATION Y 4TH STAGE BAC</b>	<b>0...200 µm</b>							A	PCS	3	SA	PCS	1					<b>028</b>	
XIAHSAHH																				
<b>X 24124</b>	<b>VIBRATION EXPANDER TURBINE 1</b>	<b>0...125 µm</b>							A	PCS	3	SA	PCS	1					<b>029</b>	
XIAHSAHH																				
<b>X 24224</b>	<b>VIBRATION EXPANDER TURBINE 2</b>	<b>0...125 µm</b>							A	PCS	3	SA	PCS	1					<b>030</b>	
XIAHSAHH																				
<b>X 70736</b>	<b>VIBRATION 1ST STAGE GAN COMP. 1</b>	<b>0...125 µm</b>							A	PCS	3	SA	PCS	1					<b>021</b>	
XIAHSAHH																				
<b>X 70738</b>	<b>VIBRATION 2ND STAGE GAN COMP. 1</b>	<b>0...125 µm</b>							A	PCS	3	SA	PCS	1					<b>021</b>	
XIAHSAHH																				
<b>X 70740</b>	<b>VIBRATION 3RD STAGE GAN COMP. 1</b>	<b>0...125 µm</b>							A	PCS	3	SA	PCS	1					<b>021</b>	
XIAHSAHH																				

<b>Legend:</b>				F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP) = Frost Protection recommended			
2	24.02.2006	Frohn	Rev. 2	Project: <b>K70101</b>				 <b>AIR LIQUIDE</b>			
3	16.11.2006	Möller	As Build	<b>ASU No.09 Kosice</b>				Drwg.- No.:			
0	21.12.2004	Frohn	Initial version	<b>MEASURING RANGE &amp; LIMIT VALUES</b>				Air Liquide AGS GmbH Fidingsweg 34 D-47805 Krefeld, Germany			
Rev.	Date	Name	Checked					Page			
			Change					96			
								Number of pages			
								97			

TAG-NO.	DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS		
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	threshold	W			Kp	Tn
FUNCTION			threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold								
X 70742	VIBRATION FREE END GAN COMP. 1	0...125 μm							A	PCS	3	SA	PCS	1							021	
XIAHSAHH																						
X 77736	VIBRATION 1ST STAGE GAN COMP. 2	0...125 μm							A	PCS	3	SA	PCS	1							022	
XIAHSAHH																						
X 77738	VIBRATION 2ND STAGE GAN COMP. 2	0...125 μm							A	PCS	3	SA	PCS	1							022	
XIAHSAHH																						
X 77740	VIBRATION 3RD STAGE GAN COMP. 2	0...125 μm							A	PCS	3	SA	PCS	1							022	
XIAHSAHH																						
X 77742	VIBRATION FREE END GAN COMP. 2	0...125 μm							A	PCS	3	SA	PCS	1							022	
XIAHSAHH																						

<b>Legend:</b>					F = local, V = local cabinet, S = control room, PCS = process control system					Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
2	24.02.2006	Frohn	Rev. 2		Project: K70101					AIR LIQUIDE				
3	16.11.2006	Möller	As Built		ASU No.09 Kosice					No.:				
0	21.12.2004	Frohn	Initial version		MEASURING RANGE & LIMIT VALUES					Air Liquide AGS GmbH				
Rev.	Date	Name	Checked	Change						Füttingweg 34 D-47805 Krefeld, Germany				
										Page				
										97				
										Number of pages				
										97				