

# ValveSense

Engineered responsibly  
For your plant safety



## Integrated Valve Position Monitoring System

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## Sensing valve status in your plant.



*For automated processing plants, the ability to monitor and control production processes safely and with greatest efficiency becomes more important.*

*In petrochemical plants, the explosive fluid is always transported through various flow control devices, valves. It is essential to know the exact status of valve (i.e., open or close) on a continuous basis.*

*Valve position indicators are electrical switching devices sensing both closed and opened position.*

*The limit switches can be either mounted directly onto the valve/actuator housing in case of quarter-turn valves or mounted to the dedicated mechanical modules to sense the position of manually operated multi-turn, gate, valves.*



# ValveSense

## APPLICATIONS

**ValveSense Position Monitoring System** comprises of dedicated mechanical modules and position sensing instruments.

The mechanical modules are designed to be installed between the valve yoke and the hand wheel by mean of suitable mounting flange and hand wheel adaptor for



### Remote monitoring of valve status

- Open & Close Position Indication and Interlocking Purpose
- Continuous 0-100% Indication by 4-20 mA.
- Digital communication such as Field Bus, Profibus or ModBus





# ValveSense

## ***What we had during old day..***



*One problem with old-fashioned position indicators employing the limit switch to physically sense directly from the end of valve stem, as illustrated, is the potential for non-reliable or false-position feedback. The position sensing of large size valves such as 12" and above by old-fashion design is almost impractical.*



***With old-styled method, the precise, reliable and, most important, secured valve position monitoring function could not be achieved.***

## ***What may be caused by poorly installed valve limit switches?***

- \* False position feedback and alarm***
- \* Product contamination***
- \* Unexpected process shutdown***
- \* Unpredictable hazards***

# ValveSense

When evolution of valve position sensing started, there was only one design of GBS module. This design was called '**Travelling Nut Type**'.

The **travelling nut type** design employs conversion of the multi turn operation of hand wheel to linear movement. Then the linear movement is converted back to final 90-degree movement for standardized switch box.



VSTNV-20 with FLOWSERVE-PMV switch box mounted on KITZ 12" gate valve

Due to the intermediate linear movement, the module height limits the linear movement. The module hand wheel cannot be turned to exceed the travel limit.

The modules therefore require skilled and trained person to install the GBS module.

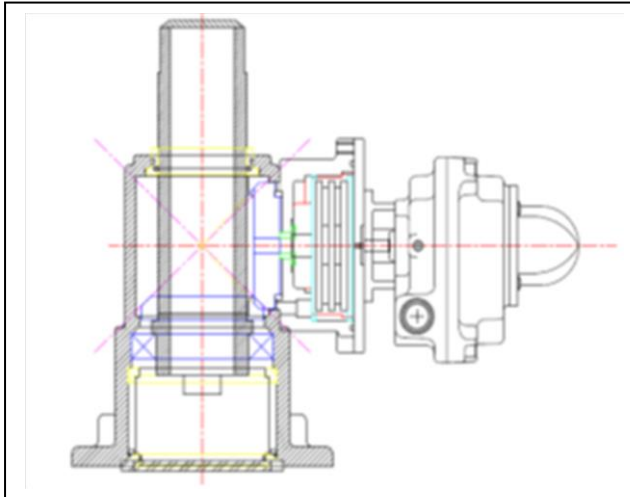
The **travelling nut type** is not suitable for valves requiring high number of rotation, especially the valve size 10 inch and above.

*We are aware of such constraint. From long time experience, we have designed the new mechanical module concept.*

# ValveSense

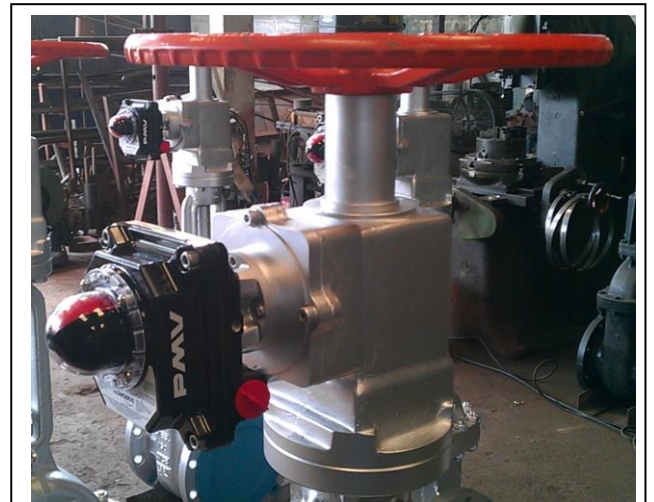
## ***Introducing ValveSense CG ....***

### ***One-Step-Ahead ValveSense CG with Counter Gear system.***



***With the Counter Gear system, the advantage of high reduction gearing in compact gear train shall be employed to solve the problem of high number of valve rotation.***

The counter gear design converts angular movement from multi rotation to final 90 degree angle through multi-level gear train.



**ValveSense VS12CGV with Flowserve PMV EExD Switch Box**

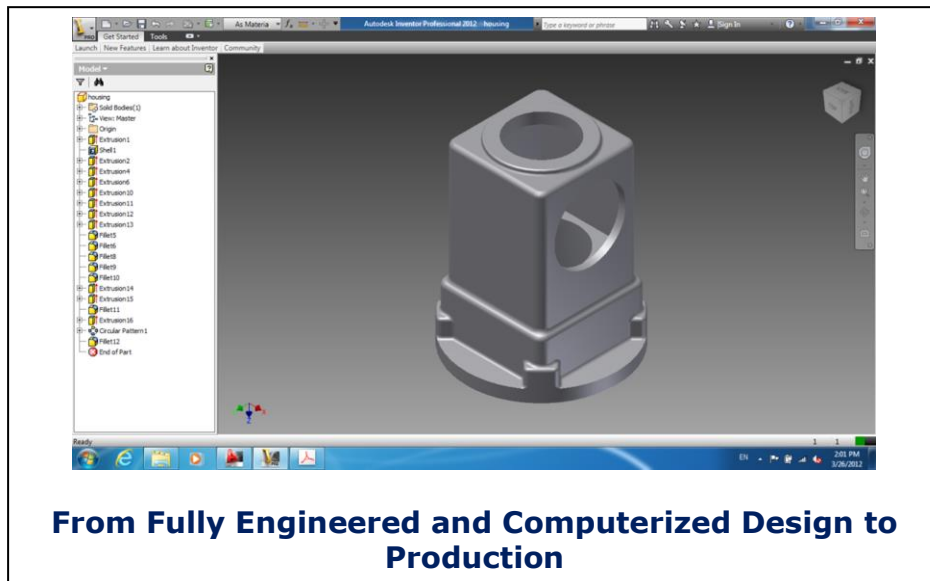
Thus the module hand wheel can be turned exceeding the travel limit without damaging the internal parts in case of incorrect installation.

***For large gate valves, size 10", 12" or 14" and above, the number of operating turns is much higher.***

***The ValveSense CG is the only smart choice.***



## ValveSense CG DESIGN PHILOSOPHY



- \* Reliable and robust design.
- \* Flexibility in switches, sensors and certified enclosure.
- \* *The mechanical modules must be compact but effective.*
- \* *Disturbing the live process during retrofitting mechanical modules onto existing valves must be minimized.*



- \* *The mechanical modules after installed must not require major modification of the structure of the plant in order to operate the valve safely.*

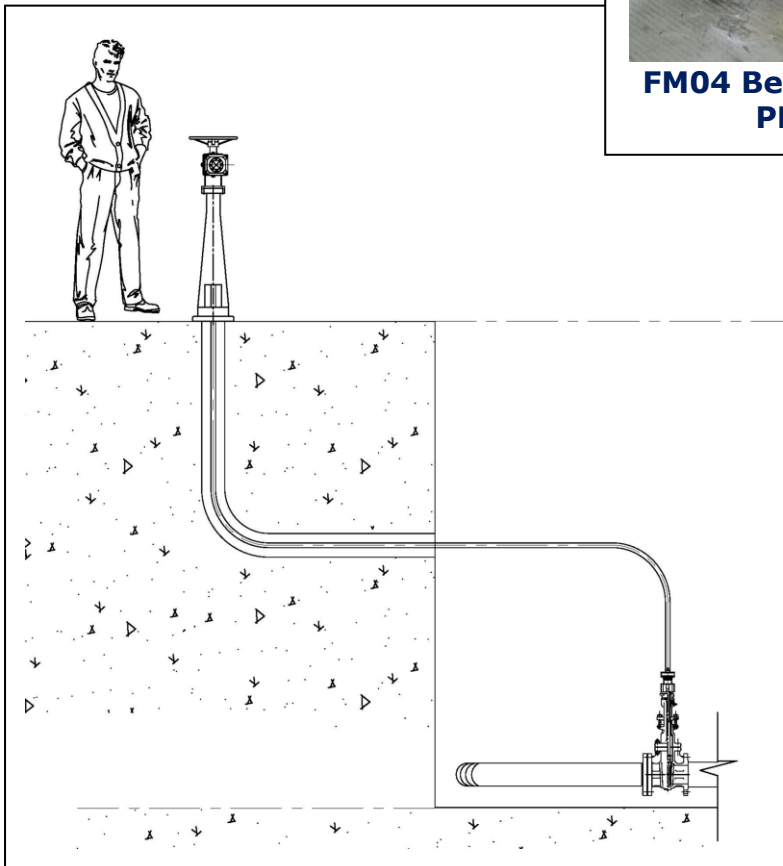
***The mechanical module installation must be cost effective to justify the worth return of investment.***

## Extended Possibilities

The possibilities of ValveSense are endless. The **ValveSense** mechanical module can be applied together with the following accessories.



- Multi-turn Gear Box
- Lockable and/or De-clutching Hand Wheel
- Key Interlocking System
- Side Hand Wheel Options



### Remote ValveSense Module

Where the space is limited, **ValveSense** modules can be installed away from the valves. Both operating and sensing the position is achieved via flexible shaft link empowered by

**Elliott SafeOperator.**



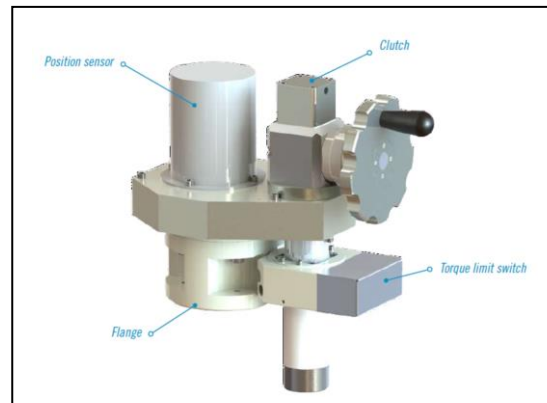
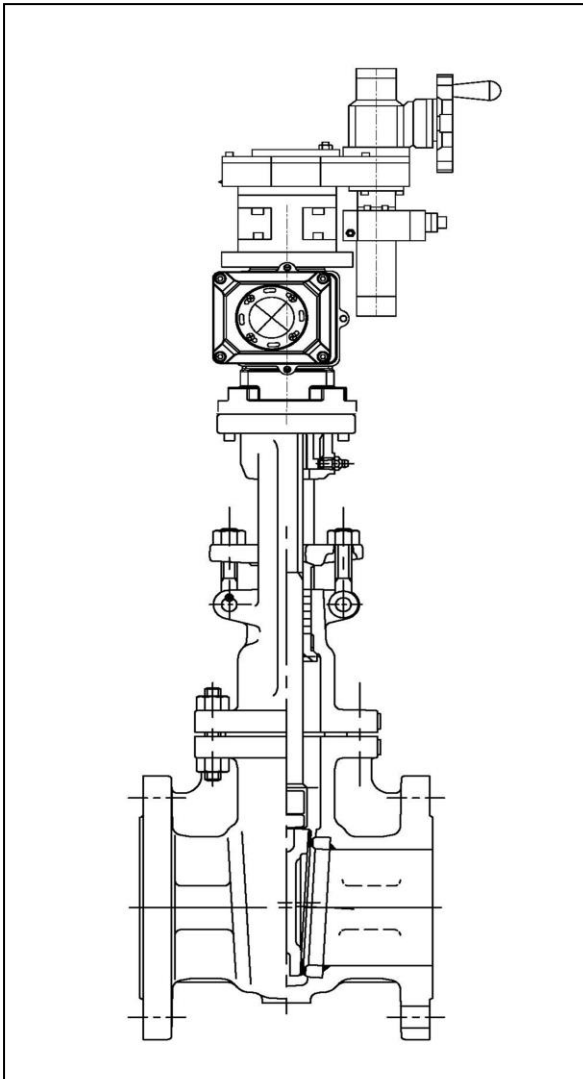
# ValveSense

**Never happened before.**

## ValveSense Actuator

Cooperated with **Modec Corporation** from France, **ValveSense** module is combined with Modec pneumatic multi-turn actuator to operate the valve in hazardous environment.

**Ideal for offshore, petroleum gas facility.**



ValveSense Module as Auxiliary position feedback for EIM Pneumatic Multi-turn Actuator

## Partial Project Pictures



**ValveSense VSCGV-12 installed on Kitz Valve  
ThaiOil New Tank Project**



**ValveSense Modules to be retrofitted  
to existing valves in ThaiOil 2013**



**VSTNV-12 mounted Kitz valves  
Client : Thai Paraxylene Co., Ltd.**

# ValveSense



***With our tough & smart ValveSense mechanical module and our sensor alliances worldwide,***

***watching valve status in your plant continuously is no longer troublesome.***



# ValveSense

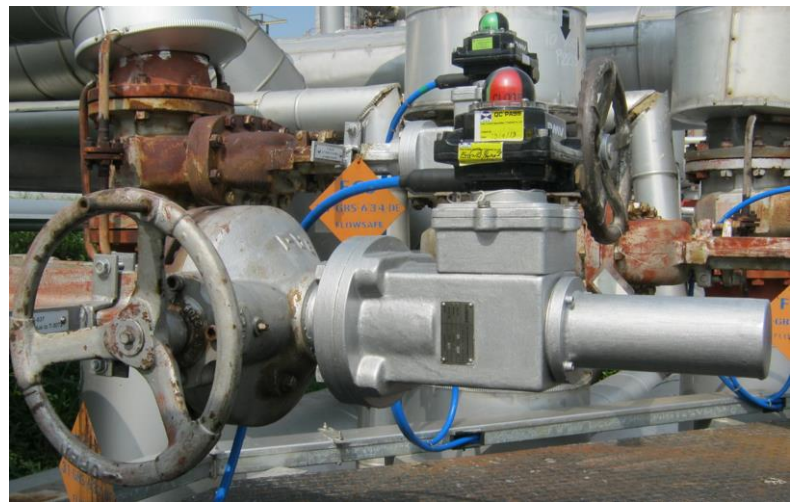
## Available Models



# ValveSense



**VSCGV20**



**VSCGG 20 Mounted on Gear Box**

## **Note:**

*For valve size larger than 40", please consult our sales office. We have our dedicated design which will fit your requirement.*



## Gallery





# ValveSense

ValveSense System can be offered with various designs of switch boxes and connectivities.



Your other choices or your own switch boxes are always welcome.