

FBS DRIVE / BRAKE CONTROLLER

Construction:

The **FBS Drive/Brake Controller** provides a rugged control solution for operator to rail equipment interface. Your specific control requirements can be accommodated by a variety of standard and custom engineered configurations.

The versatile design of the **FBS Drive/Brake Controller** accommodates a variety of mounting and handle options including mechanical interlock and T-handles, custom mounting plates and enclosures. The **FBS** accommodates proportional and discrete outputs including micro-switches, snap action contacts, encoders, PROFIBUS, CANbus, potentiometers, and PWM for stepped and proportional outputs.

Application:

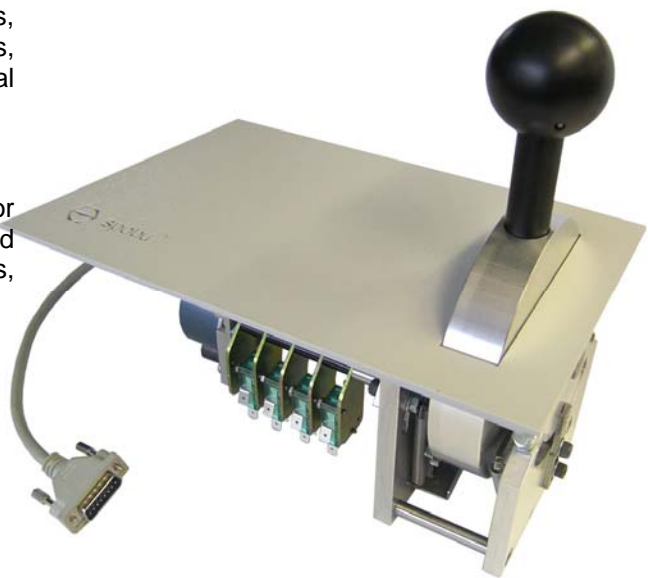
The **FBS** controllers are widely used in applications for propulsion and brake control on locomotives, light rapid transit, high-speed rail trains, passenger rail, trams, trolleys, people movers.

Features:

- Versatile compact design
- Heavy duty construction with smooth precise control feel
- 20 million cycle mechanical operating life
- Safe and ultra reliable forced open contacts
- Highly customizable

Options:

- Custom mounting options such as slotted covers with and without brushes and customized mounting plates
- Custom screening and engraving
- Friction held handle
- Custom stepped detents
- Large selection of output choices
- Step or stepless construction with friction held or maintained handle action or a combination of both
- Custom handle configurations including mechanical interlock, twist, and push-button / deadman handle functions.



FBS ORDERING INFORMATION

- Drive Arrangement:** Single axis – direct drive
Basic Assembly: 5" shaft length supplied standard
Handle: Round ball standard, T, tapered and custom handles on request
Handle Action: Friction held or maintained
Output: Proportional, discrete, stepped
Output Devices: S870 micro-switches, S800 and S826 snap action contacts, 16A VNSO contact blocks, encoders, PROFIBUS, CANbus, potentiometers, and PWM amplifiers.

FBS TECHNICAL DATA

Mechanical:

- **Mechanical Life:** 20 million cycles
- **Gear Ratio:** 2.8:1
- **Detented Positions:** Per customer request
- **Handle Travel:** $\pm 45^\circ$
- **Standard Potentiometer Rotation:** $\pm 126^\circ$

Environmental:

- **Operating Temperature:** -20 to +60°C
- **Storage temperature:** -40 to +70°C
- **Protection above the panel:** IP54
- **Regulatory Testing:**
 - Tested acc. to EN50155 10.2.3 (EN60068-2-1, Ad -35°C) cold
 - Tested acc. to EN50155 10.2.4 (EN60068-2-2, Ad +70°C) dry heat
 - Tested acc. to EN50155 10.2.5 (EN60068-2-30) humid heat
 - Tested acc. to critical frequency, vibration, shock
 - Encoder acc. to EN50121-3
 - EN50155

Electrical:

- **Potentiometers:** Conductive Plastic, 0.5 watt 5K 3-wire or 10K 4-wire center tap, 5 million revolutions
Connections: 20 AWG Hi-Temp, XLPVC, UL1430 wire with Molex connector (03-06-2042)
- **Electronics:** Potentiometers, voltage and current amplifiers, optoelectronic encoders, CANbus, PROFIBUS and PWM Amplifiers
Connections: Varies with product

VNSO double contact blocks:

Rating:

- 16 Amps continuous @ 240VAC
- Resistive 8 Amps
- 1 H.P. 120 VAC Single Phase
- 2 H.P. 240 VAC Single Phase

DC Rating:

- 24VDC Resistive: 1.7 Amps
- 24VDC Inductive: 1.1 Amps

Max. switching capacity:

- Making 100 Amps 240VAC
- Breaking (0.7 PF) 80 Amps 240VAC

Electro-mechanical life:

Resistive: 8 Amps @ 240VAC 1 million operations
2 Amps @ 240VAC 10 million operations

Inductive: 6 Amps @ 240VAC 1 Million operations
2 Amps @ 240VAC 10 million operations

Dead front protection (DIN 60529): IP40...IP54

Connections: Saddle clamp terminals

Contact drive mechanical life: 20 million cycles

Approvals: UL Recognized File # E106738M
CSA File # 15040

Regulatory testing:

IEC60947-1, DIN EN 60947-1, VDE 0660 part 100
IEC60947-5-1, DIN EN 60947-5-1, VDE 0660 part 200

Snap action contact:

S800

- Inductive: 3 Amps 230VAC
- Inductive: 1 Amp 110VDC

S826

- Inductive: 1 Amp 230VAC
- Inductive: 0.5 Amps 110VAC

Contact element degree of protection: IP40

Contact type: DPDT wiping contacts

Mechanical life: 10 million cycles

Insulation: Impulse withstand voltage 4 KV

Pollution degree: PD3

Connection: Screw terminal

FBS TECHNICAL DATA

Electrical (cont'd):

Micro-switch:

S870

Ratings:

- 10 Amps continuous @ 110 VAC
- Inductive: 1.5 Amps @ 230 VAC
- Inductive: 2 Amps @ 24 VDC

Contact element degree of protection: IP40

Mechanical life: 10 million cycles

Contact type: SPDT wiping contacts

Insulation: Impulse withstand voltage 2.5 KV/3

Operating Temperature: -40 to + 85° C

Storage Temperature: -50 to +85° C

Connections: Screw terminal

Options:

- **Handle:** See handle section for a selection of handle options. Custom handles available upon request
- **Shaft Length:** 5" or per customer request
- **Handle Action life:** Maintained and friction brake
- **Mounting:** Custom mounting plates and consoles available upon request
- **Special Potentiometer:** Please consult factory with special potentiometer requirements

Please consult factory for other available options not listed.

FBS OVERALL DIMENSIONS

