Prismatic VMS.

triplesign.com
Innovation and ECO Technology

sustainability

Triplesign Solar Powered signs - a sustainable solution leaving zero carbon footprint

Climate change and reduction of CO^2 emissions are currently high on the agenda all over the world. Local communities and cities are looking for sustainable solutions to guide the traffic and prevent accidents.

The power consumption for displaying the message is zero with a Triplesign VMS. Reflective foil is used to display the message. In comparison to an LED VMS that needs continuous power to display the message, a Triplesign VMS is the more sustainable option.

The power consumption for a standard and online connected Triplesign VMS controlled via WiFi or SIM card is only 1 Watt/hour, which is a fraction of the power consumption of an LED VMS.

The expected lifetime of a Triplesign is at least 20 years, with limited and simple maintenance, especially compared to an LED VMS.

The service life can be extended by another 20 years by exchanging (only) the active components through a simple and patented procedure.

The Triplesign standalone solar sign is easy to install. Because the sign can be controlled wirelessly and is self-sufficient in power supply, **no cable excavation using heavy machinery is required, which drastically reduces carbon footprint.**

Another advantage is the installation time to get the sign up and running. This is a matter of hours instead of days. Installing a Triplesign VMS has a limited impact on traffic flow and no major and expensive roadblocks and traffic safety measures are required to install the sign.

Conclusion: **The carbon footprint for installing and operating a Triplesign VMS is minimal, especially compared to an LED VMS.**

safer traffic information

Where an LED sign will stop displaying messages during a power outage, a Triplesign will always display a message

A Triplesign is immune to a power outage due to the battery and solar solution. The low power consumption of the Triplesign also means that there is minimal cost to power the sign. An LED VMS consumes considerably more power to display the same message and is therefore much more expensive. **As the size of the sign increases, the costs for power consumption of an LED VMS will increase linearly, while the costs for a Triplesign VMS will remain the same.**

70 to 90% lower cost compared to LED enables wide scale affordable traffic information.

The affordable standalone wireless Triplesign Solar is independent of cable connections. This means it **can be placed anywhere**, ensuring traffic safety information can be placed exactly where needed. Traffic Sign Recognition (TSR) systems used in cars cannot always recognize text as well as symbols. Using a VMS with a symbol message is safer than one with lengthy text.

A Triplesign VMS can be activated by sensors warning the road user. For instance, slippery road, reduced speed, approaching train at unattended railway crossing, heavy vehicle at construction site entrance/exit.

Future Proof

The Triplesign VMS is future proof

With Advanced Driver Assistance Systems (ADAS) emerging, Traffic Sign Recognition (TSR) technology is used by various car suppliers. Research has shown that a continuous (prismatic) VMS has better readability than discontinued VMS (LED), because flickering in the LED VMS makes it difficult to read. To improve the readability of LED VMS you need even more power.

Another issue is that a very quick change of message can be missed by the TSR system, which **in general reads symbols better than text.**

The Triplesign VMS constantly displays a clear message making it compatible with the TSR technology.

applications

Temporary or road work signs

Road works tend to drastically impact the traffic flow. The traffic may also be required to be temporarily redirected. There is a need for flexible traffic information that can be changed frequently without the risk of injuring road workers.

Municipality information

Traffic regulations in urban areas may change depending on time of day or situation.

Portable Solar Triplesigns can be used to redirect traffic and/or closing streets or zones during market days, festivals, sports- or other events. This is all safely managed through the Triplesign web interface where everything can be controlled in once place.

Urban safety

An urban traffic environment is full of hazardous areas for road users.

Some particularly dangerous areas are unattended railway crossings, school zones, pedestrian- and cycle lane crossings and construction site entrances/exits. Using a Triplesign with flexible traffic information will make these areas safer.

Portable warning signs can also be used for temporary work zone areas, stopping or re-directing traffic near accidents or to let rescue vehicles pass.

Tunnels and bridges

It is compulsory by law to alert when a tunnel or bridge is closed.

Warning signs

A warning sign can be a combination of flexible speed, hazardous road conditions or stopping traffic.

Weather conditions such as ice, flooding, rain, snow & wind can affect the driving conditions. The Triplesign can be activated using these as a trigger.

A portable Triplesign can be used at temporarily hazardous areas such as road damages or stopping traffic for short-term danger.

A Triplesign Solar VMS in the right location and activated at the right time can save lives.

applications

Flexible speed signs

Today the road system is not fully optimized due to a lack of flexibility. Flexible speed signs can optimize the safety and traffic flow. Reducing the speed at poor driving conditions or heavy traffic and increasing the speed at low traffic volume and good road conditions will enhance the traffic flow.

Traffic flow

Direct the traffic with a 3-in-1 sign. Closing 1 lane, open up the hard shoulder as an extra traffic lane. During rush hours it is also possible to use reversible lanes. The Triplesign VMS is a perfect solution for this.

Vehicle VMS

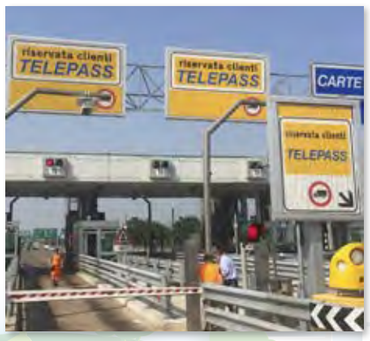
For flexible traffic direction and information at road work or incident.

TR2130C Approved. Tested for portable and permanent road traffic control equipment. Including vibration and shock resistance testing.

Terminals

Traffic intensity varies significantly in and out of major terminals.

The use of a VMS could be used to instantly direct the traffic flow to avoid long queues and traffic jams.



Toll- and Customs station

Directing the traffic to the correct station, depending on the type of vehicle and payment method.

technology

Standard Features

- Bi-directional mechanism, closest path rotation
- PLC-Operated
- Tailored Programming
- Automated rotation functionality check
- IP68 Connectors
- IP68 Proximity sensors, PNP, 24VDC with bayonet quick connectors
- Power consumption 0-2W in standby mode

Flexible Solutions

The Triplesign VMS is not limited to the traditional 3 messages. Different parts of the unit can be operated separately, creating possibilities to display various sets of information. This is also beneficial from a cost point of view.

The Triplesign VMS can also be integrated with a static sign to create a so-called hybrid sign.

A very important aspect of the low power consumption is that **the system requires almost no power in standby mode.** Therefore the system is perfect for remote applications, combined with UPS and a small solar panel.

This is the perfect system for traffic authorities and communities requiring flexible non-urban traffic control at a reasonable cost

Communication

The sign can be operated via various means of communication.

Wireless Communication:

- 3G/4G
- Short range wireless
- 5G is currently in development

Wire Communication:

- Ethernet Cable (Modbus TCP/IP)
- Cable RS485 (Modbus RTU)
- Dry Contacts

On Site:

- Directly from the PLC

On site control can be programmed to override remote control or vice versa.

TIM - Triplesign Internet Manager

The TIM enables wireless communication, including a Triplesign Web Interface accessible from any computer, smartphone or tablet.

technology

Knocked-Down transportation

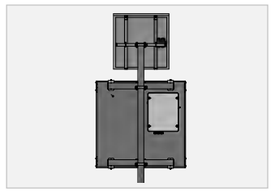
For large units there are **significant savings in transportation costs** as the system is modular and therefore can be delivered partly unassembled in standard wood packing, to be assembled near the location.

Optional

- Manual operation as compliment to PLC operated

- Built in VMS

- Wired push button or switch



- Pole mounting system

- Anti-freeze heating system

- Self-carrying back structure for gantry- or large pole post installation

Maintenance

The Triplesign VMS framework is made of anodized aluminium, giving the main structure of the sign an expected lifetime of several decades.

Triplesign have developed a patented system for both servicing and completely replace the mechanical and electrical components without dismounting the frame. This is easily done and takes very little time.

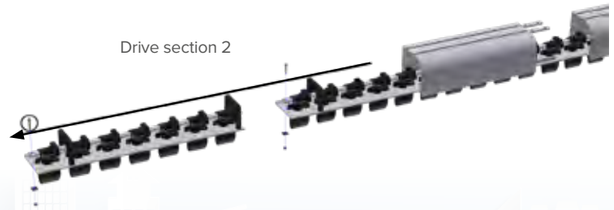
We recommend an exchange of the drive sections after 20 years.

Time will pass but the Triplesign will remain.

- *Triplesign VMS certified in accordance with EN 12966-1 2005+A1:2009*
- *Already tested and approved for new coming 12966 standard*
- *TR2130C tested approved*
- *Great Britain Highway approval*

Drive section 1

Drive section 2



Triplesign Factory, Vrigstad, Sweden

Triple Sign System AB is a swedish-based producer of three message signs founded in 1998 by former owners of World Sign International.

— With my family being in the forefront of the prismatic sign business for more than 20 years, I am proud of our journey with Triplesign, now being the leader of innovation in this market.

Hans-Ivar Olsson, Managing Director

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