

<i>Subject:</i>	<i>DBE 552 - UDA OEM Generic software specification</i>	<i>Reference:</i>	<i>Responsible: FCO</i>
<i>Section:</i>	<i>Specification</i>	<i>Project no: DBE 545</i>	<i>Page: 1 of 9</i>
<i>File name:</i>	<i>DBE552_UDA OEM Generic software specification.doc</i>	<i>Date: 2015/08/13</i>	<i>Version: 1.1</i>

DBE 552 - UDA OEM Generic software specification



Introduction

Purpose	DBE 552 - UDA OEM Generic software specification
Application	UDA (AARQ) platform
Author	FCO

DBE	552	rev 1.1
------------	------------	----------------

As this is the property of EMITEC, it must not be passed to any person not authorized by EMITEC or be copied or otherwise utilized by anybody without EMITEC express written permission.

Ce document est la propriété de EMITEC, il ne doit pas être transmis à une personne non autorisée par EMITEC, il ne doit pas être copié ou utilisé à une autre fin, par quiconque, sans l'autorisation écrite express de EMITEC.

<i>Subject:</i>	<i>DBE 552 - UDA OEM Generic software specification</i>	<i>Reference:</i>	<i>Responsible: FCO</i>
<i>Section:</i>	<i>Specification</i>	<i>Project no: DBE 545</i>	<i>Page:2 of 9</i>
<i>File name:</i>	<i>DBE552_UDA OEM Generic software specification.doc</i>	<i>Date: 2015/08/13</i>	<i>Version: 1.1</i>

Reviewer list

Name	Entity	Responsibilities
DME	GNF	
CBL	GNF	
MDU	GNF	
MJA	GNF	
YOI	GNF	
CAF	GNF	

Diffusion list

Name	Entity	Responsibilities
ATR	GNF	
ENB	NNX	
FFR	NNX	
JBC	GNF	
YKO	GNF	

Product phase

Prototype ☐	Design ☐	Development ☒	Pilot series ☐	Production ☐
------------------------------------	---------------------------------	---	---------------------------------------	-------------------------------------

Revision history

Version	Date	Initials	Description
1	2010-05-18	FCO	First issue
1.1	2015-08-13	REL	Correction on transmit rate of message SCR_Dosing_Status2

Subject:	DBE 552 - UDA OEM Generic software specification	Reference:	Responsible: FCO
Section:	Specification	Project no: DBE 545	Page: 3 of 9
File name:	DBE552_UDA OEM Generic software specification.doc	Date: 2015/08/13	Version: 1.1

Glossary

Acronym	Definition
μC	Microprocessor or micro-controller
ECM	Electronic control module
FixedParameters	Fixed parameters notification
GEN	Generic
KI 15	Key switch or terminal 15
Parameters	Parameters notification
SW	Software
TBC	To be confirmed
TBD	To be defined
UDA	Urea Dosing air Assisted system

<i>Subject:</i>	<i>DBE 552 - UDA OEM Generic software specification</i>	<i>Reference:</i>	<i>Responsible: FCO</i>
<i>Section:</i>	<i>Specification</i>	<i>Project no: DBE 545</i>	<i>Page:4 of 9</i>
<i>File name:</i>	<i>DBE552_UDA OEM Generic software specification.doc</i>	<i>Date: 2015/08/13</i>	<i>Version: 1.1</i>

Contents

Introduction.....	1
Reviewer list	2
Diffusion list	2
Product phase.....	2
Revision history	2
Glossary	3
Contents	4
1 CAN messages.....	5
1.1 Rx messages (from ECM to UDA)	5
1.1.1 SCR_Dosing_Command.....	5
1.2 Tx messages (from UDA to ECM).....	6
1.2.1 SCR_Address_Claim	6
1.2.2 SCR_Dosing_Status.....	6
1.2.3 SCR_Dosing_Status2.....	8
2 State machine diagram.....	9

<i>Subject:</i>	<i>DBE 552 - UDA OEM Generic software specification</i>	<i>Reference:</i>	<i>Responsible: FCO</i>
<i>Section:</i>	<i>Specification</i>	<i>Project no: DBE 545</i>	<i>Page:5 of 9</i>
<i>File name:</i>	<i>DBE552_UDA OEM Generic software specification.doc</i>	<i>Date: 2015/08/13</i>	<i>Version: 1.1</i>

1 CAN messages

1.1 Rx messages (from ECM to UDA)

1.1.1 SCR_Dosing_Command

Attributes	Value
Identifier	0x18FFDF00
PGN	65503 (0xFFDF)
Transmit Rate (ms)	200
Data Length	8 bytes
J1939 Priority	6
Sent by	ECM
Received by	UDA

Field name	Byte pos	Description
RequestedDosingRate	0.0 – 3.7	Requested dosing flow rate : Resolution: 0.01 ml/h per bit, 0 offset Range: 0 ... 42 949 672,96 ml/h 0 – Pump is stopped Valid flow rate range: 7,5...7500 ml/h
DosingPumpSolenoid1OverrideMode	4.0 – 4.1	State of the air unit in override diagnostic : 0 : Diagnostic override mode, OFF 1 : Diagnostic override mode, ON 2 : Not used 3 : Not used
HeaterEcmMode	4.2	Requested heater command : 0 : Heating enable 1 : Heating disable
Not used	4.3 – 4.5	Not used
DosingPumpMotorOverrideMode	4.6 – 4.7	State of motor in override diagnostic : 0 : Diagnostic override mode, OFF 1 : Diagnostic override mode, ON 2 : Not used 3 : Not used
DosingPumpStateCommand	5.0 – 5.3	Requested pump state : 0 : Not used 1 : PUMP_STATE_PUMP_OFF 2 : PUMP_STATE_PRIMING 3 : PUMP_STATE_DOSING 4 : PUMP_STATE_PURGING 5 : PUMP_STATE_DIAG_OVERRIDE_MODE
Not used	5.4 – 7.7	Not used

Figure 1- SCR_Dosing_Command message characteristics

Subject:	DBE 552 - UDA OEM Generic software specification	Reference:	Responsible: FCO
Section:	Specification	Project no: DBE 545	Page:6 of 9
File name:	DBE552_UDA OEM Generic software specification.doc	Date: 2015/08/13	Version: 1.1

1.2 Tx messages (from UDA to ECM)

1.2.1 SCR_Address_Claim

Attributes	Value
Identifier	0x18EEFF3D
PGN	60928 (0xEE00)
Transmit Rate (ms)	Immediately after reset and upon request
Data Length	8 bytes
J1939 Priority	6
Sent by	UDA
Receive by	Global

Field name	Byte pos	Description
IdentityNumber	0.0 - 2.4	Identity Number. Least significant 21-bits of the Dosing Pump serial number are used if known, or 0 is used if serial number is not known.
ManufacturerCode	2.5 – 3.7	Manufacturer Code.
ECUInstance	4.0 – 4.2	ECU Instance. Typical value is 0
FunctionInstance	4.3 – 4.7	Function Instance. Typical value is 0
Function	5.0 – 5.7	Function. This value is set to 69 (Represents “Engine Emission After treatment System”)
Reserved	6.0	Reserved. Typical value is 0
VehiculeSystem	6.1 – 6.7	Vehicle System. Typical value is 0
VehiculeSystemInstance	7.0 – 7.3	Vehicle System Instance. Typical value is 0
IndustryGroup	7.4 – 7.6	Industry Group. Typical value is 0
ArbitraryAddressCapable	7.7	Arbitrary Address Capable. This value will always be set to 0 because the Pump doesn't have the ability to dynamically change its address

Figure 2- SCR_Address_Claim message characteristics

1.2.2 SCR_Dosing_Status

Attributes	Value
Identifier	0x18FFDE3D
PGN	65502 (0xFFDE)
Transmit Rate (ms)	200
Data Length	8 bytes
J1939 Priority	6
Sent by	UDA
Received by	ECM

Subject:	DBE 552 - UDA OEM Generic software specification	Reference:	Responsible: FCO
Section:	Specification	Project no: DBE 545	Page:7 of 9
File name:	DBE552_UDA OEM Generic software specification.doc	Date: 2015/08/13	Version: 1.1

Field name	Byte pos	Description
EstimatedDosingRate	0.0 – 3.7	Dosing flow rate : Resolution: 0.01 ml/h per bit, 0 offset Range: 0 ... 42 949 672,96 ml/h 0 – Pump is stopped Valid flow rate range: 7,5...7500 ml/h
DosingPumpState	4.0 – 4.3	Actual pump state : 0 : PUMP_STATE_INITIALIZING 1 : PUMP_STATE_PUMP_OFF 2 : PUMP_STATE_PRIMING 3 : PUMP_STATE_DOSING 4 : PUMP_STATE_PURGING 5 : PUMP_STATE_DIAG_OVERRIDE_MODE 15 : PUMP_STATE_NOT_AVAILABLE
DosingPumpSolenoid1DiagStatus	4.4 – 4.5	Air unit solenoid diagnostic : 0 : No problem detected 1 : Shorted high 2 : Shorted low 3 : Open
PumpReturnLineDiagStatus	4.6 – 4.7	Return line diagnostic : 0 : No problem detected 1 : Blocked 2 : Not used 3 : Not used
Not used	5.0 – 5.5	Not used
PumpHeaterCircuitDiagStatus	5.6 – 5.7	Heater circuit diagnostic : 0 : No problem detected 1 : Heater circuit failure 2 : Not used 3 : Not used
PumpReagentFlowDiagStatus	6.0 – 6.1	Air / Urea flow diagnostic : 0 : Normal air or reagent flow 1 : Low air or reagent flow 2 : Not used 3 : Not used
PumpMotorDiagStatus	6.2 – 6.3	Motor diagnostic : 0 : No problem detected 1 : Motor failure or missing origo signal 2 : Not used 3 : Not used
PumpElecControlUnitDiagStatus	6.4 – 6.5	EEPROM diagnostic : 0 : No problem detected 1 : Internal controller problem 2 : Not used 3 : Not used
PumpPurgeCondition	6.6 – 6.7	Purge condition : 0 : Purge not requested 1 : Purge requested 2 : Not used 3 : Not used This field is not used

Subject:	DBE 552 - UDA OEM Generic software specification	Reference:	Responsible: FCO
Section:	Specification	Project no: DBE 545	Page:8 of 9
File name:	DBE552_UDA OEM Generic software specification.doc	Date: 2015/08/13	Version: 1.1

Field name	Byte pos	Description
PumpHeaterStatus	7.0 – 7.1	Frost status : 0 : Frozen, Heater inactive 1 : Frozen, Heater active 2 : Not Frozen, Heater inactive 3 : Not Frozen, Heater active
PumpIncompletePurgeStatus	7.2 – 7.3	Purge status : 0 : Purge complete 1 : Purge incomplete 2 : Not used 3 : Not used
PumpIncompleteParkingStatus	7.4 – 7.5	Parking status : 0 : Parking complete 1 : Parking incomplete 2 : Not used 3 : Not used
Not used	7.6 – 7.7	Not used

Figure 3- SCR_Dosing_Status message characteristics

1.2.3 SCR_Dosing_Status2

Attributes	Value
Identifier	0x18FFDC3D
PGN	65500 (0xFFDC)
Transmit Rate (ms)	1000
Data Length	8 bytes
J1939 Priority	6
Sent by	UDA
Received by	ECM

Field name	Byte pos	Description
PCB temperature	0.0 –0.7	PCB temperature : Resolution: 1°C per bit, -40°C offset Range: -40 ... 215°C Valid range: -40...210°C
Not used	1.0 –7.7	Not used

Figure 4- SCR_Dosing_Status2 message characteristics

Subject:	DBE 552 - UDA OEM Generic software specification	Reference:	Responsible: FCO
Section:	Specification	Project no: DBE 545	Page:9 of 9
File name:	DBE552_UDA OEM Generic software specification.doc	Date: 2015/08/13	Version: 1.1

2 State machine diagram

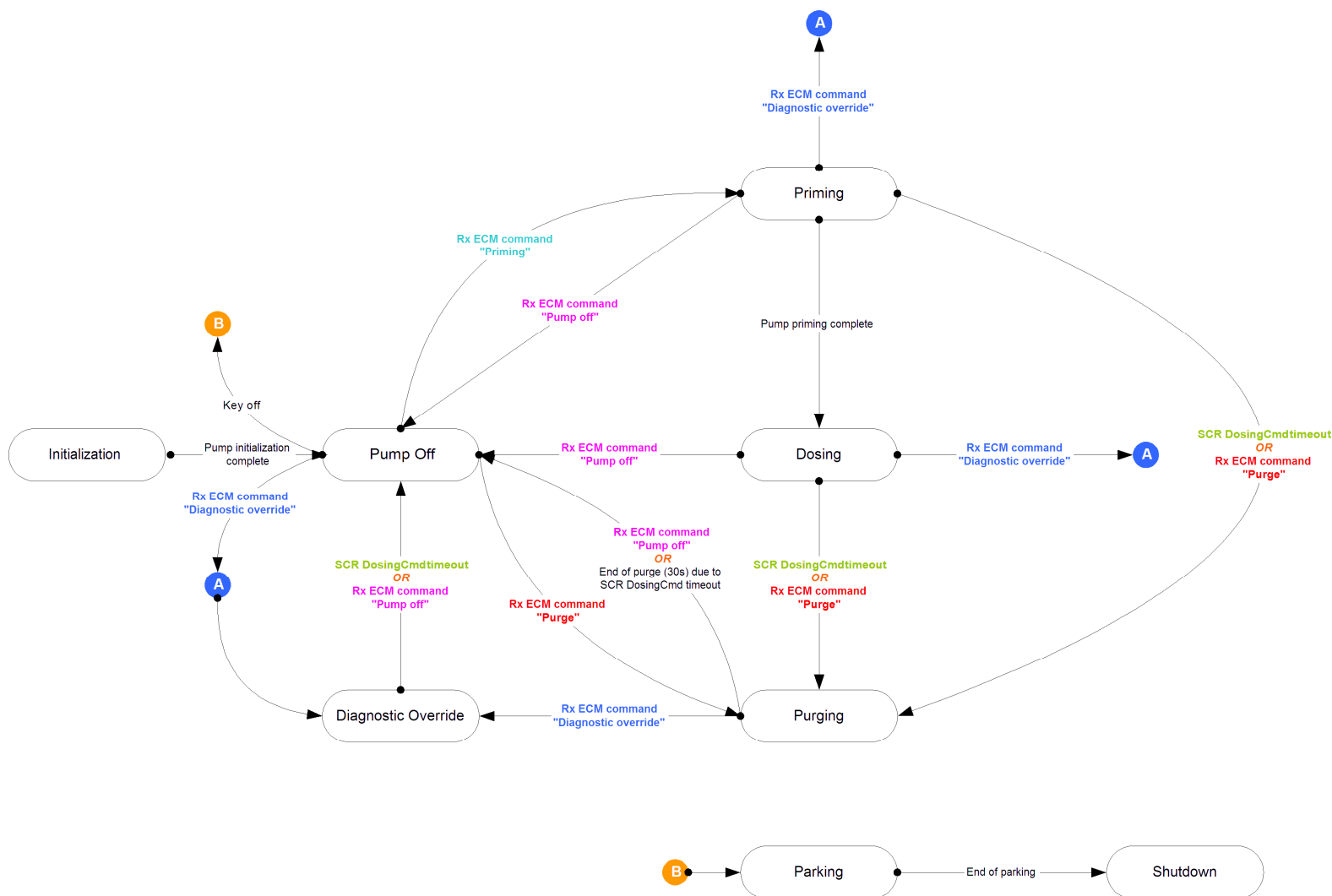


Figure 5- State machine diagram