Divelbiss Corporation

Design & Manufacture of off-the-shelf and custom Programmable Logic Controllers, Electronics & Internet of Things (IOT) Devices
1-800-245-2327

Divelbiss E-News - May 2017

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The Grass is Always Greener

It's that time of year, our lawns have awoken from their winter slumber and are in desperate need of some TLC. Except for neighbor Fred that is, it's as if his lawn came out of winter unaffected by the months of bitter cold. His grass is a deep green and always mowed and trimmed to perfection without a single weed to be found. To make matters worse, no one has ever seen Fred lift a finger to maintain his lawn or anyone for that matter. It's as if his lawn is AstroTurf or just stops growing when it reaches an optimal 2.5 inches tall. His neighbors Tom, Dick and Harry have grown tired of their wives and friends constantly asking why their yard doesn't look as nice as Fred's, they are convinced something fishy is going on and decide to investigate.

One night after a cookout and a few beers Tom, Dick and Harry

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Timer Relay Functions Explained

Time Delay on Drop Out (TDDO), Time Delay on Pickup (TDPU) and Other Variations

Relays have proven to be one of the most useful electronic devices ever invented. With the right relay functions we have been able to automate the world. Today we will take a closer look at a few of the more commonly used programmable timer relay functions. For complete Application notes and programing tips follow the link:
http://www.divelbiss.com/Support/supt/appnotes/

The action of the TDDO or Time Delay on Drop Out function is to energize the output as soon as the input trigger is activated. The preset timer begins as the trigger is removed i.e. on the falling edge of the signal. The output will remain energized for the preset time value. The Elapsed time value will reset if the input trigger is activated and deactivated again. A typical application would be on an assembly line to detect the presence of a missing part on a conveyor belt.
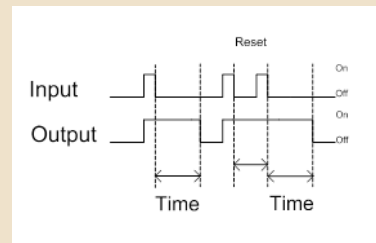

The operation of the Time Delay on Pick Up or TDPU function is somewhat the opposite of the TDDO. The preset timer begins as the trigger is applied i.e. on the rising edge of the signal. After the timer elapses, the output will energize. The output will remain energized until the input signal is removed. The timer will reset if the input signal is removed. A typical

decide to do a little snooping around, they sneak into Fred's luscious lawn, beers in hand, to see what they can find. To their surprise the grass is real and appears to be freshly cut, how is this possible they ask? Fred was at the cookout. As they creep around the side of the house they hear a mysterious hum coming from the back yard. What is that noise? They wonder. Then all of a sudden Fred's Rottweiler Jackson springs from behind his shed startling the men sending beer cans, sandals, sunglasses and the men scattering in all directions.

The next day after explaining to their wives where they had been and how they lost their sandals and sunglasses the men met up in Tom's driveway to discuss the previous night's events. "What was that noise?" and "when did Fred's dog get so big?" were the main topics of discussion. As they were pondering these questions, Fred comes strolling up the street with a sly grin carrying two mismatched sandals a pair of sunglasses. As he approached Tom's driveway he said "hey guys, have a good time last night? Jackson had a few things for me this morning" holding up the sandals and glasses. The men looked at their feet like a group of 10 year olds who had just been caught. Fred kinda laughed as he handed the items to the men and said "I guess Jackson gave you guys a surprise last night...lol" the men nodded and then Tom explained to him that they just wanted to know how his lawn was so perfect and that no one is ever seemed to be working on it. Fred laughed," oh that's easy, I'm a Distributor for Divelbiss Corporation and I've been using their products and design services to eliminate all of my household chores come over I'll show you" the men looked at each other and followed Fred back to the scene of the previous night's escapade. When they arrived at Fred's house, he proceeded to show them his battery powered, GPS guided, laser weed removing, IOT connected lawn mower, "I have it programmed to mow my yard every three days at 2am" Fred says" In the morning I get a mowing report on my phone that tells me mowing data and the location of all the weeds it eradicated" The men looked at each other in amazement. Fred smiled and said "it's a prototype I'm testing, do you like it" "well yea that's awesome" the men say. Fred then informs them that he also has a fully automated sprinkler system that check the weather report and calculates the exact watering needs, an automated driveway and sidewalk heater that senses snow accumulation, automated blinds that open and close to optimize the heating and cooling of his house and a swimming pool that adjusts the solar cover and solar heater to maintain a precise 76 degrees for Fred's daily swim. All these things Fred can monitor and control from his Phone or Tablet wherever he is...The men just stood there amazed. Fred then told them it was going to take him all summer to test out the mower cause his lawn was so small, Tom chimed in "you can mow mine!" Fred laughed

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application would be to prevent false pressure transients from sounding high alarms.
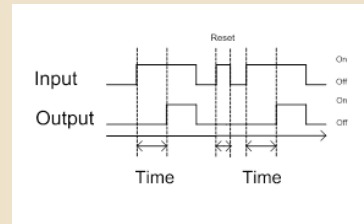
By combining these two timing relay functions together we can expand the functionality of the timing relays.

Repeating Cycle

A Flashing circuit can be created by using two timed relay functions. A typical application may be to set the speed on an assembly line or to flash an emergency light.
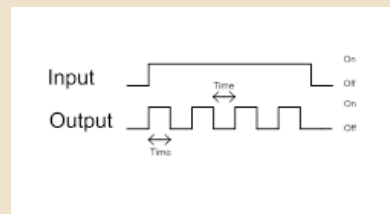
Retriggerable One Shot

Resettable one shot timer relays are energized for a preprogramed time limit. The elapsed time resets each time the input is triggered. A typical application would be to automate the lights in a factory.
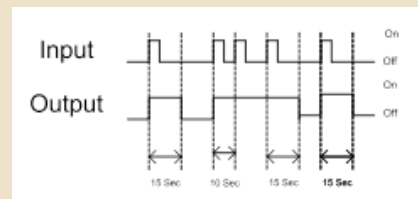

One Shot

The one shot relay function allows for the output to energize for a set time period on the rising edge of the input. The time period does not reset until after the current time period is finished. A typical application would be as a denounce circuit on a contact closure.

"OK" and pulled out his cell phone. He opened his mowing app with an aerial view of the neighborhood and adjusted the mowing area to include Tom and the others yards. "There ya guys go, your yards will get mowed tonight" the men just stood there still amazed.
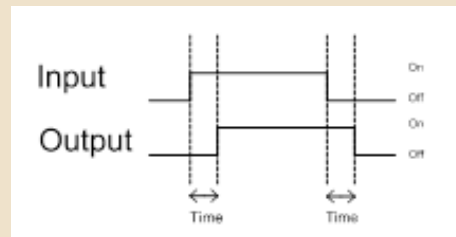
A few weeks later the men had adjusted to their lives sipping beers by Fred's pool three days a week instead of mowing and pulling weeds. Life was good and their yards looked great!

- Dave Divelbiss - Manufacturing Engineer
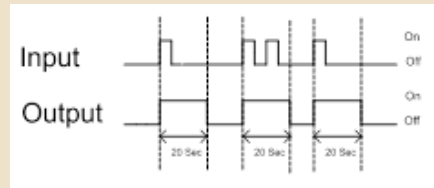
On and Off Delay

When the input goes high the output turns on after a preset time. The output stays high after the input is removed for the preset time.

- Chris Bigler - Technology Specialist

Working For You - [What can a embedded PLC do for your control solution](#)

A cost-effective solution for an embedded PLC is the use of an Integrated Circuit (IC) that is a complete PLC. [Using a single-chip PLC](#), development time is greatly reduced because the software drivers for various types of I/O are already embedded on the chip. Once the system I/O has been defined, the appropriate interface circuits can be added to the design and programming can be completed easily using the ladder logic programming language and software such as EZ LADDER. Once the software is complete, it is a simple matter of connecting to either the serial or Ethernet ports on the PLC and downloading the application program. This level of integration allows for the rapid development of a custom control system designed to the exact specifications required by the end application, while at the same time simplifying programming requirements.

Programmable Logic Controllers (PLCs) are fixtures in industrial automation, as their hard, real-time characteristics provide embedded determinism for a variety of applications. And, as industrial machines are now expected to integrate more tightly with other business processes and technology, the versatility of PLCs has become more crucial than ever before. Today, however, cost and space pressures on

the factory floor have resulted in a new iteration of PLC technology, the single-chip PLC. Single-chip PLCs are essentially programmable embedded controllers realized on an Integrated Circuit (IC). There are many benefits to using an embedded PLC as part of the design of an OEM control system, as the level of flexibility brought to a design by this technology allows for custom control solutions that fit exact system requirements, lower design and system cost, simplify software support, and increase reliability. In addition, a system utilizing an embedded PLC can meet the most demanding environmental requirements and provide a scalable platform that can support future product features.

Continue Reading...

Application - Doran Manufacturing TPMS Integration

Doran Manufacturing and **Divelbiss Corporation** have introduced an innovative TPMS WiFi integration solution for OTR vehicles and equipment to help reduce monthly charges from cellular or satellite data fees for each vehicle.

Reduce tire repair and maintenance costs, make fleet air checks more efficient, and improve overall safety through this innovative integration which transfers tire pressure / temperature data and alarms from tires on OTR vehicles to your fingertips through the use of WiFi communication.

Doran Manufacturing TPMS Integration - How it Works

The Doran 360â„¢ TPMS Hub is connected to the Divelbiss HEC Gateway via J1939 wiring harness. The Doran Hub receives updated tire pressure/temperature data and alarms and feeds this data to the HEC Gateway using J1939 data protocol.

When the vehicles enters into a paired WiFi hotspot, the HEC Gateway uploads the stored Doran data to the cloud through WiFi connection, and the data is then visible in a customer-specific secured web portal.

The Doran 360â„¢ TPMS Hub is mounted on the equipment and receives tire pressure and temperature data from the programmed tire pressure sensors installed on each tire.
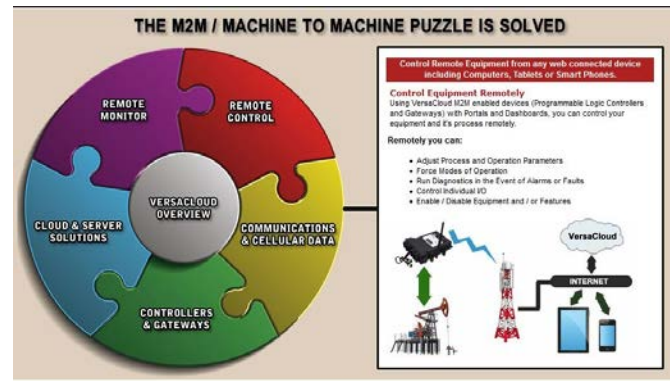
Valve stem mounted Doran tire pressure sensors continuously read tire pressure and temperature data. The data is transmitted from the sensor via RF communication to the Doran TPMS Hub.

Product Highlight - [VersaCloud M2M™](#)

THE M2M / MACHINE TO MACHINE PUZZLE IS SOLVED

[VersaCloud M2M™](#)

[VersaCloud M2M](#)™ from Divelbiss is a complete, seamless end to end, machine to machine Industrial Internet of Things (IIOT) solution. [VersaCloud M2M](#)™ solutions cover each area needed for remote control and / or monitoring of machinery and equipment, regardless of where the equipment is located; from the factory floor to remote sites. VersaCloud M2M™ solutions include interface hardware (Programmable Logic Controllers (PLCs) and Programmable Communications Gateways), communications links (Ethernet, WI-FI and cellular data including cellular data coverage plans**) and an exclusive cloud portal with drag and drop features to allow you to customize and personalize multiple dash board pages for your exact needs.

[VersaCloud M2M](#)™ IIOT solutions are ideal for factory floor equipment monitoring and data gathering, remote location control, data gathering and on-event alerts and for remote control and monitoring of construction equipment, mobile equipment or marine applications. VersaCloud hardware supports multiple networks for complete communications to SAE J1939 network systems such as engines and NMEA 2000 communications for marine networks.

If you need to monitor it, control it or act upon conditions from it, VersaCloud has the solution. Versacloud M2M™ enabled Programmable Logic Controllers and Gateways program using Divelbiss [EZ LADDERÂ®](#) Toolkit and interface to the VersaCloud M2M™ Cloud using versatile, but easy to use function blocks within the ladder diagram.
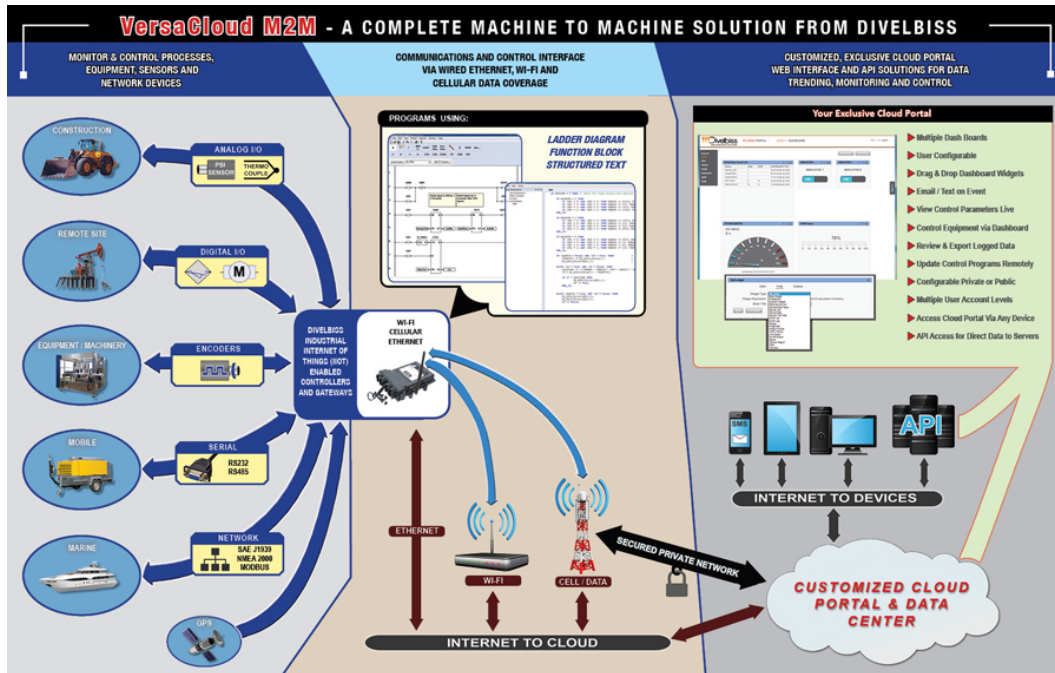
For more information visit. www.versacloudm2m.com

Download the VersaCloud M2M brochure.

Lawn Care Fun Facts	Complete Our Short Survey!

Receive an pack of wildflower seeds for completing our short survey.

- The average home owner spends 4 hours per week caring for their lawn. That equates to about 150 hours (cooler climates) to 208 hours (warmer climates).
- According to the 2010 National Gardening Association Survey, 22 million homeowners hire a lawn care professional to handle their lawn care needs.
- There are 85 million households in the US have private lawns
- According to the 2010 National Gardening Association Survey, Americans spend a average $363 per year on lawn and gardening activities.
- There are approximately 50 million acres of grass in the Unites States, approximately 21 million of those are in our yards.
- The average yard size is 1/5 of a acre.
- 80 million pounds of pesticide and 70 million pounds of fertilizer are applied to lawns in the United States every year.
- Did you know? Lawns are very efficient oxygen producers. They are about three times more effective than trees. And, their season to produce oxygen is much longer. Even a smaller sized lawn (50 ft. x 50
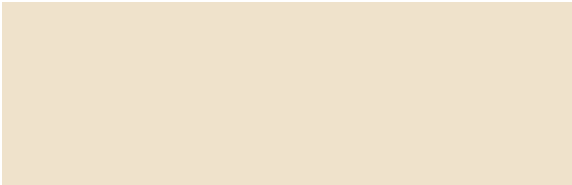

Complete Our Survey!

ft.) releases enough oxygen daily to meet the needs of a family of four for 24 hours and absorbs carbon dioxide, ozone, hydrogen fluoride and other toxins.