

Connecting
man & machine.



INNER DOOR CONTROL



Door control
on the railways

► Door control on the railways

You will find our controllers reliably controlling automatic inner doors, doors between compartments, and WC doors in high-speed trains and other rolling stock. The newly developed 32-bit controllers provide even more functionality and configuration options for reliable continuous operation.

Excellent functionality

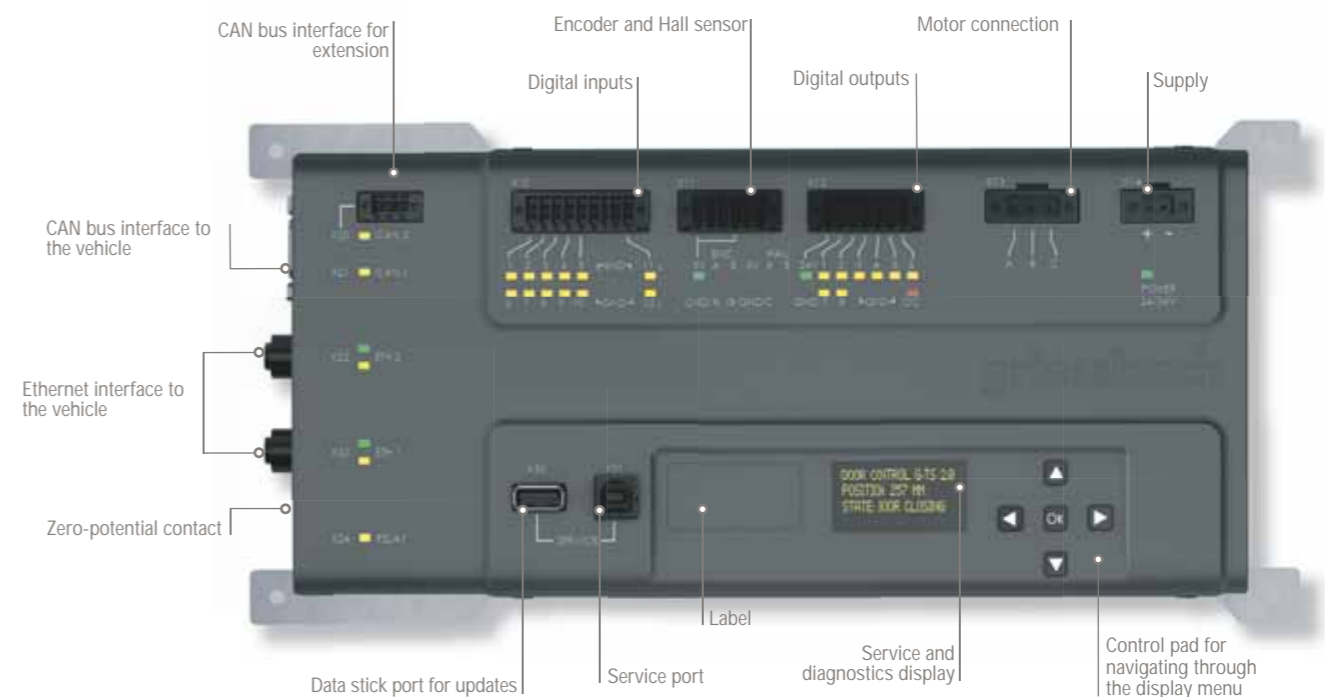
A newly integrated tilt sensor matches the automatic door to the exact carriage tilt as the train travels around a curve or along a raised track. The reverse function has undergone further improvement with extremely quick drive reversal to exclude any possibility of crushing or jamming even at higher door speeds. The pre-installed firmware provides a host of configuration options to set the controller flexibly and accurately to individual door characteristics such as number of leaves, weight, opening width, and speed, controlled using DC or AC drive, or even three-phase drives. Five navigation keys ensure fast and easy control.

Variable interfaces

The standard controller comes with two CAN bus interfaces where one connects to the train bus system, but additional ethernet, Profinet TCP/IP interfaces can be installed as options. Two USB ports are fitted as standard for parameterisation, service functions and firmware updates.

Robust construction

The controllers fulfil all of the current standards with respect to temperature, vibration and impact resistance during operation on the railways. The completely redesigned PC-ABS casing complies with the latest EN 45545-2 fire safety standard.



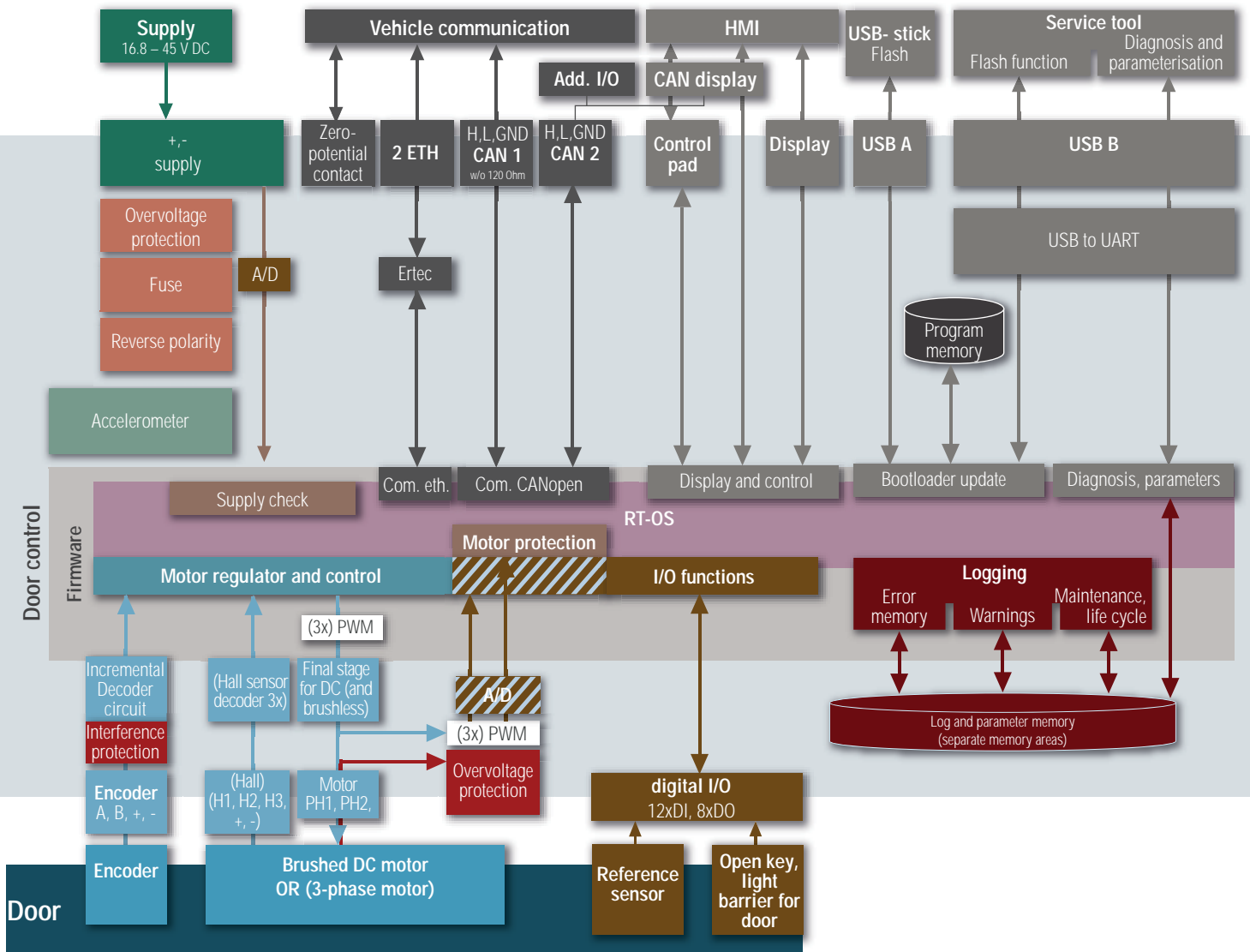
Technical specifications:

Voltage supply	
DC nominal voltage	24V, 36V
Voltage range	16.8V - 45V
Max current input	max. 15A
Protection functions	
Overvoltage protection	Voltage supply, motor, I/O
Temperature	Internal monitoring
Motor	
Motor types	Brushed DC motor, [three-phase motor]
Commutation 3PH	[Sinus]
Switching frequency PWM	20 kHz
Decoder	Incremental decoder, [Hall sensors]
Interfaces	
Motor	Motor A, B, [C]
Motor sensors	Door position, encoders A, B, (or differential A, /A, B, /B) [Hall H1, H2, H3]
Sensor supply voltage	5V/150mA; short circuit protection, overload protection, interference protection; overload signal via LED
Bus interfaces	2 CAN bus interfaces, one for extensions; galvanically isolated, 1 ethernet (optional) with two ports for daisy-chaining to an external bus

Diagnosis/servicing	USB-B device, USB-A Host
Digital inputs	10 high-side inputs, >14V, overvoltage protection, 2 low-side inputs, <1.5 kΩ, interference protection, status of all inputs via LEDs
Digital outputs	8 high-side switches, supply voltage 2.5A max on each output; 3.5A total, 4 outputs with cable break detection, short-circuit protection on outputs, overload protection, status of all inputs via LEDs
DC voltage output	24V/100mA, such as connecting a reference sensor; short-circuit and overload protection, overload signal via LED
Relay contacts	1 changeover contact, zero potential, max 1A, state signal via LED, such as for collective faults

Software functions	Graphic display, ultra-wide viewing angle, very high contrast, menu control: Operating status, digital input/output status, error codes, service information, hardware/software rev., time and date, etc.
Display and control	Display
Keys	5-key control pad for menu control: Confirm (OK), up, down, left, right
Service and diagnostics	Plausibility checks
	Incremental signal, motor direction, reference sensor, switch; current sensor, tilt sensor
Retentive diagnostic memory	Events
	div. min. 1,000 entries
Errors	Errors
	div. min. 1,000 entries
Counters	Counters
	Door cycles, homing procedures, travel calibrations
Clock	Clock
	Real-time clock, >70 days retention
Service tool	Service tool
	Firmware update, date and time settings, access to parameters, display internal variables such as power, power conversion, door position, speeds, rotor position, el. angle speed, input voltage, number of reversals etc.
Maintenance	Maintenance
	Maintenance requirement detection, lifetime determination, cycle counter

Standards and compliance	
Fire protection	EN 45545-2
EMC	EN 50121-3-2, plus SBB/ÖBB
Operating conditions	EN 50155, S2, C1
Shock and vibration	EN 61373
Reversing force	EN 14752, <150 N (RMS), adjustable
Environment	EN 50125
Software	EN 50128 CE
Immediate environment	
Operating temperature range	-25 to 70°C (T3)
Storage temperature range	-40 to 85°C
Transport temperature range	-40 to 85°C
IP code	IP20
Dimensions	143 mm (W) x 40 mm (H) x 303 mm (L)



APPLICATION AREAS

