Model Name: BPCMFX
Type of product: Battery Pack Control Module
Brand Name: Visteon
Manufacturer: Visteon Corporation
Manufacturer Address: One Village center drive, Van Buren Township
48111-5711 Michigan
United States of America

BPCM Features

The Battery Pack Control Module (BPCM) serves as the electronic controller, equipped with necessary sensing and actuation circuits, a microprocessor, and embedded software.

All cell voltages and module temperatures are reported directly to the BPCM (Battery Pack Control Module on a regular periodic basis via Wireless communication.

The Battery Pack Control Module (BPCM) comprises a central electronic board and local cell supervising electronics that are responsible for the individual monitoring of each cell.

The BPCM implements Monitoring Unit boards that uses a Pinnacle IC (ADRF8951), this is an IC that provides wireless communication between the Battery Cell Monitoring chip and the Battery Management System Controller.

BPCMFX operates in the frequency range 2.405 GHz - 2.480 GHz (ISM band) by using Wireless battery management technology.

Wireless BPCMFX Connector Pinout (Cell Connections)

For wireless BMS applications, CSC is integrated into battery module. BMS and Battery Pack Supplier shall be responsible to connect all battery cells to CSC modules. Every single wire between battery cell voltage acquisition point to CSC module shall have fuse protection circuit.

CSC shall contain passive balancing circuitry. BPCM shall have protection to ensure that the balancing does not turn on when it's not intended to balance. Cell balancing logic shall follow SRD requirements.

DUT Pinout Information

Connector J1

PIN #	Signal Description	Type	Voltage (V)	Current (A)	Comments
J1-01	VKL30			3.7	KL30 LV Power
J1-02	VKL30C			1.7	KL30C Contactor Power
J1-03	AO_HSD9	Out		2.5	Pyro_Fuse Trigger Signal HSD Output
J1-04	**GND**			5.98	**Vehicle GND**
J1-05	GND [Temp Sens 3/5]			with J1-25&26	Temp 3/5 GND [Busbar]
J1-06	GND [Temp Sens 4/6]			with J1-27&28	Temp 4/6 GND [Breaktor]
J1-07	Diag1	In		0.005	Breaktor Diagnostic 1 - Mirror State

J1-08	Diag2	In		0.005	Breaktor Diagnostic 2 - Internal (PWM)
J1-09	GND (12V Cur Sens)			with J1-29	Current Sensor (Hall - 12V) GND
J1-10	NC	-	-	-	No Connection
J1-11	AO_LSD2	Out		with J1-32	[K4] DC-charge positive relay LSD
J1-12	VSS_RTN	Out		with J1-33	[K1] Breaktor Coil VSS
J1-13	AO_LSD4	Out		with J1-34	[K5] DC-charge negative relay LSD
J1-14	AO_LSD13	Out		with J1-35	[K2] (Negative) Pre charge relay LSD
J1-15	AO_LSD5	Out		with J1-36	[K3] (Positive) Pre charge relay LSD
J1-16	NC	-	-	-	No Connection
J1-17	ACU_IN_POS	In		0.06	ORC crash input
J1-18	**GND**			with J1-4	**Vehicle GND**
J1-19	HVIL2_OUT	Out		0.06	External(PWM) HVIL output
J1-20	VDD12V_2			0.1	Breaktor 12V HSD (Low-Current VDD EE Supply)
J1-21	VKL30			with J1-1	KL30 LV Power
J1-22	VKL30C			with J1-2	KL30C Contactor Power
J1-23	AO_LSD12	Out		with J1-3	Pyro_Fuse Trigger Signal LSD Output
J1-24	ENA	Out		0.005	Breaktor 5V Enable (Switch Command)
J1-25	AI_IN3	In		0.01	Temp 3 - BDU Ambient Temp
J1-26	AO_LSD11	In		0.01	Temp 5 - REEV Busbar Temp
J1-27	AI_IN4	In		0.01	Temp 4 - Breaktor Temp 1
J1-28	AO_LSD10	In		0.01	Temp 6 - Breaktor Temp 2
J1-29	AO_HSD7	12V Out		0.24	Current Sensor Power Supply (Hall - 12V)
J1-30	GND (12V_Curr_Sens)			with J1-31	Current Sensor (Shunt - 12V) GND [(Shunt - 5V)-Option]
J1-31	12V_Power2	12V Out		0.24	Current Sensor Power Supply (Shunt - 12V)
J1-32	AO_HSD2	Out		0.6	[K4] DC-charge positive relay HSD
J1-33	VDD12V_1	Out		0.6	[K1] Breaktor 12V HSD (High-Current Coil Supply)
J1-34	AO_HSD4	Out		0.6	[K5] DC-charge negative relay HSD
J1-35	AO_HSD13	Out		0.6	[K2] (Negative) Pre charge relay HSD
J1-36	AO_HSD5	Out		0.6	[K3] (Positive) Pre charge relay HSD
J1-37	NC	-	-	-	No Connection
J1-38	AI_WakeUp_IN1	In		0.01	HCP/EVCU WakeUp
J1-39	HVIL2_IN	In		with J1-19	External(PWM) HVIL input
J1-40	NC	-	-	-	No Connection

Connector J2

PIN #	Signal Description	Type	Voltage (V)	Current (A)	Comments
J2-01	NC	-	-	-	No Connection
J2-02	NC	-	-	-	No Connection
J2-03	AI_IN2	In		0.01	TEMP2 (cooling temperature sensor 2 - outlet)
J2-04	AI_WakeUp_IN2	In		0.01	Pressure Sensor WakeUp - In
J2-05	DO_WakeUp_OUT2	Out	-	0	WakeUp Vehicle - RESERVED

J2-06	SCAN_L	In/Out		0.1	Service CAN Low
J2-07	DCAN_L	In/Out		0.1	Diagnostic CAN Low [DCAN_L]
J2-08	NC	-	-	-	No Connection
J2-09	NC	-	-	-	No Connection
J2-10	VCAN_H	In/Out		0.1	Vehicle CAN High (Primary) [CANFD11_H]
J2-11	VCAN_L	In/Out		0.1	Vehicle CAN Low (Primary) [CANFD11_L]
J2-12	FSCAN_H	In/Out		0.1	Vehicle CAN High (Secondary) [CANFD5_H]
J2-13	FSCAN_L	In/Out		0.1	Vehicle CAN Low (Secondary) [CANFD5_L]
J2-14	NC	-	-	-	No Connection
J2-15	NC	-	-	-	No Connection
J2-16	NC	-	-	-	No Connection
J2-17	NC	-	-	-	No Connection
J2-18	NC	-	-	-	No Connection
J2-19	AI_IN1	In		0.01	TEMP1 (cooling temperature sensor 1 - inlet)
J2-20	GND Temp Sens 12			with J2-3&19	TEMP1/2 GND
J2-21	DO_WakeUp_OUT1	Out		0.01	Pressure Sensor WakeUp - Out
J2-22	SCAN_H	In/Out		0.1	Service CAN High
J2-23	DCAN_H	In/Out		0.1	Diagnostic CAN High [DCAN_H]
J2-24	NC	-	-	-	No Connection
J2-25	NC	-	-	-	No Connection
J2-26	VCAN_H	In/Out		with J2-10	Vehicle CAN High (Primary) [CANFD11_H]
J2-27	VCAN_L	In/Out		with J2-11	Vehicle CAN Low (Primary) [CANFD11_L]
J2-28	FSCAN_H	In/Out		with J2-12	Vehicle CAN High (Secondary) [CANFD5_H]
J2-29	FSCAN_L	In/Out		with J2-13	Vehicle CAN Low (Secondary) [CANFD5_L]
J2-30	NC	-	-	-	No Connection
J2-31	NC	-	-	-	No Connection
J2-32	NC	-	-	-	No Connection

Connector J3

PIN#	Signal Description	Type	Voltage (V)	Current (A)	Comments
J3-01	GNDA [U00]			0.1	HVBAT_NEG（PACK Negative relay inside）
J3-02	AI_HV1_U3	In		0.01	HV_VC（PDC fuse outside, F1, PDC)
J3-03	AI_HV2_U9	In		0.01	HV_VH (Fx, REEV EDM, WS)
J3-04	NC	-	-	-	No Connection (protect for shunt current sensor input)
J3-05	AI_HV1_U2	In		0.01	HV_VB (PACK Positive relay outside)
J3-06	AI_HV1_U6	In		0.01	HV_VF (EDM B fuse outside, F3, EDM B → Rr)

Connector J4

PIN#	Signal Description	Type	Voltage (V)	Current (A)	Comments
J4-01	AI_HV1_U1	In		0.01	HV_VA（PACK Positive relay inside)
J4-02	AI_HV2_U7	In		0.01	HV_VG（PACK Negative relay outside)
J4-03	AI_HV2_U8	In		0.01	HV_VE（DC-charge Negative relay outside)
J4-04	AI_HV1_U5	In		0.01	HV_VJ（DC-charge Positive relay outside)
J4-05	U01	In		0.01	HV_VBGND (PACK Positive relay outside)
J4-06	AI_HV1_U4	In		0.01	HV_VD（EDM A fuse outside, F2, EDM A → Fr)

Critical Interface Signals

Signal Description	**Voltage/Current Level**	**Frequency**	**% Duty Cycle (range)**	**Other**
Critical Outputs				
Relay Drive (HSD)	12V	DC	N.A.	
Relay Drive (LSD)	0V	DC	N.A.	

External PWM HVIL (HVIL2)	12V	88 Hz	50%	
External HVIL (HVIL2)	12V	88 Hz	50%	
Pyrofuse Control	12V	DC	N.A.	
Hall Current Sensor PS (HSD7)	12V	DC	N.A.	
Shunt Current Sensor PS	5V	DC	N.A.	
Critical Bus				
D-CAN	0 ~ 5 V	Digital 500 Kbps	50% - Data String	Differential, twisted
S-CAN	0 ~ 5 V	Digital 500 Kbps	50% - Data String	Differential, twisted
V-CAN	0 ~ 5 V	Digital 500 Kbps	50% - Data String	Differential, twisted
V-CAN Loop	0 ~ 5 V	Digital 500 Kbps	50% - Data String	Differential, twisted
Critical Inputs				
Crash Signal	12V	500bps	Data String	
Ground (GND)	0 V	DC	0% - DC Voltage	
Battery (KL30/KL30C)	Battery Voltage	DC	0% - DC Voltage	
Wakeup Signal	Battery Voltage	DC	N.A.	
Inlet/Outlet Temp. Sampling	0 ~ 5 V	DC	N.A.	
HV Measurement (HV_V)	0 ~ 400V	DC	N.A.	0 ~ 384V for testing
HV Measurement (V0, Reference)	0 V	DC	N.A.	
HV Measurement (HV_VB[GND])	0 V	DC	N.A.	

The following information shall also be included in the case of radio equipment intentionally emitting radio waves:

a. Frequency band : 2.405 – 2.480 GHz
b. Maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates.
c. Max output power = 12 dBm

(**U.S.A. and Canada**)

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) The device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF exposure safety

This device complies with the FCC RF exposure limits and has been evaluated in compliance with portable exposure conditions.

The equipment must be installed and operated and was evaluated with minimum distance of 20 cm of the human body. This distance or greater is maintained by vehicle design and ensures compliance by normal use of the vehicle.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment 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.

ISED CANADA

This device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and

(2) The device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et,
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF exposure safety

This device complies with the RF exposure limits and has been evaluated in compliance with portable exposure conditions.

The equipment must be installed and operated and was evaluated with minimum distance of 20 cm of the human body. This distance or greater is maintained by vehicle design and ensures compliance by normal use of the vehicle.

CAN ICES-003(B)

Les changements ou modifications non expressément approuvés par la partie responsable de la conformité peuvent annuler le droit de l'utilisateur à utiliser l'équipement.

Sécurité d'exposition aux RF

Cet appareil est conforme aux limites d'exposition RF d'ISED et a été évalué conformément aux conditions d'exposition portable.

L'équipement doit être installé et utilisé à une distance minimale de 20 cm du corps humain. Cette distance ou plus est maintenue par la conception du véhicule et assure la conformité par l'utilisation normale du véhicule.

CAN NMB-003(B)

Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.

Part 15 – Interference Statement (On Part and in Owners Manual, or in Owners Manual)
NOTE: When the device is so small or for such use that it is not practicable to place the Interference Statement on it (e.g. TPMS), the below statement shall be placed in the Owners Manual:
"This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Interference Statement (On Part and in Owners Manual, or in Owners Manual)
Licence-exempt radio apparatus shall contain the following or equivalent notice in a conspicuous location in the user manual or alternatively on the device or both.
This device complies with Innovation, Science, and Economic Development Canada (ISED) licence-exempt RSS standard(s).
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device

Homologation by ift IFT ABCDEF23-123456

Certification By: NYCE

'La operación de este equipo está sujeta a las siguientes dos condiciones:
(1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada'.

a) Lea el Manual antes de operar o usar el Equipo.
b) Información de importador:
Nombre: Stellantis Mexico S.A. de C.V.
Dirección: Av. Prolongación Paseo de la Reforma 1240, Santa Fe Cuajimalpa, Cuajimalpa de Morelos, Ciudad de México, 05348.
Contacto: Osbahal Miguel Mascarua Bañuelos
Correo: miguel.mascarua@stellantis.com
Teléfono: +52 554-350-1487
c) Marca: Visteon Corporation / Nombre del Modelo: BPCMFX
d) El BPCMFX es instalado dentro del Battery Pack, por lo tanto, el usuario final no tiene interacción directa con el producto.
e) Especificaciones Eléctricas:
Tensión de alimentación: 13.5 Vcc
Corriente de alimentación: 0.6 A
Frecuencia: 2.4 GHz
Potencia: 8.1 W