



## The Extended Stop Arm – Specifications Rev 2

***The ESA (Extended Stop Arm) Exceeds the USA Standard 571.131 and Canadian Standard CMVSS 131 School Bus Safety Devices.***

**Overview** -The Extended Stop Arm provides a physical presence designed to stop vehicles from passing stopped school buses. The arm has a break-away feature such that, if struck at a significant speed, it will shear the bolt connections and the electrical connection minimizing damage to the unit and the driver. This is patented product #US 9,245,465 B1. The arm takes 5 seconds to deploy or retract for electric, and 4 seconds for air. Should the electric arm be opened into another object, or the side of another bus, it will automatically retract and reset after 20 seconds, protecting both the Extended Stop Arm and the Linear Actuator.

**The Extended Stop Arm** is powder-coated aluminum or steel, vinyl, with stainless steel fasteners. The electrical wiring is all U.V. protected cabling. It is covered by our 5-year warranty, which is backed up by the individual product warranties of the contracted manufacturers.

### **FEATURES:**

**Lights** - are independently plugged into the wiring harness. Meaning any light can be replaced individually. They are all bright 9 LED in a sealed housing US FMVSS 108 vehicle lighting compliant. The lights stay on for 2 extra seconds when closing to allow for the arm to close against the side of the bus.

**Sign** - is current to the Federal specifications for the Stop sign in both size and specific quality of lettering and reflectivity.



**Aluminum break-away frame** - is powder-coated aluminum built to our specifications. Total weight of frame, lights, and sign is 7 pounds.

**Steel support square frame** - This is powder-coated steel and has the strength to support the break-away aluminum frame. This allows shearing of the #8 nylon 5/16" bolts.

**Steel Hinge support** - This is designed to support the original sign, and our new steel frame, as well as the aluminum break-away sign. This is comprised of a heavy-duty steel vertical and horizontal member, which also supports the linear actuator. Both the vertical and horizontal pieces have 3/4" X 1/2" bronze iolite bushings. In addition, the hinge piece itself has a 1/2" stainless steel rod as the hinge which operates within the bronze bushings. The fasteners are all stainless steel including the studs on this hinge piece.

**Wiring harness** - for the lights is attached using a harsh environment waterproof ATM series sealed connector for the weather seal at the breakaway point.

**Electronic Control Unit** - This was developed specifically for the Extended Stop Arm. It controls the flash and strobe of the lights, as well as the Linear Actuator or pneumatic cylinder that move the arm. This requires a 15-amp supply line fuse from the fuse box, and to be connected to the control wire for the existing Stop Arm lights. The unit requires minimum current.

**Linear Actuator** - This is a 100# thrust unit, with an IP66 rating operating at a temperature range of -35c to +40c, providing consistent operations of the Extended Stop Arm. This has a 400# static load for keeping the arm against the side of the bus.

**Air/Pneumatic Double Acting Cylinder** – This is a 100lbs of thrust unit. It has all stainless-steel parts that use the bus compressor air to power in and out. The air pressure securely holds in the Extended Stop Arm when the bus is running. A check valve keeps the arm secure when the bus is off. An electric control unit also controls the air cylinder.

**Length** – The Extended Stop Arm is available in two lengths: a 1.37m (4.5') and 1.98m (6.5') total length. The shorter version can be used on routes with 1 lane, or in parking lots.

## Frequently Asked Questions about the Extended Stop Arm



**CMVTC**, a division of MJG Technologies is proud to provide our exclusive ESA (Extended Stop Arm) to Canadian School Buses. This is a school bus safety device intended to proactively eliminate stop arm violations. The Extended Stop Arm is an extension of the driver's side stop sign that works in conjunction with the existing bus stop sign.

### Purpose

- **Why do school systems need the Extended Stop Arm?** Thousands of people illegally pass stopped school buses every day. In Canada this amounts to over 6 MILLION Stop Arm Violations annually. Too many children are killed or seriously injured due to Stop Arm Violations. Close calls are not acceptable either.

### The Product

- **What is the overall design of the Extended Stop Arm?** It consists of a steel frame attaching to the bus at 3 points which provides protection for the original stop sign. An aluminum breakaway frame is mounted to the steel frame with 2 shear bolts.
- **How much does the Extended Stop Arm weigh?** The aluminum extension sign and arm weigh only 7 pounds.
- **How far from the bus does the arm extend?** The total length from the side of the bus for the long arm is 1.98m (6.5') or 1.37m (4.5').

- **Is the wiring harness a plug and play system?** Yes. The wiring has connectors at both ends and feeds through the aluminum frame conduit.
- **How does wind affect the sign?** The shear pins will withstand a 100 KPH (55 MPH) wind gust.

## Operation

- **How much training is required to operate the Extended Stop Arm?** Minimal training is required given that the arm works on the same controls that the drivers currently use. Drivers simply need to be mindful of the additional space that the sign will occupy.
- **What happens if someone hits the Extended Stop Arm?** The extension arm is attached to the main bracket with shear pins that break off safely if the sign is significantly hit.
- **How does the product handle vibration as it travels along the road?** The arm is deployed and retrieved with a UL certified linear actuator arm or air cylinder. This mechanism securely holds the arm close to the bus when not in the extended position.
- **In the event of an accident, can the bus continue its route?** Yes, the bus can continue and function with just the original sign until the extension arm can be re-attached.

## Installation and Maintenance

- **How long does it take to install the Extended Stop Arm?** This aftermarket device is easily installed in less than 3 hours. With some training, most mechanics could install the product themselves.
- **Is it compatible with any model bus?** The product is designed to retrofit on practically any model school bus. The Extended Stop Arm has been installed on 5 different makes of buses of varying age.
- **Are the lights replaceable?** Yes. Lights are individually replaced with a pin connection, thus saving money by not having to replace all of the lights if there is an issue.
- **How often do the shear pins have to be replaced?** This will depend on road conditions. Pins should be replaced every 3-6 months as it is difficult to determine if wear is apparent. The cost is a little over a \$5.00 for a pair of shear pins.

## Legal

- **Is it illegal to hit the Extended Stop Arm?** Yes, the extension arm and sign are legally part of the school bus.
- **Is the school liable for damages caused by a motorist that hits the Extended Stop Arm?** As it is illegal for any other vehicle to occupy the area in which the Extended Stop Arm extends, the offending vehicle is liable for damages to the sign or bus as well as their own vehicle.
- **Does the second sign meet Federal Specifications?** Yes, the additional sign has the required size, coatings, and reflectivity required to meet Canadian School Bus standards.

## Warranty

- **Warranty for the Extended Stop Arm:** The manufacturer, Bus Safety Solutions offers a 5-year warranty on its product and material workmanship. This is supported by manufacturer warranties on the sign, lights, electronic board, and linear actuator. There is a 30-day warranty on the labor of installation.

## Fundraising

- Students and Parental groups across USA have been **creating fundraising programs** to help fund additional ESA's for their school buses. These have been a Student and Parent initiated fundraising programs. CMVTC can assist in the creation and setup of similar programs in Canada. The awareness gained from these efforts has also educated the public on the Stop Means Stop laws of a stopped School Bus.



### **CMVTC MJG Technologies** (Canadian Provider)

- **CMVTC** is a Canadian developer, producer and supplier of HD video technologies for over 16 years. **Commercial Mobile Video Technologies of Canada** is also a vocal advocate for Student School Bus Safety and the exclusive supplier of the ESA (Extended Stop Arm) in Canada. Our aim is to stop illegal and dangerous Drive-Bys of stopped school buses with stop sign extended with proactive and reactive solutions. Drivers **MUST** respect the Stopped School Bus. The first ESA installation in Canada was completed in Alberta in February 2020. Success has been exemplary!

### **Bus Safety Solutions** (Manufacturer)

- **Who is Bus Safety Solutions?** The inventor and manufacturer is located in Winston-Salem, NC. The manufacturing is performed by insured sub-contractors in the United States, the majority of which is done in North Carolina. The product is then assembled in Winston-Salem, NC by Bus Safety Solutions. With over 900 successful ESA installations across USA the ESA has proven to reduce over 95% of drive-bys.

**For more information on our Extended Stop Arm, please contact us today.**

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