


Indication of NH3 cannot be seen on the faceplate for engine DE1 (problematic indication on Faceplate).

Engine 1			
Messurement	Actual	Reference	Malfunction
NOx		264.5 mg/m ³	!
NO	178.2 mg/m ³	172.9 mg/m ³	!
NO2	0.1 mg/m ³	0.1 mg/m ³	!
NH3			
CO	136.8 mg/m ³	132.7 mg/m ³	!
CO2	5.4 mg/m ³	5.2 mg/m ³	!
SO2	448.7 mg/m ³	435.3 mg/m ³	!
O2	15 %	15 %	!
HO2	5.5 %	5 %	!
Dust	16.0 mg/m ³	32.6 mg/m ³	!
Temperatur	265 °C		
Pressure	1003.89 bar(a)		

Same indication is ok for engine DE2 (Good one)

Engine 2			
Messurement	Actual	Reference	Malfunction
NOx		0.5 mg/m ³	
NO	0.1 mg/m ³	0.2 mg/m ³	!
NO2	0.1 mg/m ³	0.2 mg/m ³	!
NH3	0.4 mg/m ³	0.8 mg/m ³	
CO	1.4 mg/m ³	2.9 mg/m ³	!
CO2	0.0 mg/m ³	0.1 mg/m ³	!
SO2	1.3 mg/m ³	2.6 mg/m ³	!
O2	21 %	21 %	!
HO2	1.4 %	1 %	!
Dust	0.2 mg/m ³	0.5 mg/m ³	!
Temperatur	80 °C		
Pressure	1008.75 bar(a)		

The current value for NH3 for engine DE1 (problematic indication on Faceplate) can be seen in the Editor of Control Builder.

The screenshot shows the Control Builder Editor window titled "G1MJR51GH001XT22 - WNPOC_CMN.CMN.CEMS.G1MJR51GH001XT22 (BW5C_TransLib.Trans4Fieldbus_Def)". The interface includes a menu bar (Editor, Edit, View, Tools, Window, Help) and a toolbar with various icons. The main area is divided into two panes: a top pane showing the IO table and a bottom pane showing the ladder logic program.

Name	Current Value	Data Type	Variable	Attributes	Initial Value
Name	G1MJR51GH001XT22	string[18]	DataCmn.G1MJR51		
Description	Emission monitoring	string[36]	DataCmn.G1MJR51		
FunctionDesc	NH3 Measurement - STD. C	string[30]	'NH3 Measurement -		
IO		IO_Trans4FieldbusT	IO.G1MJR51GH001:		
Signal		RealIO	IO.IO_CEMS.G1MJF	retain	
Value	-1.6259	real	IO.IO_CEMS.G1MJF	retain	
IOValue	0.0	real	IO.IO_CEMS.G1MJF	retain	
Forced	false	bool	IO.IO_CEMS.G1MJF	retain	
Status	16#C0	dword	IO.IO_CEMS.G1MJF	retain	16#C0
Parameter		SignalPar	IO.IO_CEMS.G1MJF		
CommError	false	bool	IO.IO_CEMS.G1MJF	retain	
SO		SO_Trans4Fieldbus'	SO.G1MJR51GH00'		

The bottom pane displays the following ladder logic code:

```

IF InitColdRetain THEN
  AlarmDelayH 0 := AlarmDelayHInit 0 ;
  AlarmDelayHH 0 := AlarmDelayHHInit 0 ;
  AlarmDelayL 0 := AlarmDelayLInit 0 ;
  AlarmDelayLL 0 := AlarmDelayLLInit 0 ;
  AlarmLimitH 65000.0 := AlarmLimitHInit 65000.0 ;
  AlarmLimitHH 65000.0 := AlarmLimitHHInit 65000.0 ;
  AlarmLimitL -65000.0 := AlarmLimitLInit -65000.0 ;
  AlarmLimitLL -65000.0 := AlarmLimitLLInit -65000.0 ;
  EventDelay 0 := EventDelayInit 0 ;
  Hysteresis 0.0 := HysteresisInit 0.0 ;
  InitColdRetain := false ;
END_IF

** Initializing variables of EDIT type. **
Init1 := FirstScanAfterPowerUp ( )
Init2 := FirstScanAfterApplicationStart ( )
IF Init1 OR Init2 THEN
  SO.EnableOutOfService := EnableOutOfService ;

  Generate module instance names to be used in PPA alarm, event and audit lists.
  NameAlarmH G1MJR51GH001... := Replace ( Name G1MJR51GH001...
    AlarmTagH ZH01
    13
    4 )
  NameAlarmHH G1MJR51GH001... := Replace ( Name G1MJR51GH001...
    AlarmTagHH ZH02
    13
  
```

The status bar at the bottom indicates "800xA Administrator".

Engine DE2 (Good one) Screenshot showing the simultaneous indication of NH3 G1MJR51GH001XT21 (Actual) in the Editor & on the Faceplate (one decimal only).

The screenshot displays the BWSC Operator Workplace interface. At the top, a process list shows three active alarms related to emission monitoring. The main window is split into two panes: the Editor on the left and the Faceplate on the right.

Editor Pane: Shows the configuration for the signal G2MJR51GH001XT21. The 'Signal Value' is highlighted with a red circle and set to 0.345. Below the configuration, the 'Parameters' tab is active, showing the following configuration:

```

Parameter
IO.Signal.Parameters.Unit [mg/m³] := Unit [mg/m³];
IO.Signal.Parameters.Min [0.0] := Min [0.0];
IO.Signal.Parameters.Max [50.0] := Max [50.0];
IO.Signal.Parameters.Fraction [1] := Fraction [1];
    
```

Faceplate Pane: Displays the 'Engine 2' measurement data. The 'NH3' row is highlighted with a red circle, showing an actual value of 0.3 mg/m³ and a reference value of 0.7 mg/m³. Other measurements include NOx (0.5 mg/m³), NO (0.1 mg/m³), NO2 (0.1 mg/m³), CO (1.5 mg/m³), CO2 (0.0 mg/m³), SO2 (1.7 mg/m³), O2 (21%), HO2 (1.4%), Dust (0.2 mg/m³), Temperature (79 °C), and Pressure (1008.81 bar(a)).

At the bottom of the Faceplate, an alarm indicator shows 'GH001 Calculator - QAL2 Alarm' with a red exclamation mark icon.

Engine DE2 (Good one) Screenshot showing the simultaneous indication of NH3 G1MJR51GH001XT22 (Actual) in the Editor & on the Faceplate (one decimal only).

The screenshot displays two main windows from the ABB Control Builder software:

Variable Editor: G2MJR51GH001XT22

Name	Current Value	Data Type	Variable	Attributes	Initial Value
Name	G2MJR51GH001XT22	string[18]	DataCmn.G2MJR51		
Description	Emission monitoring	string[36]	DataCmn.G2MJR51		
FunctionDesc	NH3 Measurement - S	string[30]	NH3 Measurement - S		
IO		IO_Trans4FieldbusT	IO.G2MJR51GH001		
Signal		RealIO	IO.IO_CEMS.G2MJR51	retain	
Value	0.8231	real	IO.IO_CEMS.G2MJR51	retain	
IOValue	0.0	real	IO.IO_CEMS.G2MJR51	retain	
Forced	false	bool	IO.IO_CEMS.G2MJR51	retain	
Status	16#CD	dword	IO.IO_CEMS.G2MJR51	retain	16#CD
Paramet		SignalPar	IO.IO_CEMS.G2MJR51	retain	
CommError	false	bool	IO.IO_CEMS.G2MJR51	retain	
SO		SO_Trans4Fieldbus	SO.G2MJR51GH001		

Faceplate: Engine 2

Measurement	Actual	Reference	Malfunction
NOx		0.5 mg/m³	
NO	0.1 mg/m³	0.2 mg/m³	!
NO2	0.1 mg/m³	0.2 mg/m³	!
NH3	0.4 mg/m³	0.8 mg/m³	
CO	1.5 mg/m³	2.9 mg/m³	!
CO2	0.0 mg/m³	0.1 mg/m³	!
SO2	1.6 mg/m³	3.2 mg/m³	!
O2	21 %	21 %	!
HO2	1.4 %	1 %	!
Dust	0.2 mg/m³	0.5 mg/m³	!
Temperature	79 °C		
Pressure	1008.74 bar(a)		

Code Editor: Init Code 2

```

IF InitColdRetain THEN
  AlarmDelayH [0] := AlarmDelayHInit [0];
  AlarmDelayHH [0] := AlarmDelayHHInit [0];
  AlarmDelayL [0] := AlarmDelayLInit [0];
  AlarmDelayLL [0] := AlarmDelayLLInit [0];
  AlarmLimitH [65000.0] := AlarmLimitHInit [65000.0];
  AlarmLimitHH [65000.0] := AlarmLimitHHInit [65000.0];
  AlarmLimitL [-65000.0] := AlarmLimitLInit [-65000.0];
  AlarmLimitLL [-65000.0] := AlarmLimitLLInit [-65000.0];
  EventDelay [0] := EventDelayInit [0];
  Hysteresis [0.0] := HysteresisInit [0.0];
  InitColdRetain := false;
END_IF

** Initializing variables of EDIT type. **
Init1 := FirstScanAfterPowerUp ();
Init2 := FirstScanAfterApplicationStart ();
IF Init1 OR Init2 THEN
  SO.EnableOutOfService := EnableOutOfService;

  Generate module instance names to be used in PPA alarm, event and audit lists.
  NameAlarmH [G2MJR51GH001...] := Replace ( Name [G2MJR51GH001...]
    AlarmTagH [ZH01]
    13
    4 )
  NameAlarmHH [G2MJR51GH001...] := Replace ( Name [G2MJR51GH001...]
    AlarmTagHH [ZH02]
    13
  )

```

When you Right click from the problematic NH3 Faceplate indication G2MJR51GH001XT22 it doesn't give you the online Editor but sthe screen shown here.

The screenshot displays the 'Control module type - BWSC_TransLib.Trans4Fieldbus_Def [Read-only]' editor. The interface is divided into several sections:

- Process Alarm Log:** Shows three active alarms for G2MJR51GH001XE31 and G2MJR51GH001XE71.
- Parameter Table:** A table with columns: Name, Data Type, Initial Value, and Description. The 'Unit' field for the selected parameter is highlighted with a red arrow.
- Code Editor:** Contains ladder logic code for initialization and alarm handling.
- Measurement Faceplate:** A table showing various measurements for 'Engine 1'. The NH3 measurement is highlighted with a red box and a red 'X' icon, with a callout box indicating 'Right click here -> Editor'.

Name	Data Type	Initial Value	Description
1 Name	string[18]		IN EDIT, Name of process object, used for alarm Name genera
2 Description	string[36]		IN, Description of process object, used for Name Upload.
3 FunctionDescr	string[30]		IN EDIT, Function description, Temp, Press, Level etc, used
4 IO	IO_Trans4FieldbusType		IN/OUT, Connection of fildbus signals
5 SO	SO_Trans4FieldbusType		IN/OUT, Superior order/Indication
6 Class	dint		IN EDIT, Alarm/Event Class
7 Unit	String[10]	"	IN EDIT, Unit of the signal
8 Min	real	0.0	IN EDIT, Min value
9 Max	real	100.0	IN EDIT, Max value
10 Fraction	dint	1	IN EDIT, Signal fraction
11 ScaleFactor	real	1.0	IN EDIT, Signal Out = IO_Signal * ScaleFactor (kV=0.001)
12 AlarmSeverityH	dint	cBWSCSev	IN EDIT, Alarm severity for High alarm
13 AlarmSeverityHH	dint	cBWSCSev	IN EDIT, Alarm severity for HighHigh alarm
14 AlarmSeverityL	dint	cBWSCSev	IN EDIT, Alarm severity for Low alarm
15 AlarmSeverityLL	dint	cBWSCSev	IN EDIT, Alarm severity for LowLow alarm

Measurement	Actual	Reference	Malfunction
NOx		137.4 mg/m³	🟢
NO	89.1 mg/m³	86.5 mg/m³	🟢
NO2	0.6 mg/m³	0.6 mg/m³	🟢
NH3			🔴 X
CO	138.6 mg/m³	134.5 mg/m³	🟢
CO2	5.4 mg/m³	5.2 mg/m³	🟢
SO2	445.7 mg/m³	432.7 mg/m³	🟢
O2	15 %	15 %	🟢
HO2	5.5 %	5 %	🟢
Dust	17.1 mg/m³	34.9 mg/m³	🟢
Temperatur	265 °C		
Pressure	1003.59 bar(a)		

```

Hysteresis      := HysteresisInit;
InitColdRetain := False;
END_IF;

(***) Initializing variables of EDIT type. (***)
Init1:=FirstScanAfterPowerUp();
Init2:=FirstScanAfterApplicationStart();
IF Init1 OR Init2 THEN
SO.EnableOutOfService := EnableOutOfService;
(* Generate module instance names to be used in PPA alarm, event and audit lists. *)
NameAlarmH := Replace(Name, AlarmTagH, 13, 4);
NameAlarmHH := Replace(Name, AlarmTagHH, 13, 4);
NameAlarmIO := Replace(Name, AlarmTagIO, 13, 4);
NameAlarmL := Replace(Name, AlarmTagL, 13, 4);
NameAlarmLL := Replace(Name, AlarmTagLL, 13, 4);
NameEventH := NameAlarmH+cBWSCTag.Event;
NameEventHH := NameAlarmHH+cBWSCTag.Event;
NameEventL := NameAlarmL+cBWSCTag.Event;
NameEventLL := NameAlarmLL+cBWSCTag.Event;
(* Generate alarm module text message to be used in PPA alarm, event and audit lists. *)
AlarmTextH := FunctionDescr+cBWSCText.High;
AlarmTextHH := FunctionDescr+cBWSCText.HighHigh;
AlarmTextL := FunctionDescr+cBWSCText.Low;
AlarmTextLL := FunctionDescr+cBWSCText.LowLow;
  
```