



Intech INSTRUMENTS LTD

March 2009

Energy Saving Light Controllers



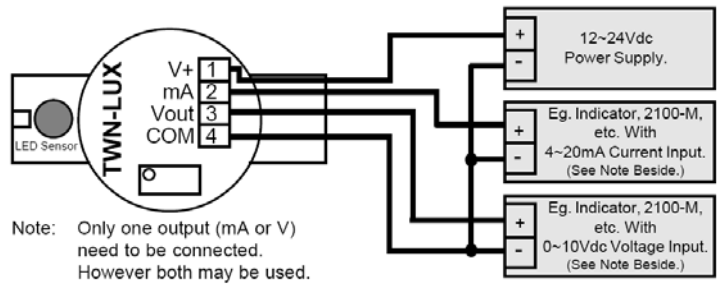
10th March, 1964
Ford produce the very first Mustang at their Grafton works, Virginia.

Unless you live on a diet of carrots*, you'll need a decent dollop of light in your office or production plant to see what you are doing. As the shorter days approach us the lights are going to be on for longer periods. We all know that burning light bulbs cost money but at the same time we all want to work in a safe place.

An easy way to fix this is to use a LUX transmitter. This will measure the light intensity and provide a simple 4-20mA signal that you can use to automatically brighten or dim your lights depending on the light levels measured. On a sunny day, the lights will be off but as the darkness falls, the lights will increase.

Two birds with one stone. You'll save energy and ensure a safe working environment.

*Urban myth. Studies suggest that carrots will only aid a subjects eyesight in the case of vitamin A deficient diet.



Example connections (above) and an Intech TWN-LUX yesterday in Ashburton.



15th March, 1964
Richard Burton & Elizabeth Taylor marry for the first time (to each other) at the Ritz-Carlton Hotel in Montréal,

The Bluffers Guide to PID Control



No Control: Can Hurt

Proportional-Integral-Derivative (PID) control is common but a mystery for many. We thought we'd knock out a quick guide:-

A PID controller compares a measured process value to a known set point value and tries as best as it can to make the differences as small as possible. Any difference is used to adjust a process input in order to bring the process and set point values closer.

The **Proportional Band (P)** alters the controller output proportionally depending on the error between the measured value and the desired set point value.

The **Integral (I)** action varies the controller output relative to the set point. It is the rate of change of the controller output relative the amount of time an error is present between the measured process & set point values.

The **Derivative (D)** action looks at the how fast the measured value and the set value are changing and acts to compensate. It is often used to avoid unwanted overshoot in closed loop control systems.



Cruise Control: A Pretty Good PID Analogy



March 24th, 1973
Pink Floyd release their classic album, The Dark Side of the Moon.



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Vader: "The force is strong with Intech..."



Christiaan Barnard:
 Famous for the very first
 HART* transplant.

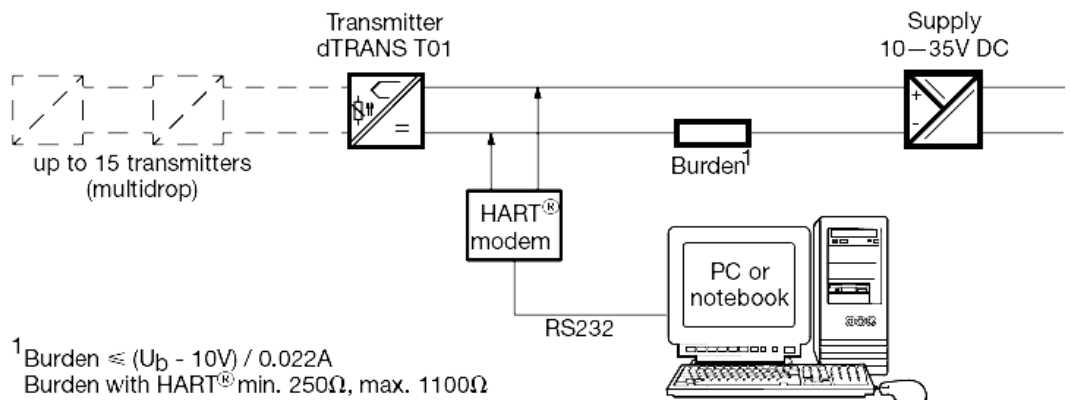
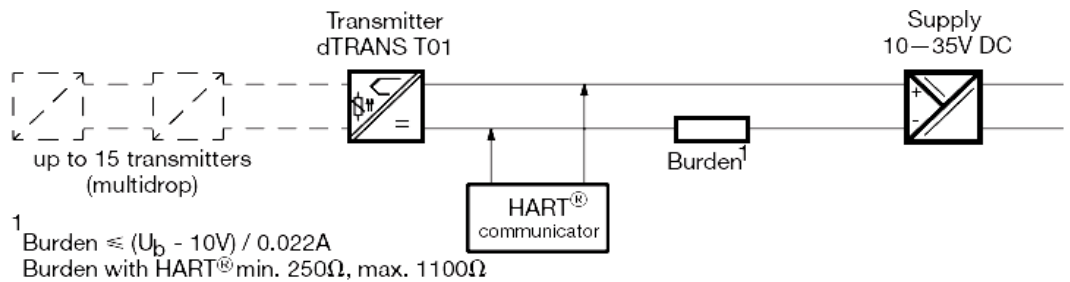
*Possible erratum

- ◆ New Zealand owned & operated
- ◆ Service & sales facilities
- ◆ 25 years in the industry
- ◆ Experience you can rely on



HART Communications

Developed by Rosemount in the 1980's, HART is a digital protocol designed for industrial field instrument communications. The major advantage of HART communications is that it can share 2-wire, 4-20mA instrument wiring with an existing analogue system. 4-20mA instruments are extremely common, and so the implementation of HART protocol is very popular.



HART is a master / slave protocol which means that a field (slave) device only speaks when spoken to by a master. The HART protocol can be used in various modes for communicating information to/from smart field instruments and central control or monitoring systems.



JUMO T01 'in head' transmitter (left) and NIVELCO EchoTREK ultrasonic units (right) are both HART capable devices.

