Welcome to the fifth issue of our newsletter for 2005. Your feedback about our newsletters as well as your suggestions for any particular products or applications that you would like to read about is always welcome. With your input, we will do our best to provide you with informative and relevant reading matter. Please email your comments and requests to our Sales and Marketing Manager, Chris Hoare, at choare@acrodyne.com.au.

Due to record growth and the new partnership with Limitorque, we are pleased to announce that we have taken occupancy of a second factory at 8/11 Havelock Road. We will use it for Limitorque repairs and testing, much needed warehouse space and for Amalga production. Our Sales team, Administration and Main Workshop will still remain at Factory 14 for all your enquiries and pick-ups.

20 years on and going strong
This year is a special year for ACRODYNE as it’s our 20th anniversary. We would like to thank all of our customers and stockists that have made ACRODYNE a market leader in valve actuation and control. The future looks bright at ACRODYNE with a quality range of products and a team of hard working experienced staff we look forward to servicing the industry for many years to come.

October 2005 – Character of the month – Gentleness

Gentleness vs. Harshness
Showing consideration and personal concern for others
Reach out – Reach out to others, including those on the other side of racial, religious, or socioeconomic barriers.
Practice the Golden Rule – Use your experience as a basis for understanding how you can show consideration and concern to others.
Choose Carefully – Carefully consider how your audience will interpret what you say or do.
Ease Tempers – Value and maintain your relationships so that everyday strain does not overwhelm them.
Keep the Peace – Avoid taking one side or the other in a conflict. Seek to restore both parties by pointing out the truth.
If you would like to know more about Character First and how it can benefit your organisation, visit the Character First website at www.characterfirst.com.au or contact Philip Greenwood on 0411 131 449 or pgreenwood@cghcareer.com.

New People
Hugh Peters joined us in October 2005 as Sales Administrator in our main office. He has over 19 years experience as an Electrical Engineer in the power transmission and distribution industry and 6 years experience in valve automation. He is married to Charlotte and has one daughter Tamara. Hugh enjoys playing the electric guitar with his band and watching and participating in cricket and soccer.

*Please note the following dates for the Christmas Shutdown*
22nd of December to the 8th of January
If you have any problems during this period call 0418 339 473
Absolute and Incremental Encoders

Why Position Sensing is Important.

For any motor-operated valve, determining valve position is a fundamental aspect of control. Accurate position sensing is vital in order to: Limit valve travel for repeatable and safe seating; Provide remote indication of valve's position; Enable interlocking of the valve with other equipment for sequence and safety requirements. Until just a few years ago, the only means of sensing valve position were mechanical. However, electronic methods have recently emerged to provide a level of precision and reliability comparable to traditional mechanisms, but with enhanced control capabilities.

Incremental Encoders

Electronic actuators follow the trend toward “smart control” by replacing mechanical components with electronics, relying on an incremental position encoder to determine valve position. Some low cost incremental encoders employ a magnetized rotor which generates pulses in Hall-effect switches as the actuator turns. Every pulse is added or subtracted to an ongoing total which is stored in a memory chip. The pulse count is compared to the calibrated value for the open and closed positions, thereby determining the current valve position. When the valve reaches the desired position, the devices electronics will trigger relays to control the motor or to provide indication of valve position.

The actuator equipped with an incremental encoder must be supplied with electric power to support the pulse generation, counting and storage operations. When power is not available, a problem can arise if the actuators handwheel is moved, as often is the case during setup and commissioning, since there are no electronic pulses to read. Consequently, the calibrated limits will no longer be valid when power is restored.

To circumvent this problem, some electric actuators rely on a non-rechargeable battery to power the incremental encoder when the main power is lost. However, even the addition of a battery is not a complete solution: if a battery's level is low when main power is off, and the handwheel is moved, the movement will not be recorded. As a result, these actuators inhibit three-phase operation until a replacement battery is installed, and the actuator must be recalibrated. While a lower cost choice from the standpoint of initial purchase cost, the incremental encoder can actually raise other costs, due to its reliance upon a battery power supply. Certainly one hidden cost is the investment in replacement batteries, but an even greater expense may come in the form of extra downtime and services costs for battery monitoring, recharging, replacement and disposal, another consideration is batteries cannot be replaced in a hazardous location without the necessary work permits.

Absolute Encoders

The absolute encoder, a patented device unique to Limitorque, is a 15-bit, solid state, non-contacting optical device which does not require a battery. This choice represents the new benchmark in position sensing, incorporating the best of old and new technologies, offering “smart control” while overcoming the limitations of the incremental encoder. The valve’s position is determined by reading the state of 15 phototransistors, each of which may be “on” or “off”. The states of the phototransistors change as the valve is moved, whether by handwheel or motor. Each unique position of the valve travel is represented by a unique pattern of the phototransistors; therefore, it is not necessary to provide a battery or to count pulses.

As is the case with Limitorque’s mechanical limit switch, the absolute encoder uses a counting mechanism. The counting gears are connected to the actuator drive sleeve and alter the state of the phototransistors as the valve is moved either by motor or by handwheel. During setup, the encoder position corresponding to the valve’s open and closed position are safely stored in permanent, non-volatile memory. Because any valve position can be represented by a distinct pattern of phototransistor states, the valve position is 100% repeatable. Position resolution is 0.08% for a valve requiring 50 turns, and the device is drift free, and requires no conversion from analogue to digital. Certainly the absolute encoder’s greatest asset is its ability to retain its settings without a battery.

Limitorque MX Actuators utilising a patented Absolute Encoder means:
- faster and simpler commissioning, whether field installed or added to a new motor operated valve before shipment
- non-intrusive external setting, so the internally-housed encoder is never exposed to the elements.
- accuracy, repeatability, and reliability for multi-turn valve applications, regardless of actuator size or required number of drive sleeve turns
- all of this without the need for Batteries!