

AGRICULTURAL INDUSTRY

The magnetic proximity sensors detect a position, presence, level or speed and find typical applications in the agricultural industry. The absence of contact between the magnet and sensor (magnetic field) and the absence of power supply make these sensors very easy to use.

- High resistance to harsh environment conditions (dust)
- Different contact types available (Normally Open, Normally Closed, change-over)
- Lots of different housings and connections: we can design a specific product for your application !

Solid State Relays (SSR) are fully electronic switches, so they can withstand significant vibration without operating problems and they have higher life-time expectancy compared to Electro Mechanical Relays (EMR).

Here are the different examples of celduc' solutions in the agricultural industry :

1) For engines

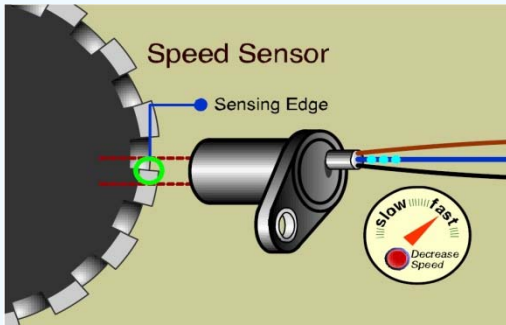
① Sensors :

→ **Detection of liquid levels** : celduc has the knowledge of any kind of liquid and temperature

For examples : radiator liquid, engine oil, water, brake oil, ...



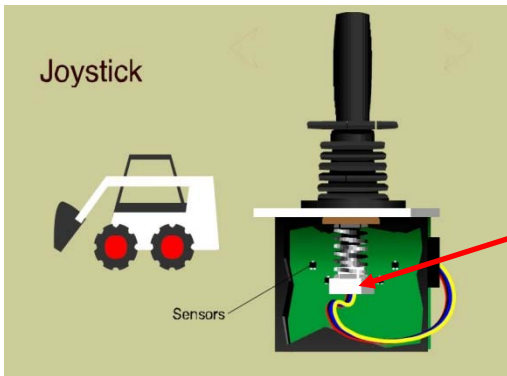
→ Gear box speed or ABS systems (hall effect)



2) Tractor control

① Sensors :

→ PTA sensor for joystick drive control, 4 per joystick. Application for a tractor manufacturer in Finland.



→ PSS sensor (safety sensors) for seat position of the driver to activate front or back (tools) tractor control zone



3) For tools on tractors

① Sensors :

→ **Lots of sensors to detect tool position** (limit switches) or to prevent accident on the road (ensure tool position, often safety sensors),

→ **Speed sensors** (hall effect) to detect the blocking of the tool (torque exceeds) by measuring the difference between the auxiliary shaft and the motor speed,

→ **Sensors to count seeds** on drilling machines,

→ Different kinds of sensors may be used **for Round ballers** (ex : John Deere) to make sure that the rollers are adjusted correctly, to avoid sticking or blockages (position of the hatch), ...



② SSRs :

→ **AC power SSR for controlling electrical tools** on tractors (powered by built-in electrical generator) for tree cutting, shaking,... (<http://www.pellenc.com/agriculture/en/index.aspx>).

→ **Tail lifts for tractors / trucks**

Tail-lifts and hydraulic platform for tractors / trucks are using hydraulic systems.

The hydraulic fluid pressure and flow in the system is produced by a pump, that draws oil from a reservoir, pressurizes it and sends it to the hydraulic cylinder along tubes.

In this kind of application the hydraulic pump receives power from a motor fed by the vehicle battery or by an additional battery.

SSR can be used to switch on and off the motor as there are lots of advantages compared to EMR :

- much less current in coil
- longer lifetime
- no problem with vibrations

4) Others in agriculture

Winery : safety sensors PXS for pressing, PMG (Latching) and level sensor for tank (France, www.buchervaslin.com)

Hatcheries : IR lamp control with phase angle control SSR to adjust heating in the incubator (Netherlands)

Farms : Soft starter to control the pump of a robot for milking cows (Belgium) and to control water pumps without control wires

Powder : EX sensors (for explosive atmosphere) for truck carrying flour and for silo, level and door position



For the past few years, **celduc®** relais has acquired and improved expertise in ATEX products, in particular sensors for these specific applications.

celduc® relais is notified as manufacturer of ATEX products : INERIS 04ATEXQ406 and offers a wide range of ATEX sensors.

Green houses :

-special product to control the motors of the windows using only their limit switches or an angle sensor.

<http://www.anjouautomation.com/>



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