TAME-POWER
TRONICO
Innovative Power Solutions

BMS-CSU SERIES
Litium Battery Management System

Cells Survey Unit

BMS-MCMS-xxxx-00xx-01-A

FEATURES

- Scalable solution for high energy storage solution
- Precise cell voltage measurement
- Cell and power terminal temperature inputs
- Integrated cell balancing
- CAN 2.0 communication
- Up to 825V working voltage
- Redundant hardware alert wire
- Ultra-low shutdown power
- High reliability design (EN61508 SIL2 compliant)
- Fully qualified from -40 to +85°C
- 3kVac isolation voltage (IEC60950 double isolation compliant)

APPLICATIONS

- Medium to high power energy storage systems

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS	MIN	TYP.	MAX	UNITS
Battery voltage (V_{batt})	-0.3		60	V
Cell voltage (V_{batt})	-0.3		5	V
Low side supply voltage	-0.3		33	V
CAN bus terminal voltage	-4		16	V
Temperature sensor voltage	-0.3		5	V
Alert wire voltage	-50		50	V
Alert wire current			50	mA
Working coltage (V_{work})			825	V

TRONICO ALCEN
26 rue du Bocage
85660 St-Philbert-de-Bouaine – France
Tél. +33 (0)2 51 41 91 35 – www.tronico-alcen.com
alternative-energies@tronico-alcen.com

ELECTRICAL CHARACTERISTICS [1][2]	MIN	TYP.	MAX	UNITS
Battery voltage	6		56	V
Cell voltage	1		4.7	V
Series connected cells (N_{CELL})	6		12	-
Overcharge detection voltage per cell (V_{OC})	V_{OC}-0.010	V_{OC}	V_{OC}+0.010	V
Overdischarge detection voltage per cell (V_{OD})	V_{OD}-0.010	V_{OD}	V_{OD}+0.010	V
Alert wire overcharge voltage per cell (V_{AOC})	V_{AOC}-0.010	V_{AOC}	V_{AOC}+0.010	V
Alert wire overdischarge voltage per cell (V_{AOD})	V_{AOD}-0.010	V_{AOD}	V_{AOD}+0.010	V
Overtemperature threshold	63	65	67	°C
Voltage measurement error			10	mV
Balancing loads	39	41	43	ohms
Battery drain power (active)			400	mW
Battery drain power (storage)			3.5	mW
Low side power drain (active)			120	mW
Overcharge detection delay			200	ms
Overdischarge detection delay			200	ms
Alert wire detection delay			1	s
CAN Bus frequency[2]		500		kHz
Recommended sensor for temperature inputs	Semitec - 103KT1608T-1P			
Dielectric withstand voltage between high and low sides (V_{iso})[3]	3			kVac

(1) Over -40 to +85°C temperature range
(2) Other values available on request
(3) According to IEC60950. Production flash tested 2s.

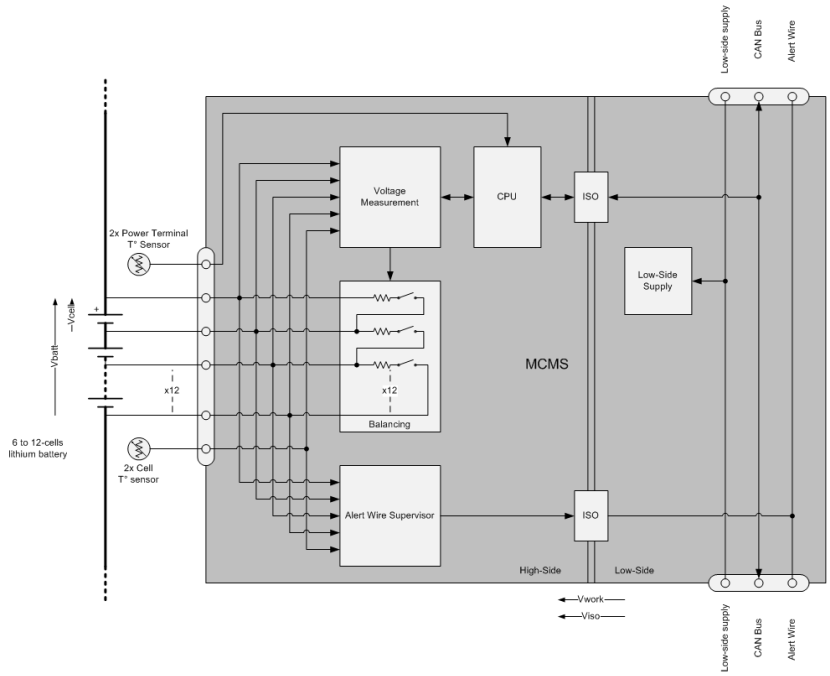
ENVIRONMENTAL CHARACTERISTICS	MIN	TYP.	MAX	UNITS
Operating ambient temperature	-40		+85	°C
Storage temperature	-40		+125	°C
MTBF[4]		990		khrs

(4) According to UTE C 80-810, ground mobile, 40°C

MECHANICAL CHARACTERISTICS	MIN	TYP.	MAX	UNITS
Length		103		mm
Width		82		mm
Height(5)		12		mm

(5) Without connectors

BLOCK DIAGRAM



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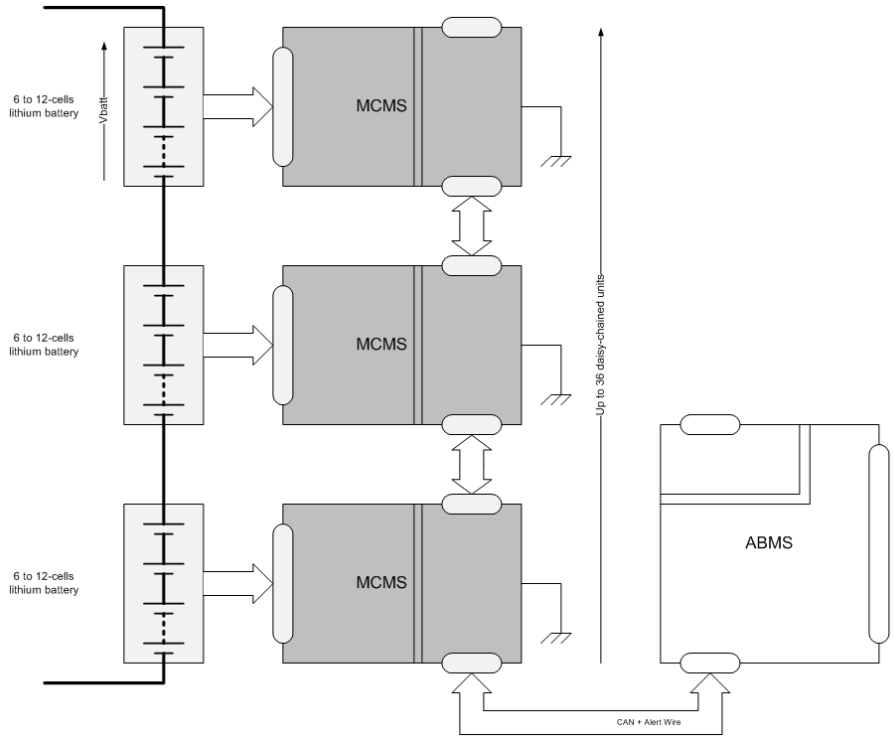
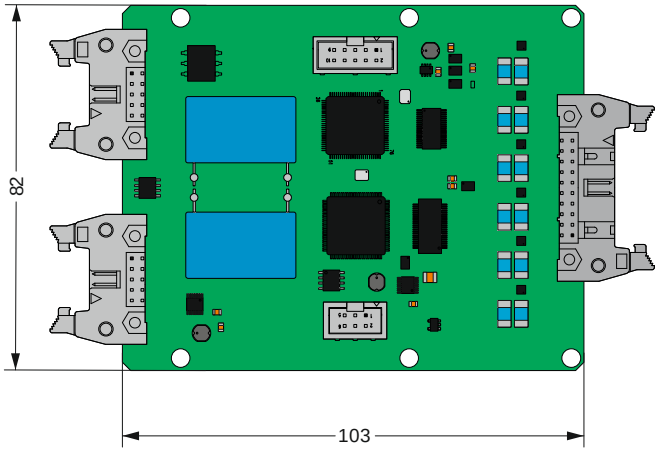
TYPICAL APPLICATION



DIMENSIONS



DIMENSIONS

Cell type	Overcharge detection voltage V_{OC} (V)	Overdischarge detection voltage V_{OD} (V)	Alert-wire overcharge detection voltage V_{AOC} (V)	Alert-wire overdischarge detection voltage V_{AOD} (V)
LITO	2.80	1.50	2.90	1.40
LFPO	3.80	2.40	3.90	2.30
LPOL	4.20	2.85	4.30	2.75

Table 1 : Voltage thresholds

ORDERING INFORMATION

BMS	-	MCMS	-	Ax	Ax	-	01-A
Product Family		*Product Model*		*Cell Chemistry*	*Cell Number*		*Reserved*
Battery Management System		Multiple Cells Monitoring System		AA: LITO = Lithium Titanate Oxyde AB: LFPO = Lithium Iron Phosphate AC: LPOL = Lithium Polymer	AA: 6 Cells To AE: 12 Cells		

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