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## ANALOGUE MEASUREMENT

COMPANY SHARED

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## Analogue Measurement

### References

- Kongsberg K-Chief 700 Integrated Control System Product Description, 304844/B
- Kongsberg K-Chief 700 Operator Manual, 332618/B

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## Content

- Description
- Analogue measurement symbols
- meas\_av function module
- meas\_av alarms
- Alarm limits
- Signal limits
- Suppress alarm
- Inhibit (consequence)

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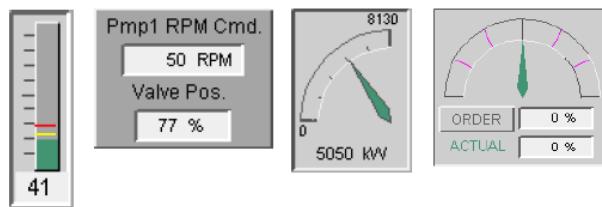
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## Analogue measurement symbols



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## Analogue measurement

### IO Terminal Block

IO Terminal Block : RMP420-32 - P8053

Module type: RMP420-32  
Part number: 053/RMP420/03  
Serial number:  
HW version: 1.2.3  
FW A version: 1024.1380.1536.2313  
FW B version: 1024.1380.1536.2566  
Address: 3

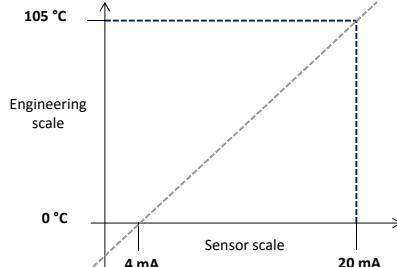
Task: Task 2  Auto

**IO Point Parameters**

No.	IO tag	Status	Sensor value	Eng. value	Connection
24	IAH03111B	P	SM	4.00	✓ 0.00 A [OK] IAH03111B/Promess
25	IAH03112A	P	SM	10.85 mA	✗ 45.00 deg C [OK] IAH03112A/Promess
26	IAH03112C	P	SM	10.85 mA	✗ 45.00 deg C [OK] IAH03112C/Promess
27	IAH03112E	P	SM	100.00 ohm	✗ 10.00 deg [OK] IAH03112E/Promess

**Signal Conditioning**

Scale	Sensor scale max.	Engineering scale max.
✓ Scale	20.00	105.00
Sensor scale min.	4.00	0.00
Sensor unit	mA	deg C
Engineering scale max.	20.00	105.00
Engineering scale min.	0.00	0.00
Engineering unit	mA	deg C
Dead band	0.00	0.00



**Signal Conditioning**

Scale	Sensor scale max.	Engineering scale max.
✗ Scale	20.00	105.00
Sensor scale min.	4.00	0.00
Sensor unit	mA	deg C
Engineering scale max.	20.00	105.00
Engineering scale min.	0.00	0.00
Engineering unit	mA	deg C
Dead band	0.00	0.00

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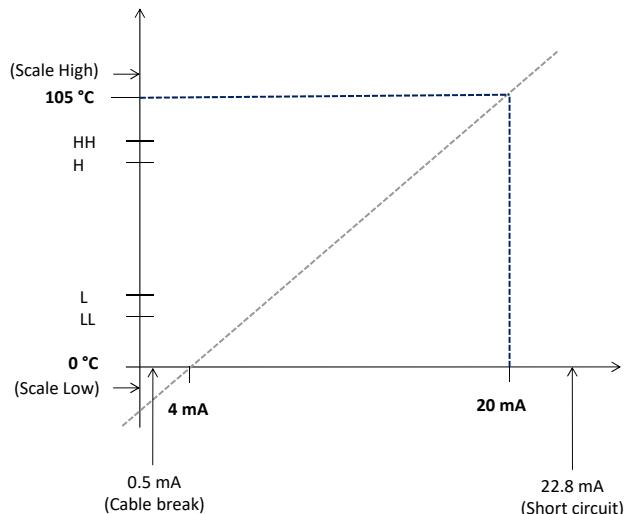
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## Limits



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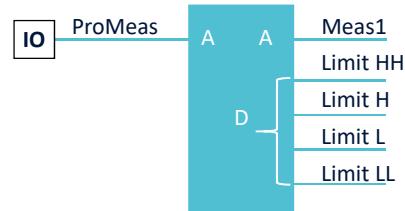


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## meas\_av function module

### measurement\_analogue\_vessel

- Use for handling an analogue input measurement signal



- ProMeas: Process Measurement
- Meas1: Measurement

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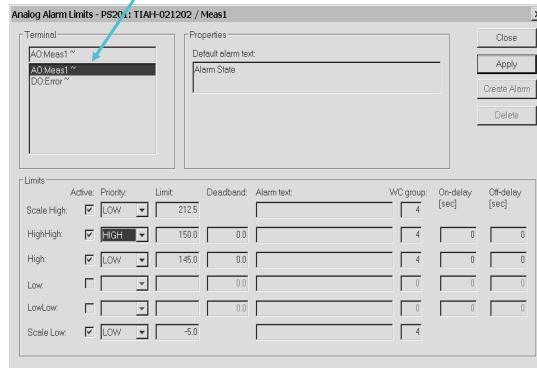
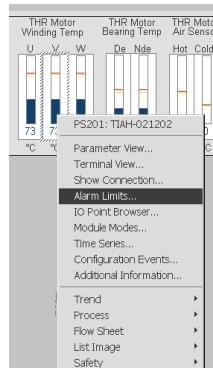


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## meas\_av alarm limits

To add or edit alarm limits:

- Open Alarm Limits dialog box



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## Alarm information in Parameter view

Meas1 terminal → High alarm limit → Status high alarm set to 1

FUNCTION MODULE:	meas_av	2.4.0	
ANALOG MEASUREMENT	404MI C B/TM MOTOR WINDING V TE	IO STATUS	
Input value:	146.00	Manual value	
Transformed value:	146.00		
I/O failure	(0/1): 0		
Meas1 I/O status	(0/1): 0		
 STATUS	 ALARM	 SIGNAL	 SIGNAL DESC.
HighHigh	(0/1): 1	0	0
High	(0/1):	1	1
Low	(0/1):	0	0
LowLow	(0/1):	0	0
Scale high	(0/1):	0	
Scale low	(0/1):	0	
Suppressed	(0/1):	0	
Inhibit	(0/1):	0	
 LIMITS	 ALARM	 SIGNAL	
HighHigh:	150.00	150.00	
High:	145.00	145.00	
Low:	0.00	0.00	
LowLow:	0.00	0.00	
Scale high:	212.00	0.00	ProMeas
Scale low:	-5.00	0.00	

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## meas\_av signal limits

“Signals” are directly connected to the four digital limit terminals:

- Limit HH
- Limit H
- Limit L
- Limit LL

Input Terminals	Output Terminals
ProMeas	Meas2
AI Suppress	Meas1
Inhibit	OKOut
DisEvent	LimitHH
Bias2	LimitH
Interlock	LimitL
	LimitLL
	Error

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## Signal limits

Module Parameters - PS201; TIAFH-021202

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CONSTANTS		SIGNAL LIMITS	
Gain:	1.00	Set delay:	(sec): 0.00
Bias1:	0.00	Clear delay:	(sec): 0.00
Disc2 pos/neg: (0/1):	0	Hysteresis:	(0.00)
Total bias:	0.00	Limits follow alarm:	(0/1): 1
pt100 cable res. (ohm):	0.00		
Zero suppression limit :	0.00	HH: Limit:	150.00
No absolute value (0/1):	0	Disable:	(0/1): 0
Filter time const. (sec):	0.00	Desr:	
OTHER		H: Limit:	145.00
Transformation (0-3):	0	Disable:	(0/1): 0
Raw value on Meas2 (0/1):	0	L: Limit:	0.00
OKOut high limit:	212.50	Disable:	(0/1): 0
OKOut low limit:	-5.00	Desr:	
OKOut limits follow		LL: Limit:	0.00
scale limits: (0/1):	1	Disable:	(0/1): 0
Inv. OKout term. (0/1):	0	Desr:	
Range high limit:	200.00		
Range low limit :	0.00	ALARM SUPPRESSION	
Interlock value :	0.00	Inv. AlSuppres term. (0/1):	0
USE IO VALUES		AlSuppres reset delay (sec):	0.0
Eng. unit and range from IO:	(0/1): 1	Fast init. of filter (0/1):	1
		Inv. Inhibit term. (0/1):	0
		Inhibit reset delay (sec):	0.0

Print | Close | Help

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## Signal information

Module Parameters - PS201; TIAFH-021202

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FUNCTION MODULE: meas_av 2.6.0 404Mi C B/TH MOTOR WINDING V TE		IO STATUS	
ANALOG MEASUREMENT		Input value:	146.00 Manual value
		Transformed value:	146.00
I/O failure (0/1):	0		
Meas1 I/O status (0/1):	0		
STATUS		ALARM	SIGNAL
HighHigh (0/1):	0	0	
High (0/1):	1	1	
Low (0/1):	0	0	
LowLow (0/1):	0	0	
Scale high (0/1):	0		
Scale low (0/1):	0		
Suppressed (0/1):	0		
Inhibit (0/1):	0		
LIMITS		ALARM	SIGNAL
HighHigh:	150.00	150.00	
High:	145.00	145.00	
Low:	0.00	0.00	
LowLow:	0.00	0.00	ProMeas
Scale high:	212.50	0.00	0.00
Scale low:	-5.00		

Print | Close | Help

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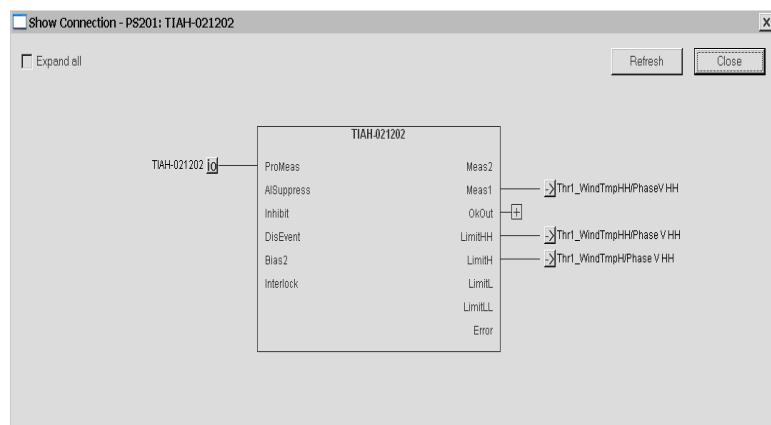
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## Show Connection for meas\_av function module



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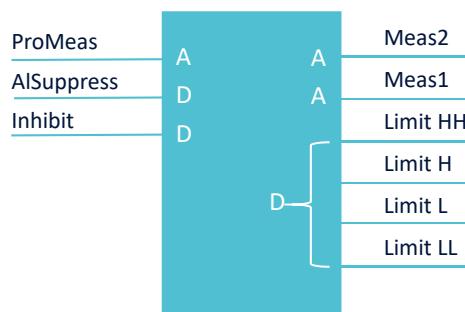
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## Suppress and Inhibit



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## Suppress alarm

No alarm reporting  
Signal terminal(s) to 1

**Module Modes - PS053: JIAHL-031112**

<input type="checkbox"/> Disabled Alarm	<input checked="" type="checkbox"/> Suppressed Alarm
<input type="checkbox"/> Disabled Input	<input type="checkbox"/> Disabled Output
<input type="checkbox"/> Passive	
<input type="checkbox"/> Simulation Algorithm	<input type="checkbox"/> Alternative Terminal Input
<input type="checkbox"/> Suppressed Alarm on Terminal	<input type="checkbox"/> Inhibited Input
<input type="checkbox"/> Overridden Output	<input type="checkbox"/> Maintenance
IO status: None	

**Module Parameters - PS053: JIAHL-031112**

FUNCTION MODULE:	meas_av	2.6.0	IO STATUS
ANALOG MEASUREMENT			Measurement OK
Input value:	0.00	SIGNAL	
Transformed value:	0.00	SIGNAL	
I/O failure:	(0/1): 0	SIGNAL	
Meas I/O status:	(0/1): 0	SIGNAL	
STATES	ALARM	SIGNAL	SIGNAL DESCRI.
HighHigh:	(0/1): 0	0	
High:	(0/1): 0	0	
Low:	(0/1): 0	0	
LowLow:	(0/1): 0	1	
Scale high:	(0/1): 0		
Scale low:	(0/1): 0		
Suppressed:	(0/1): 1		
Inhibit:	(0/1): 0		
LIMITS	ALARM	SIGNAL	
HighHigh:	7000.00	7000.00	
High:	6100.00	6100.00	
Low:	-100.00	-100.00	
LowLow:	0.00	0.00	ProMeas
Scale high:	9700.00	0.00	
Scale low:	-740.00	0.00	

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## Inhibit a function module

Alarm reporting as normal,  
but Signal terminals are set to 0

**NO.1 Ballast Pump Port Status**

**Module Parameters - PSD47: PICAL-111103**

FUNCTION MODULE:	meas_av	2.6.0	IO STATUS
ANALOG MEASUREMENT			Measurement OK
Input value:	0.50	SIGNAL	
Transformed value:	0.50	SIGNAL	
I/O failure:	(0/1): 0	SIGNAL	
Meas I/O status:	(0/1): 0	SIGNAL	
STATES	ALARM	SIGNAL	SIGNAL DESCRI.
HighHigh:	(0/1): 0	0	
High:	(0/1): 0	0	
Low:	(0/1): 0	0	
LowLow:	(0/1): 0	0	
Scale high:	(0/1): 0		
Scale low:	(0/1): 0		
Suppressed:	(0/1): 1		
Inhibit:	(0/1): 1		
LIMITS	ALARM	SIGNAL	
HighHigh:	0.00	0.00	
High:	0.00	0.00	
Low:	0.50	0.50	
LowLow:	0.00	0.00	ProMeas
Scale high:	10.63	0.00	
Scale low:	-0.25	0.00	

**Module Modes - PSD47: PICAL-111103**

<input type="checkbox"/> Disabled Alarm	<input checked="" type="checkbox"/> Suppressed Alarm
<input type="checkbox"/> Disabled Input	<input type="checkbox"/> Disabled Output
<input type="checkbox"/> Passive	
<input type="checkbox"/> Simulation Algorithm	<input type="checkbox"/> Alternative Terminal Input
<input type="checkbox"/> Suppressed Alarm on Terminal	<input type="checkbox"/> Inhibited Input
<input type="checkbox"/> Overridden Output	<input type="checkbox"/> Maintenance
IO status: None	

**Module Terminals - PSD47: PICAL-111103**

Input Terminals	Output Terminals
ProMeas	0.5000
AI Suppress	1
Inhibit	1
DistEvent	0
Bias2	0.0000
Interlock	0
	LimitHH
	LimitLH
	LimitL0
	LimitLL
	Error

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## Exercises:

- Analogue Measurement
- Alarm Suppression

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## Learning Objectives

- Identify a analogue measurement function module (symbol, type and version)
- Describe the functionality of a “meas\_av” function module
- Explain the analogue alarm settings in Alarm Limits dialog box
- Identify and explain the signal settings for a function module
- Explain the difference between analogue alarm limits and signal limits
- Change and add analogue alarm limits and signal limits on terminals which already have alarms configured
- Identify and explain a inhibited function module
- Identify and explain an alarm suppressed status for a function module
- Predict the consequences when making changes to a “meas\_av” function module

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**End of the  
presentation**

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