



ROBERT BOSCH
(AUSTRALIA) PTY. LTD.
A.B.N. 48 004 315 628

FUNCTIONAL SPECIFICATION

Ford B2e MCA
Body Control Module (BCM)

F005VP1392

Page 1 of 380

	By	Date	Signature
Drawn	ENG21-DF	24-06-13	ENG2-DF
Checked	ENG3-RW	24-06-13	ENG21-DF
Approved	PJM-JM	24-06-13	PJM-JM

1 ALTERATION LIST

Issue No.	Change number	Description	Valid From	By	Checked
9.04	Clarification	Added section "3.7 Installation Instruction" to meet homologation requirement.	12-09-13	EVS22-AR	
9.03	Clarification	PER400 – Added (Not Used) to VS_WiperStalkPos_St = 0x02 as it is not used in SW. PER400 – Added PLC and reduce guard (with a ref to alarm section) to initial description	20-08-13	EVS22-AR	
9.02	EBRCM00168734	EXL096: Updated LIGHT lower threshold value to ADC count of 29 to match the updated SC threshold	06-08-13	EVS22-AR	
9.01	EBRCM00170724	LOC452: Updated to reflect Functional Upgrade Pack assignments and WERS codings.	25-07-13	ENG3-PR	
	EBRCM00170737	GEN405: Updated IMS Sensitivity Setting default value for B460 to 0x05.			
9.00	New Release	<ul style="list-style-type: none"> Initial release based on F005VP1388 version 8.20 Production release of E12/E3 (B515e) software GEN401: Added loading options for DN1T variants for double locking, heater blower control and TPMS reset switch GEN402: Updated table for new E12 software variants and E3 (DN1T) software variants Section 3.6: Update CAN database to R26a in references GEN302: Added B460 to the list of variants GEN301/GEN303/GEN406: Added dimming to list of modified functions GEN406: Added support for no rear heated backlite. Added locking support for Kombi/VAN. ATS013: Added B460 rear hinged cargo door cargo unlock to disarm from armed or active conditions LOC052: Added IP lock telltale condition for B460 VANs (omission of rear doors) LOC041: Added rear hinged cargo door to overheat protection for B460 vehicles. 	21-06-13	ENG2-DF	ENG2-TT ENG3-RW
8.20	Clarification	TPM455: Clarified usage of hardwired TPMS switch and CAN MFD TPMS reset signal TPM458: Clarified that TPMS hardwired and MFD CAN TPMS signals are used as an OR condition EXL405: Clarified usage of position lamp with usage of combined DTRL and position lamps	7-06-13	ENG21-DF	EVS22-AR
8.19	EBRCM00163780	Section 19.1: Removed 'Front' from title, now reads 'Door Ajar interpretation' LOC449: Removed reference to sliding door and added reference to no b-pillar LOC452: Added new requirement, Rear door ajar interpretation Section 19.5: Removed DCU only comment and added new BCM or DCU comment. LOC407: Added new requirement, Double lock enabling conditions LOC010: Removed reference of single press double locking, added reference to new LOC407 and removed and added comments from the Note. LOC612: Added new requirement, Double Lock Error Detection LOC007: Added note regarding CCC 148 for B460 vehicles. LOC004: Added new comment regarding front passenger compartment unlock for B460 LOC605: Added new requirement. B460 single door unlocking from double lock. LOC602: Added new requirement. B460 reverse unlocking. LOC603: Added new requirement. B460 slam locking. LOC611: Added new requirement. B460 slam double locking. Section 19.13.2: Added new Section, B460 Locking LOC620: Added new requirement, Contact plates for rear sliding doors LOC621 – LOC634: Added new requirements. B460 lock/unlock relay operation. LOC043: Added \$6: PartialCargoUnlock. LOC045: Added \$6: PartialCargoUnlock.	21-05-13	EVS22-AR	ENG21-DF

Issue Number:	9.04	Dev No. 4691	Valid from:	24-06-13	Print Date:	12 September, 2013
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3 FUNCTIONAL SPECIFICATION REALISATION

3.1 Requirement numbering

Requirements in this document are numbered according to the following format:

Function area	Requirement number	Specification number	Source of requirement
ATS: Anti theft sensing and alarm BS: Battery Saver CCC: Central Car Configuration DIA: Diagnostics /General DRI: Driver Information ENE: Energy Management EXL: Exterior Lighting GEN: General requirement GLC: Glass Cleaning HOR: Horn INL: Interior Lighting KEY: Key in ignition switch LOC: Locking/ Unlocking NWM: Network Management OMM: Operational Mode Management PAN: Panic Alarm PCM: Powertrain Control Module PP: Park Pilot (PAS: Parking Aid System) PAT: Engine immobiliser / Anti theft PER: Personalisation PFM: Power fold mirror RKE: Remote Key /Entry RTC: Response to Crash SIG: Signal (CAN, LIN) SM: Service Mode SVH: Safety Visibility Heated screens RGS: Reverse Gear System VEH: Vehicle	Identification number starting from x01 (per Function area) Where x = c/o B2e: 0 B299N: 3 MCA: 4 B460: 6	Version of FS when the requirement was last updated. Carry over B2e/ B299N requirements will be reset to v1.20 (when they were brought into the MCA spec).	Origin of requirement: B2e – carry over B2e requirement. Applies to all variants unless otherwise specified. MCA – new requirement for MCA programme. B299N – customisation for Ford North America. B515 – customisation for B515 market.

Example: GLC001-1.20-B2e: Glass Cleaning requirement, 1st requirement in that section, updated in Functional specification version 1.20, Requirement has been taken from the carry over B2e functional specification – version 1.20

Bookmarks/ references shall be used to refer to requirements as needed.

3.2 Items needing clarification / contains assumptions: Yellow**3.3 Features not for AV1T E12 delivery: text in Aqua****3.4 Features not for DN1T E3 delivery: text in Pink****3.5 Abbreviations**

ALS	Auto Light Sensor (also Ambient Light Sensor)
BBS	Battery Backed Sounder (LIN)
BCM	Body Control Module
BTSI	Brake Transmission Shift Interlock
CL	Central Locking
DTRL	Daytime Running Light
EATC	Electronic Air Temperature Control
EPAS	Electronic Power Assisted Steering
HEC	Hybrid Electronic Cluster
HFS	Heated Front Windshield
HRW	Heated Rear Window
IGN	Ignition Switch
IMS	Interior Motion Sensor (LIN)
KVM	Keyless Vehicle Module (Passive Entry)
MS-CAN	Medium Speed CAN Bus
MLS	Master Light Switch
PCM	Powertrain Control Module
PJB	Power Junction Box (BCM – old name, no longer in use)
PP	Park Pilot (also known as PAS = Parking Aid System)
PSCM	Power Steering Control Module
RCL	Remote Central Locking
RCM	Restraints Control Module
RDL	Remote Double Locking
RSM	Rain Sense Module (LIN, also known as RLS = Rain Light Sensor)
RVC	Rear View Camera (LIN)
SBC	System Basis Chip (BCM Regulator, CAN, LIN, Wakeup)
WMM	Wiper Motor Module (LIN)

3.6 References and Standards

Carry over B299 specifications:

Ref.	Document Title	Location
[1]	Software Development Plan (SDP) Document Number: NA Source: Bosch Version: Refer to ClearCase	ClearCase VOB 3210 \DV3210\common\projct management\DV3210 Ford B2e Body Computer Software Development Plan.doc
[3]	B2YY Exterior Lighting Functional Specification Document Number: FS-8V2T-1B272-AA Source: Ford Author: Michael Alberti Version: 1.7 / 21-11-07	ClearCase VOB 3210 \DV3210\common\customer specifications
[4]	B2YY Interior Lighting Functional Specification Document Number: FS-8V2T-1B280-AA Source: Ford Author: Michael Alberti Version: 1.0 / 07-07-06	
[5]	B2E Operational Mode Management Specification Source Ford, Author: Kelvin Howard. Version: Release 1.3 1/06/2006	ClearCase VOB 3210 \DV3210\common\customer specifications\B2E OMM Spec – Full release - V1.1.doc
[6]	HIGH & MEDIUM SPEED – CAN VEHICLE & ECU LEVEL FUNCTIONAL REQUIREMENTS SPECIFICATION Worldwide Requirements Source: Ford Author: E. Paton Version: 2004 3/11/-2004	ClearCase VOB 3210 \DV3210\common\customer specifications\can20030function.doc
[7]	B2e MS-CAN message list – Source: Bosch B2e CAN SI & Ford CAN MUX specialist Author W. Dollery & Jose Mendez Version: R05.2	ClearCase VOB 3210 \DV3210\common\communication\CAN\ 2008-75B2yy_MSCAN_CSsample_R05.2.xls
[8]	Shark MC (Multi Channel) – Subsystem Specification Document Number: 10062266 Source: Ford Version: 1.8 (13-Sep-05)	ClearCase VOB 3210 \DV3210\common\customer specifications\IRX Multichannel RF System Specification V1.4.pdf
[9]	Requirement Sheet – RKE Receiver / Transmitter Source: Ford Version: 05.April.2004	ClearCase VOB 3210 \DV3210\common\customer specifications\Multi Channel Receiver Requirement Sheet.doc
[11]	SRS for WMM and RSM Document Number: 31816129 Source: Bosch Norbert Hog (EB-WS/ETW2) Version: Issue Index 8, 19/07/06	
[12]	2008 B2yy Network Management Specification Document Number: ES-6S6T-12K529-BA Source: Ford, Author: Wayne Dollery Version: R3.4	ClearCase VOB 3210 \DV3210\common\customer specifications\ 2008B2yy_Network_Management_Specificati on_R03.4.doc
[14]	MY06 V1.7 BGEM Functional Specification Document Number: NA Source: Ford Version 1.7 (October 18, 2004)	
[16]	Interior Motion Sensor Document Number: 31811385 Source Ford: Version: Revision 2, Vol 1	NOTE-DPR-31811385-002-01-IMS.doc
[17]	Battery Backed up Sounder Document Number:31812380 Source Ford Version: revision 7	NOTE-DPR-31812380-004-01-BBS.doc

Ref.	Document Title	Location
[18]	Preliminary Technical Information – SOFTWARE SPECIFICATION – Communication via the LIN (Extract) Document Number: TKU 0 144 Y01 219 Source: Bosch Version: 1.0	04-06-18- TKU update LIN –Interface with Car Code.pdf
[19]	Vehicle Identification Number Storage Strategy (V34x – 2006.5) Document Number: NA Source: Ford / Pablo Rodriguez, Toby Harcombe-Smee	
[20]	Shark Protocol Spec Version 1.8 Document Number: TBA Source: Ford, Sven Schneider	Hardcopy provided only. No copies allowed.
[22]	LIN Definition File for B2yy Document Number: Source: Volvo Version: M4L	TBA
[23]	EBL Specification for B2yy Date: 13-04-2006 M.Mould Source: Ford Version 1.3	
[24]	Application note for Failure Handling Source: Ford DRAFT 1.4 18-10-2004	
[26]	Interface Control Sheets (ICS') Developed by B299 SI team Stored on Sharepoint at Ford	BCM B-Car > Shared Documents > B299 > InterfaceControlSheets
[27]	Specification Visibility Source: Ford Author: Michael Alberti Version: 1.0 / 07-07-06	
[28]	Sub System Documents Developed by B299 SI team Stored on Sharepoint at Ford	.BCM B-Car > Shared Documents > B299 > Sub-System specifications

Table 1 Carry over B299 references

MCA reference specifications:

Ref.	Document Title	Version	Location / Comment
[29]	Ford B2e Body Control Module (BCM) Bosch BCM functional specification Carry over BCM requirements from B299	13	Bosch ClearCase: dv3210_11_0_0_CP3_5_core_au\DV3210\commo n\bosch_specifications_Ford_B2e_Functional Specification.doc
[30]	Ford B299N Body Control Module (BCM) Bosch BCM functional specification. Carry over BCM requirements from B299N	8	Bosch ClearCase: dv4318_doc_ONGOING_core_au\DV4318\Devel opment\03_Requirements & Specs\01_Bosch Product Specs
[31]	Exterior lighting system diagram (DTRL) B232 Headlamps 06.xls	08-10-10	Bosch Portal: DV4691_B299_MCA_BCM\Development\03 Requirements & Specs\05 Customer Specs & drawings\Exterior Lighting
[32]	ICE blue specification Requirements on the Body Control Module280310.pdf	29-03-10	Bosch Portal: DV4691_B299_MCA_BCM\Development\03 Requirements & Specs\05 Customer Specs & drawings\ICE blue
[33]	SRD Locksystem EuCD and C1MCA. DCU interface spec	Rev 026, 01	Bosch Portal: DV4691_B299_MCA_BCM\Development\03 Requirements & Specs\05 Customer Specs & drawings\Locking -global opening and closing
[34]	MUX system architecture B232_Architecture_29.09.2010i.ppt	29-09-10	DV4691_B299_MCA_BCM\Development\03 Requirements & Specs\05 Customer Specs & drawings\MUX architecture
[35]	ES-AG9T-17D547-AA	AA	Visibility spec, mainly for C1MCA (former Visibility SRD)
[36]	CAN database	B232_EA_BMSCAN_R26a.dbc	Bosch ClearCase: ..\DV4691\SW\NETCOM\CAN\DATABASE
[37]	LIN1 schedule table	B2YY_L1_R22b_020.ldf	Bosch ClearCase: ..\DV4691\SW\NETCOM\LIN\CONFIG\Database
[38]	LIN2 schedule table	B2YY_L2_R21_010.ldf	Bosch ClearCase: ..\DV4691\SW\NETCOM\LIN\CONFIG\Database
[39]	ECUConfigurationSpecification-002.pdf	002	From netcomm eRoom (referenced in the Rear View Camera specification)
[40]	C346 CGEA camera _ draft_ v06_sdeleski_12.05.2010.doc	V06	Ford Rear View Camera (RVC) specification from Sergej Deleski
[41]	Configuration Options_2011JAN14.xls		Configuration file received from Ruth Vann
[42]	FS-BC3T-14B476-AC.pdf	AC	Ford US D-Car BCM spec with integrated RVC receive from Ruth Vann
[43]	101215 IPMB Master Calibration Table.xls		Configuration with method 2 for IPMB module (received from Martin Geng)
[44]	GGDS 003 specification	NOTE-TREG-31810161-003- 01.pdf	Received with SOW documents
[45]	Sensor & Transmitter Asy – Tire Pressure ES-9L2T-1A150-AD	Version D, 09/25/2008	Bosch Portal: DV4691_Ford_B299_MCA_BCM / Development / 03_Requirements & Specs / 04 Customer Specific norms / RKE & TPMS
[46]	Tire Pressure Monitoring Receiver Functional Requirements FS-AT4T-1560- A5	Version 5, 25/03/2008	Bosch Portal: DV4691_Ford_B299_MCA_BCM / Development / 03_Requirements & Specs / 04 Customer Specific norms / RKE & TPMS

Table 2 MCA references

3.7 Installation Instruction

NOTE: This equipment (BCM) has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For further installation details refer to <http://etis.dealerconnection.com>.