

# TACTICAL VEHICLE SOLUTIONS & SYSTEMS

**SOLVE IT.....**

**DESIGN IT.....**

**BUILD IT**

## **Improving Soldier's Safety & Security**

Control Solutions LLC® solves tough problems for armored military tactical vehicles.

- When the gun turrets on up-armored tactical vehicles became too heavy to hand-rotate; the Army and vehicle OEMs turned to Control Solutions for the answer.
- When the MRAP vehicle doors became too heavy to open on steep Afghan mountain roads, the Army turned to Control Solutions for the answer.

### ***Solve it, Design it, Build it.....***

It's not just a slogan, it's what we do! Control Solutions LLC is your one-stop integrator for tough motion control problems. Our team of engineers and ISO-certified manufacturing personnel stands ready to quickly solve, design, and manufacture your custom solution today.



**CONTROL  
SOLUTIONS™**

# TURRET SOLUTIONS



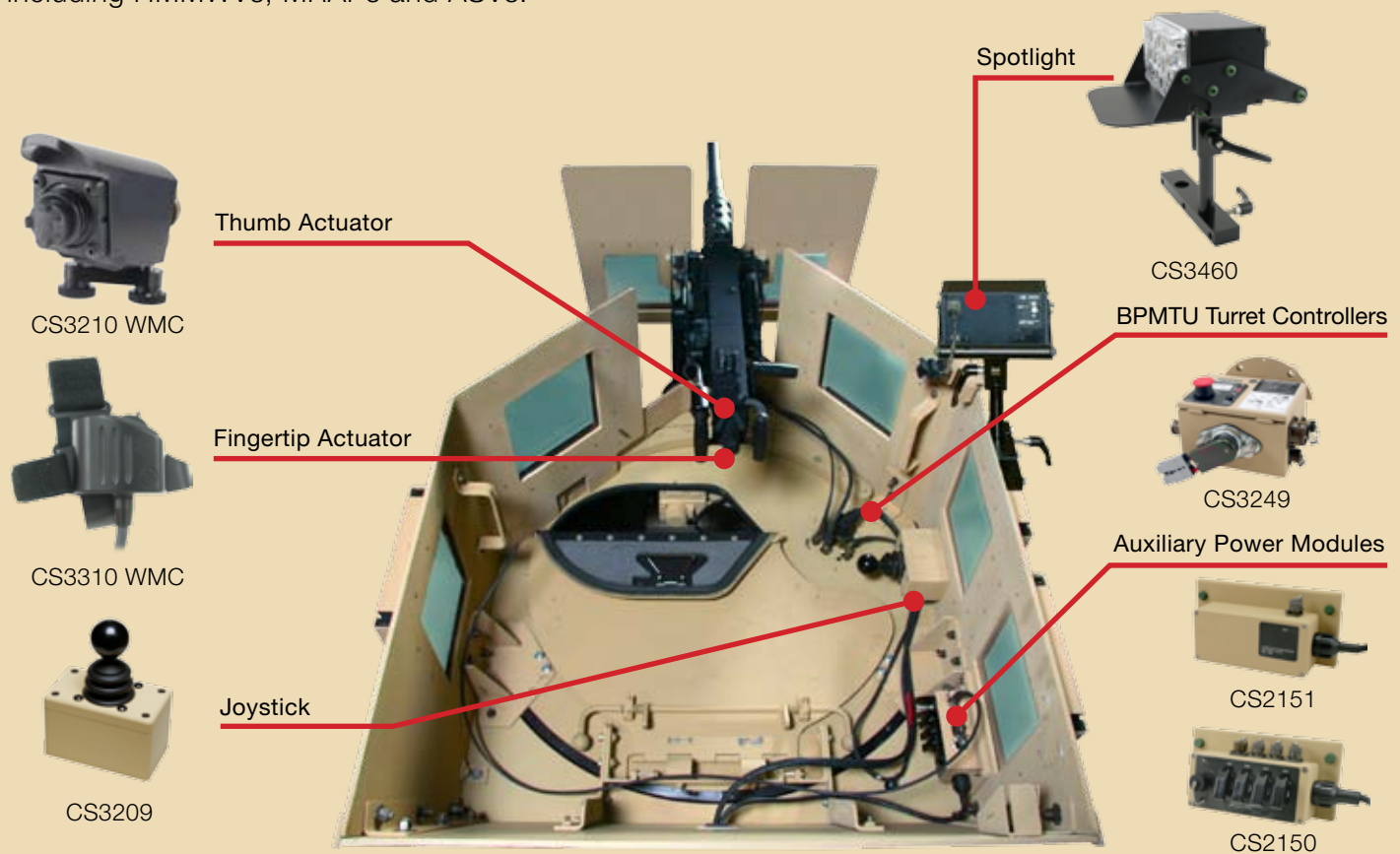
The Turret Control System (TCS) is the military's field-proven solution that enhances vehicle gunner survivability. The TCS product family reduces gunner fatigue and offers the ability to control the heavy armored gun turret while keeping eyes on the mission and hands on the weapon.

The TCS provides smooth, proportional acceleration and control of the armored gun turret even when the vehicle is on a high angle slope. The heart of the TCS is a rugged variable-speed motor controller and ring gear motor that form the Battery-Powered Motorized Traversing Unit (BPMTU) as well as the Improved Turret Drive System (ITDS) along with the system actuator (joystick or weapon-mounted).

The TCS has been fielded on over 60,000 platforms including HMMWVs, MRAPs and ASVs.

## TCS Features and Benefits

- Safe proportional speed control
- Turret-mounted batteries provide independent power
- Built-in intelligent battery charger won't drain vehicle batteries
- Smoothly turns armored turret even on a 30% slope
- Choice of actuators: joystick or weapon-mounted control
- Break-away power connector keeps turret fully charged
- Custom-programmable for different vehicles







# POWERED DOOR SOLUTIONS

\*Patented

The Power Door System (PDS) provides a patented (US #8002328) solution for door assist on heavily armored vehicles. The PDS has the ability to open the heaviest of vehicle doors on steep uphill slopes. The feature-rich door assist system provides the vehicle crew with the ability to operate the doors even when the truck power system is inoperable, limits ingress by unwanted personnel, provides emergency egress, and features programmable stop locations, intelligent battery charging, fail-safe activation, and a host of other provisions that enhance the operation, efficiency, and safety of the passengers.

## PDS Features and Benefits

- Designed to meet the specific needs of each vehicle and door geometry as a turnkey solution to the vehicle builder
- Multiple choices for door actuation (hydraulic, electromechanical)
- Smoothly open and close doors on 30% slopes
- Retrofittable on existing vehicle platforms
- Pervasive safety features and emergency override
- Battery operated; opens doors without vehicle power (up to 25 cycles)
- Intelligent battery charging from vehicle's power with built-in charge indicator
- Multiple in-vehicle open/close control locations
- Programmable open positions and door edge safety stop strips

### Switches:

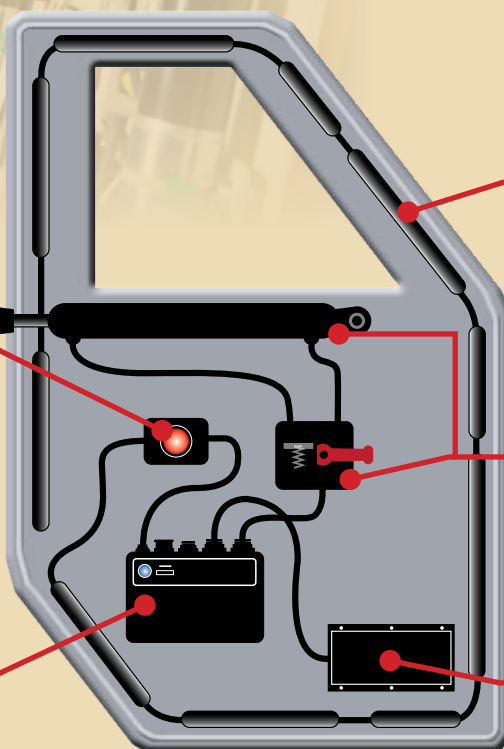
- Internal and external
- Lockouts available



CS3225

### Controller:

- Programmable speed
- Customizable stop positions



### Safety System:

- Door-edge stop strips
- Emergency stop button



### Actuator/Motor:

- Hydraulic or electric
- Varying lengths



CS4102







### Power:

- Independent battery backup
- Intelligent charging from vehicle

\* This product is covered by one or more of the following patents: US 8002328, US 7959211 and US Design D632554.







## TCS Turret Controllers Table:

Part Number	Description	Part Number	Description
 CS3208B	Motor controller for the BPMTU* turret drive system; a component of the Objective Gunner Protection Kit (O-GPK)	 CS3249	Modified CS3248 ITDS controller for the LRAS (input/output/power located on the side of controller)
 CS3248	2nd-gen motor controller for the ITDS* (high-capacity motor, additional actuator input, external programming port)	 CS3308B	Modified CS3208 BPMTU controller for MCTAGS (Marine Corps Transparent Armor Gun System)
 CS3217A	Modified CS3208 BPMTU controller for the LRAS* (input/output/power located on the side of controller)	 CS3226	Variable Slew Rate Controller for ASV vehicle.

\* BPMTU – Battery-powered Motorized Traversing Unit ITDS – Improved Turret Drive System LRAS – Long-Range Acquisition System

## PDS Parts Table:

 CS3225	In-door variable-speed motor controller with built-in charger	 Safety Sensor Strips	Rugged safety stop bump switches prevent door pinching
 CS4102	Low-profile standalone battery for door assist system	 Electro-hydraulic Actuators	Door-mounted open/close actuators with e-stop feature



Control Solutions LLC corporate headquarters and manufacturing located in the western suburbs of Chicago, Illinois

Visit our website: [controls.com](http://controls.com) by scanning this QR code.



Specifications subject to change without notice.

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