

## TEMP-A-START—DESCRIPTION OF INNOVATION



Automatic Start/Stop for Extreme Cold Climates

### The Invention

Patented in 1987, the Temp-A-Start (TAS) Automatic Start/Stop technology kit was designed for the long-haul truck market to monitor block temperature, battery charge condition, and monitor inside and outside ambient temperature to climate control the interior of the truck, reduce idle time and save fuel. The system monitors these parameters and independent of each other can start and stop the engine based on thresholds set for the parameters. Licensed to Detroit Diesel in 1995 and Cummins Engine in 1998 hundreds of thousands of engine ECU's (Engine Control Modules) were imbedded with the technology.

In 2005, Richard LeFrancois, President of EMI-Global (EMI), a well-established technology provider for Heavy Equipment in the construction, oil and gas and mining industries operating in the Arctic, sub-Arctic and far north regions of North America, was approached by Temp-A-Start to introduce the technology kit in these regions. Until this time, the off-road machines operated in this climate had never been considered for this technology mainly due to the remote and harsh operating environments.

### The Application and Implementation

EMI went to work and in November 2005 EMI-Global partnered with Arctic Slope Regional Corp. (ASRC) to install the first ever TAS 24v system on a Volvo L180E loader. After installation in Fairbanks, AK the machine was trucked to Prudhoe Bay, Alaska and tested in a quarry operation where due to extreme cold the operating practice was to let a machine idle during off-duty time. The system performed as designed and throughout 2006 ConocoPhillips Alaska and ASRC both began installing construction machines. The **Innovation**: Keeping a machine in a ready to work state without excessive or constant idle time in an extreme cold weather climate. The **Result**: Reduce off-duty idle time from 14 hours to 3 hours.

### Industry Publicity

In November 2007 an article titled "North Slope Businesses Benefit from New Practice" was published in the Alaska Business Monthly. "To understand the impact of utilizing this technology on 2000 machines across Prudhoe Bay, Terry Howard, Director of Equipment Operations for ASRC, estimated a fuel savings of \$560,000.00 during a single 10 hour shift, solely by reducing idle times".

### More than Fuel Savings... Benefits to our Environment and Reduction in Operating Costs

In addition to fuel saved below is a list of ten areas where "soft dollars" may be realized through the use of Temp-A-Start. It is amazing what a change in a current business practice can do for the bottom line and that has such a positive impact on machine management, machine value and on the environment:

- Extend oil drain intervals
- Reduce service time and shop floor costs
- Reduce the amount of consumables
- Reduce the hazardous waste stream
- Reduction in idle time reduces introduction of particulates in the atmosphere
- Reduced opportunity for contaminants to enter the engine
- Reduction in battery service calls
- Reduction in alternator failures
- Reduction in starter and voltage problems
- Provides an indicator to operators to check the system in the event of alternator failure, battery failure or bad groundings

In the past 8 years, after EMI-TAS reimagined and repurposed the technology, it has been installed on machinery from a 789D Cat 150t haul truck to a portable Miller Welder. It provides service to Heavy Equipment operators and their support equipment well beyond the purpose it was originally intended to serve. Continuing efforts and design updates will carry the technology to all industries operating in extreme cold climates worldwide.

**"It's a great piece of technology, LeFrancois said. We just had the opportunity to plug it into a situation where the value is very evident"** ...Alaska Business Monthly, November 2007.

**"We see this as a good opportunity to reduce fuel use and improve air quality."** Steve Rinehart, a spokesman for BP-Alaska...Alaska Business Monthly, November 2007.

[www.emi-global.com](http://www.emi-global.com)

[www.emi-temp-a-start.com](http://www.emi-temp-a-start.com)

**Temp-A-Start** The evolution of the temp-a-start unit has not only reduced it's size and weight, the installation time has been reduced by 50%.

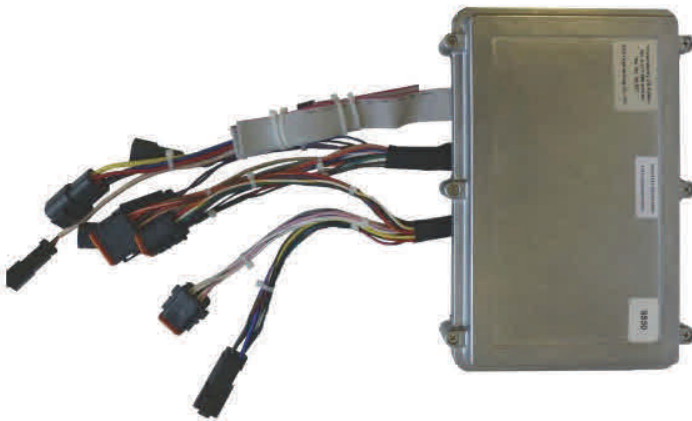
Original Unit

8 in x 6 in x 2 in / 2.60 lbs



Reinforced Enclosure

11 in x 8 in x 3 in / 5.15 lbs

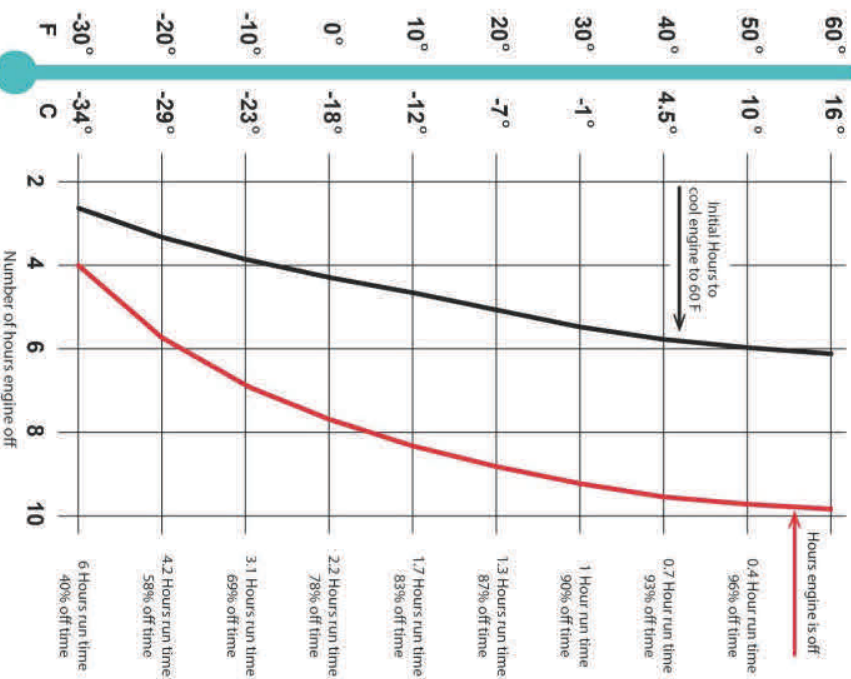


TAS 2014

6 in x 4.5 in x 2 in / .60 lbs



Temp-A-Start Savings During A 10 Hour Idle\*



\* Actual performance may vary depending on tractor model, wind and other environmental conditions.



2014 Climate Control Unit

