

CASE

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Professional Protection of Your Rotating Machinery Assets - Just in CASE



WOODWARD

Business Partner

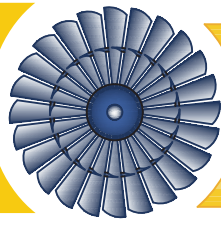
Turbine Control Solutions



**Engineered Solutions ♦ Field Service ♦ Training
Consulting ♦ Spare Parts ♦ Installation & Commissioning**

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Steam Turbine Controls Upgrade

The Opportunity

Do you have a unit similar to one of these?
Are you still starting up using manual methods,
and referring to starting and loading charts?
Do you have tight control around a speed or
MW set point?
Would you like to automate this operation?

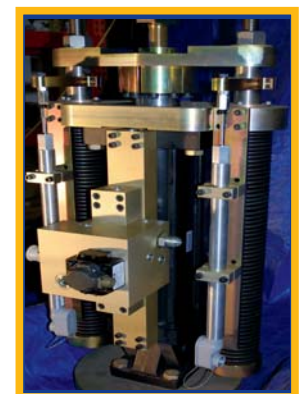


The Possibilities

The possibilities are numerous; digital control, automation of steam valve operation, elimination of hunting around the desired set point, AGC control ability, upgrade of turbine protection functions just to mention the high points. A control retrofit of this type is likely less time and expense than you may think. Often this type upgrade will extend the useful life of your original mechanical-hydraulic controlled turbines.

Select the Solution that's Right for you

Several field proven solutions are available for you to choose from, and all from a leader in the field of turbine control upgrades. Whether your solution of choice is a simplex, redundant, or TMR, we have a purpose-built pre-designed package for your application. Valve interface selections can be pneumatic, electric, self contained hydraulic, low or high pressure (EHC) hydraulic. Our engineering team will work with you to find the right solution! Please contact us for more information.



Engineered Solutions

Field Service

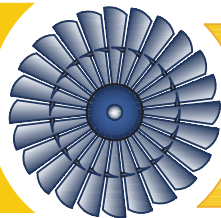
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With the Solution of your Choice...

CASE M&I, LLC offers control upgrades for all rotating machinery control applications. This includes mechanical drive and generator applications for all ranges of turbines; feed pump drive, compressor drive, industrial and utility generators. A variety of hardware/software platforms are available, based on the application requirements.

Woodward Solutions - Woodward is the world's largest independent manufacturer of prime mover controls, and their purpose built products have been utilized in the rotating machinery control market since 1870.



2031D – The 2301D is a field-configurable control designed for single inlet-valve turbine and engine applications. This control is configurable to allow it to be easily applied in a diverse range of applications.



Peak® 150 –The Peak® 150 steam turbine control is a low-cost, compact, digital control for single-valve or single-valve rack steam turbines.



505 – The 505 controller is designed to operate industrial steam turbines of all sizes and applications. This steam turbine controller includes specifically designed algorithms and logic to start, stop, control, and protect industrial steam turbines or turbo-expanders, driving generators, compressors, pumps, or industrial fans.



505LST – The 505LST digital control is designed to control large power-generation-based reheat steam turbines with up to 4 modulating valves (up to 6 valves with the use of external drivers).



Atlas – The Atlas-II™ control is an industrial platform that offers robust, low-cost control for a wide variety of turbine, engine, and compressor applications. This control is designed to integrate into the modern plant architecture through the use of Ethernet and fieldbus communication protocols.



MicroNet™ Plus– MicroNet™Plus – control system is a flexible, state-of-the-art digital control system designed specifically for prime mover control applications such as Gas Turbine Control, Steam Turbine Control, Hydro Turbine Control and Diesel and Gas Engine Control. MicroNet Plus features include simplex, redundant or TMR CPUs, modular I/O, flexible software environment, and highly accurate time synchronization make it ideal for its target markets.



ProTech®-SX– The ProTech-SX ("ProTech Simplex") is a safety PLC (programmable logic controller) with integrated overspeed protection designed to safely shut down any plant process equipment, engine, or steam, gas, or hydro turbine upon sensing a safety event.



ProTech® G-II – The ProTech-GII is an overspeed safety device designed to safely shut down steam, gas, and hydro turbines of all sizes upon sensing an overspeed or over-acceleration event.



ProTech® TPS–The ProTech®TPS is a safety PLC (programmable logic controller) with integrated overspeed protection designed to safely shut down any plant process equipment, engine, or steam, gas, or hydro turbine upon sensing a safety event. This standalone safety device accepts 10 discrete or analog inputs per module (30 total) and one speed (MPU or PROX) input (3 total), uses custom-programmed logic to determine when a true safety event has occurred, then issues a shut-down command to safely shut down the equipment or turbine

WHO WE ARE

CASE M&I, LLC is an engineering and service company that provides control systems for rotating machinery. We focus on power generation and petrochemical industries. We are committed to our customer relationships and the implementation of quality solutions.

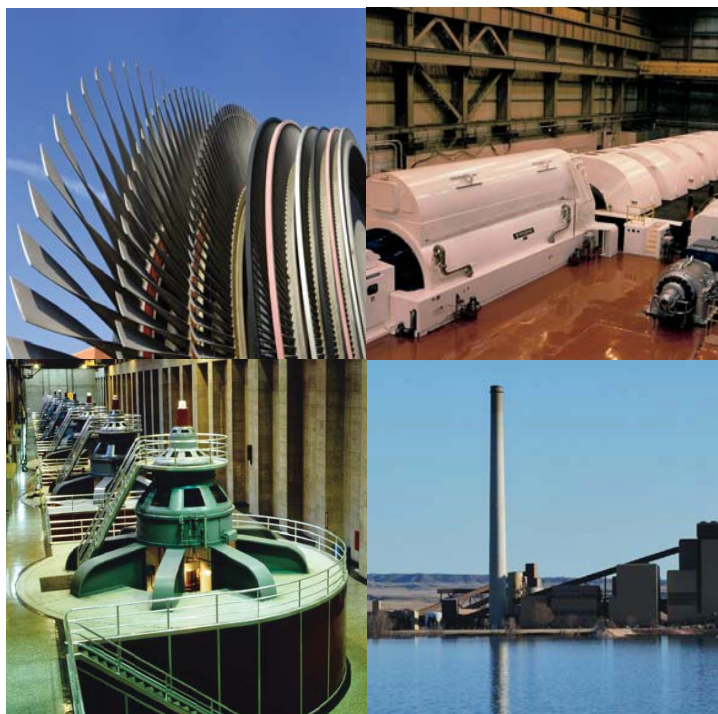
CASE M&I, LLC employees have over 500 years of industry experience. Our field service background keeps us focused in this niche market. Our customers can expect attention to detail, follow through, and prompt service. Commitment to support is key, and Case M&I, LLC is available 24 hours a day, 7 days a week.

CASE M&I, LLC is centrally located within the heart of turbine controls country, with our headquarters in Loveland, Colorado.

WHAT WE PROVIDE

CASE M&I, LLC offers the following products and services:

- ◆ Utility Steam Turbine Controls
- ◆ Industrial Steam Turbine Controls
- ◆ Hydro Turbine Controls
- ◆ Combustion Turbine Controls
- ◆ Compressor Controls
- ◆ Turbine Safety Systems
- ◆ Installation & Commissioning
- ◆ Field Services
- ◆ Spare Parts
- ◆ Training



Thank you for considering CASE M&I, LLC for your plant and rotating equipment service needs. Let us show you what we can do to enhance your operation.



Contact CASE M&I, LLC

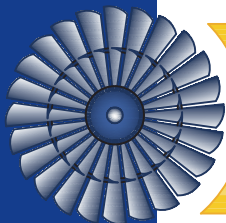
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