

**EBS-60-240 EBSi-60-240  
EBS-60-400 EBSi-60-400**

### Electronic Battery Switch

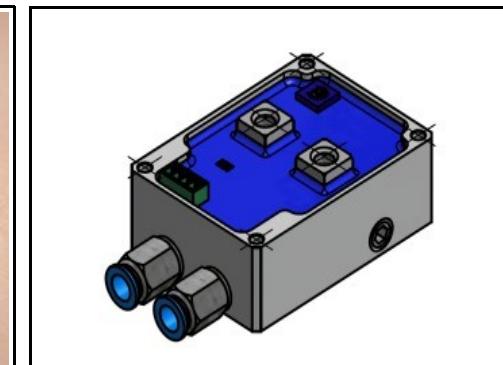
- MOSFET switch
- adjustable current limit
- precharge unit
- insulated control
- water cooled (option)



**EBS-60-240**



**EBSi-60-240**



**EBSi-60-400-WK**

	<b>EBS-60-240 and EBSi-60-240</b>			<b>EBS-60-400 and EBSi-60-400</b>		
<b>Power stage</b>	min	typ	max	min	typ	max
DC-voltage range	0Vdc		60Vdc	0Vdc		60Vdc
DC-current range	0Adc		240Adc (Note 1)	0Adc		400Adc (Note1)
DC-current limit range (Note 3)	20Adc		240Adc	40Adc		400Adc
DC-current limit trigger delay time		10µs			10µs	
R <sub>ds_on</sub> (25°C, Terminal-to-Terminal)		0.002 Ohm			0.001 Ohm	
Energy, active clamped at switch-OFF			1 Joule			1 Joule
Precharge current (25°C/80°C Note 2)		250mA/40mA			250mA/40mA	
Main switch leakage current (OFF)			100µA			100µA
<b>ON-signal (INPUT) (Note 4)</b>						
Turn-On threshold, 20mA	8Vdc		60Vdc	8Vdc		60Vdc
Turn-Off threshold, 20mA			7Vdc			7Vdc
Input current (8V..60V), internal limited		20mA	28mA		20mA	28mA
<b>ERROR-signal (OUTPUT) (Note4 )</b>						
Input current (3V..60V), internal limited	1mA	20mA	28mA	1mA	20mA	28mA
LOW-Level ,1mA			3Vdc			3Vdc

	EBS-60-240 and EBSi-60-240			EBS-60-400 and EBSi-60-400		
Miscellaneous	min	typ	max	min	typ	max
Insulation voltage (signal-to-power)	1.500Vdc			1.500Vdc		
Insulation voltage (signal-to-base/case)	1.500Vdc			1.500Vdc		
Operation temperature range	-10°C		80°C	-10°C		80°C
Weight (EBS / EBSi / EBSi-WK)		100g/270g/320g			100g/270g/320g	
Material EBSi/EBSi-WK pot case	AlMgSi1					
Screw torque (M8-terminals)			9Nm			9Nm

Note 1: External heat sink required for continuous operation at high currents.

Note 2: Precharge unit derates current at high temperature for protection → cool down EBS, if precharge fails caused by low precharge current.

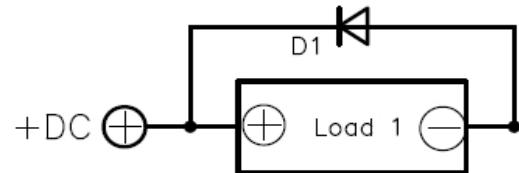
Don't connect additional loads that could lower precharge current for main load (SLS/ESC).

Note 3: Adjust current limit as low as possible in order to protect your load!

Note 4: Because current is limited there is no resistor needed for driving external LED



## EBS / EBSi



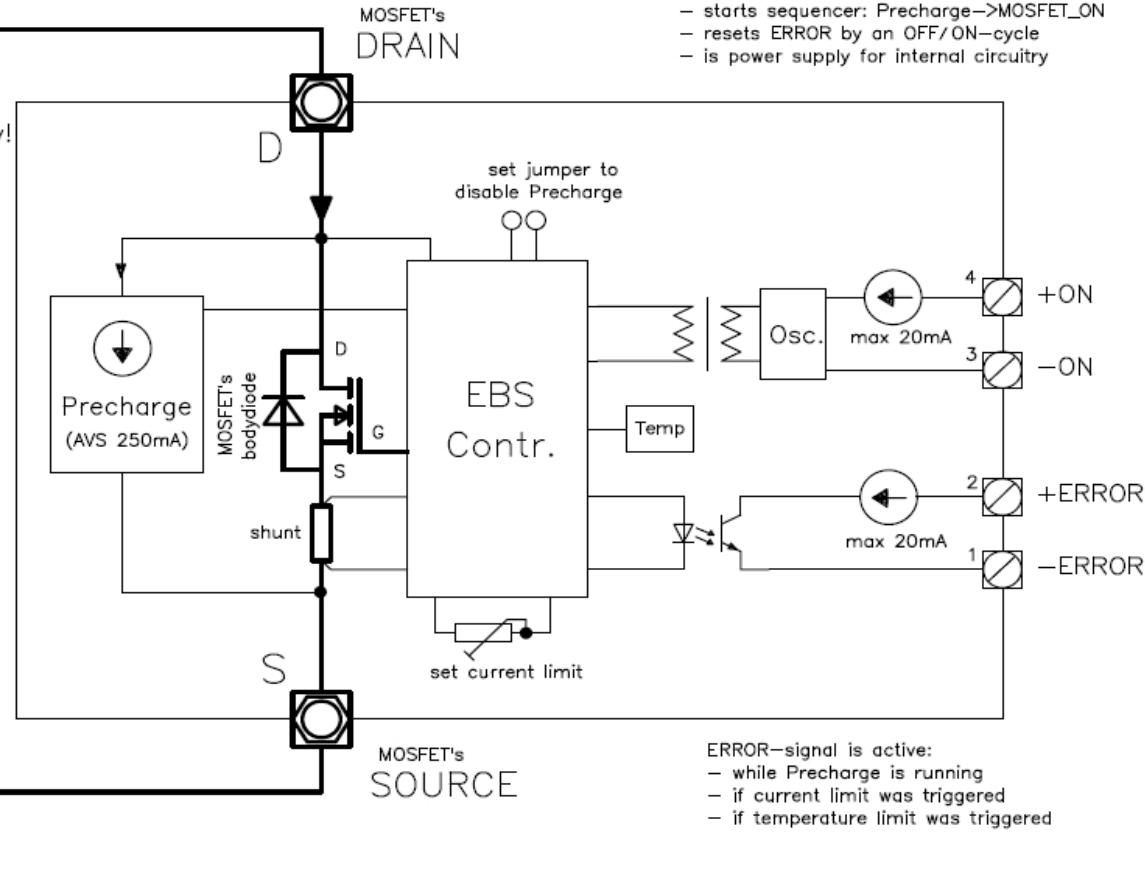
### WARNING:

Don't wire DRAIN/SOURCE in reverse polarity!

- current will use MOSFET's bodydiode path!
- MOSFET's bodydiode path can't be switched OFF!
- ALL protections will be inactive! (no current/temp limit)
- Precharge will not work!
- this can result in PERMANENT DAMAGE of your EBS and/or Load!

### Load:

- may be placed high- or low-side (Load 1/2)
- inductive load needs extra free wheeling diodes (D1/D2)
- resistive load may need Precharge to be disabled
- capacitive load (SLS/ESC) needs Precharge to be enabled



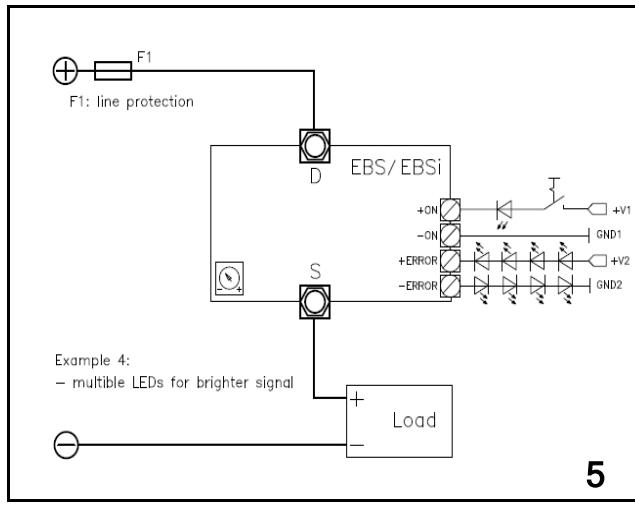
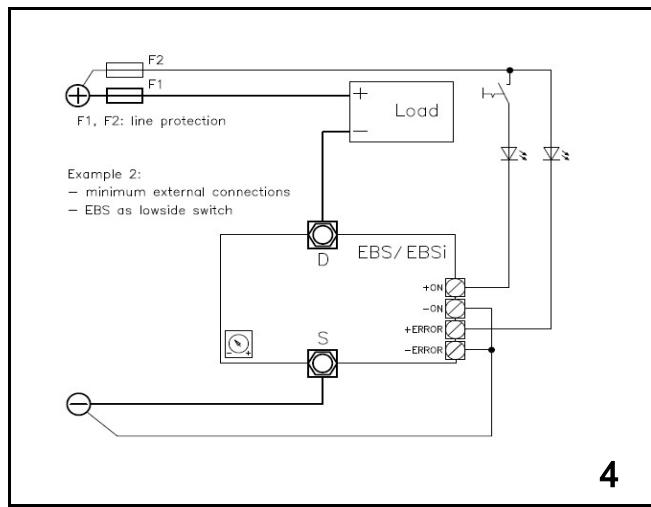
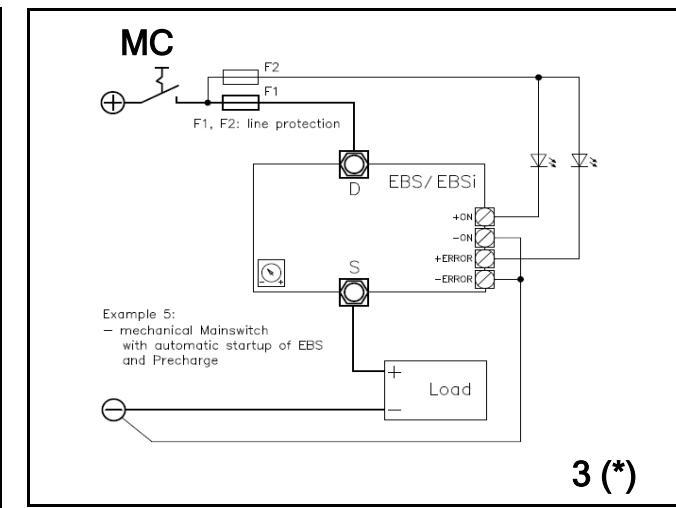
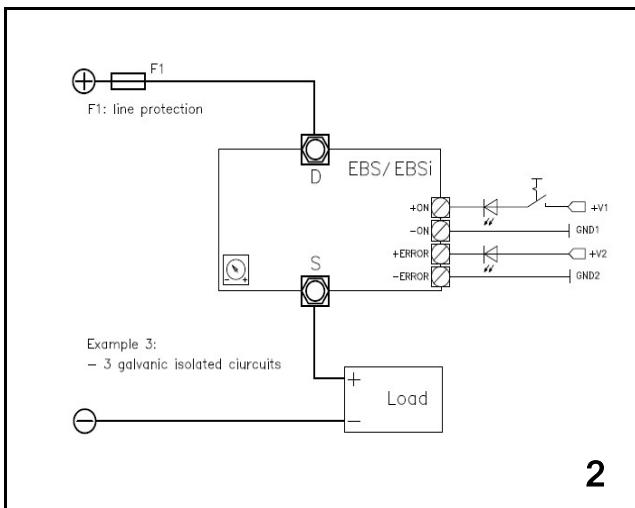
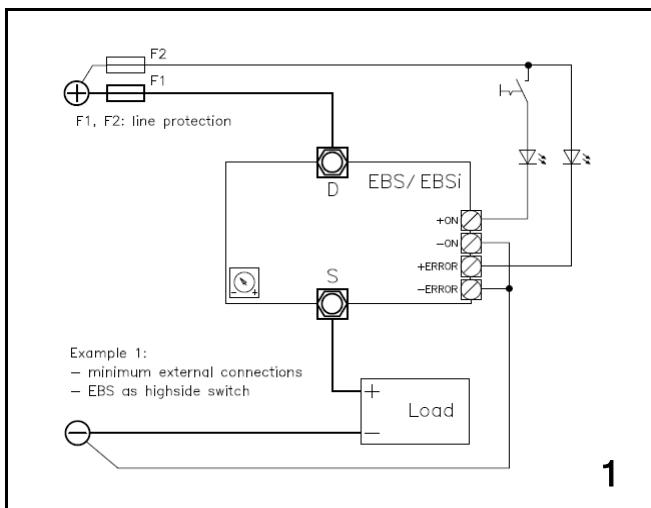
### ON-signal:

- starts sequencer: Precharge→MOSFET\_ON
- resets ERROR by an OFF/ON-cycle
- is power supply for internal circuitry

### ERROR-signal is active:

- while Precharge is running
- if current limit was triggered
- if temperature limit was triggered

## EBS/EBSi - Examples of usage



**(\*) above example 3:**  
PreCharge may fail if main contactor MC is not suitable debounced!

Workaround: add a R+C in serial from Drain (D) to Source (S) of the EBS/EBSi.  
(e.g. 47µF/100V electrolytic cap + 22R/5W)  
The Cap will hold Drain-Voltage above Source-Voltage until PreCharge is finished in case of dropouts caused by the MC.

If this workaround does not work, an additional switch at +ON is needed as shown in example 1.