



Golconda was formed in 1975 to factor a range of specialised silo monitoring equipment. There followed years of steady growth due to diversification. In 1985 Golconda formed an Electrical Process Control Division, offering a wide range of bespoke services, from a single motor control panel to a major turnkey project.

Since then, Golconda's skill base has increased to the point where we can offer fully integrated PLC, SCADA, DCS and S88 Batch systems. Our expertise has been recognised by being appointed to the Rockwell Automation Solution Partner Programme.

We can also design, supply, install, commission and service the full range of conveying and weighing equipment that your system requires.



Relationships We have forged close relationships with three of the biggest names in industrial automation:



Rockwell Automation

- ControlLogix, PLC5 and SLC500 Programmable Logic Controllers
- PanelView Operator Stations (HMIs)
- ControlView SCADA Software
- RSView SCADA Software
- Weigh Scale Module
- Bar Code Reading Products



Major Industries using Golconda's Products and Project Services

- Water and Waste treatment
- Food Processing
- Animal Feed Manufacturing
- Flour Milling and Refining
- Petrochemical
- Pharmaceutical
- Mining and Quarrying
- Cement Manufacturing
- Gypsum Manufacturing and Products
- Rubber and Plastics Manufacturing
- Brick and Tile Manufacturing
- Farming
- Ship Import and Export



In Touch

- Windows 3.1, 95 and NT SCADA
- SPC, Batch and Recipes
- Extensive Range of I/O Drivers
- In Excess of 12,000 Users Worldwide



ORSI Automazione

- Cube, Windows NT Client–Server SCADA
- DCS Functionality
- CP16 Processor for Rockwell Automation 1771 I/O Structure
- Remote I/O Connectivity for Rockwell Automation Variable Speed Drives and Human Machine Interfaces
- G2 Based Expert System

Orsi-Group

Golconda's Standard Products

- Sludge Blanket Level Monitoring
- Rotary Paddle Point Level Switches—Heavy Duty
- Rotary Paddle Point Level Switches—Light Duty
- Radio Frequency Point Level Switches
- Pressure Pad Point Level Switches
- Heavy Duty Tilt Level Switches
- Phase Tracking Continuous Level Monitoring—Silo
- Phase Tracking Continuous Level Monitoring—Tank
- Material Aeration
- Material loading bellows
- Intelligent Motor Control Centres
- Extreme Temperature Camera Imaging
- Dryer Optimisation Control
- Beltweigher
- Weighfeeder

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golconda
materials in control

Feeding and Conditioning

Over our many years of experience, we have gained a deep understanding of conditioning and feeding a wide variety of materials.



Dry, bulk material, when stored in bins, hoppers, silos, or tanks, can lose flow characteristics. That is when typical flow problems occur—bridging, arching, rat holing or material clinging to areas of the hopper and vertical walls. Some examples of materials which tend to pack or cannot easily be brought to a free-flowing state are: soda ash, wood chips, rubber scrap, soya meal, bran, etc.

The combination of hopper shape and material characteristics will determine the discharge properties, although there are discharge aids available which, when correctly applied, could assist or even solve these common problems.

For instance, this combination Bin Bottom Discharger and Metering Screw Feeder has the following advantages:

- Handles practically any type of powdery material or granules
- Conditions the material
- Eliminates arching and flushing
- Inlet sizes - 500mm, 750mm and 1000mm square
- Dust tight enclosure in mild steel or stainless steel
- Accuracy better than $\pm 2\%$
- Fixed speed or variable speed
- Special shaft seals available



Process Weighing



We have been working with the Loss-in-Weight concept for some decades now, and we have encountered and overcome most of the issues with this type of feeder. The example here shows a complete LIW sub-system complete with surge hopper, material conditioning and a special dual outlet. LIW is suitable for the most difficult of powders and even liquids.

Of course, we can also design and supply conventional weigh belt feeders, including ones like this totally enclosed unit.

The Golconda range of weigh belt feeders have been designed to extract and convey materials to preset feed rates with accuracies typically $\pm 0.5\%$ over 20:1 turndown.

Standard feeders are available with belt widths from 600mm to 1500mm and suitable for feed rates between 0.5 and 1500 tonnes per hour with special feeders available to belt widths of 2200mm. We have applied belt weighers to the following industries (amongst others): Mineral processing, Cement, Fertilizer blending, Chemicals, Coal preparation, Aggregates, Mineral Extraction, Refractory Industry



Bagging and Palletising

To complete our range of packaged sub-systems, we have formed an alliance with the well respected Concetti of Italy. Concetti, established in central Italy in 1975, has achieved a leading role in the design and manufacture of weighing machines/systems and bag forming, filling, closing, palletizing lines, with a worldwide reputation for excellence. They have a very modern in-house Technical Department equipped with state-of-the-art calculation and design equipment.

Our Concetti offerings include:

- weighing systems
- bag-feeding systems
- valve-bag filling machines
- bag form, fill and seal machines using tubular reel
- big bag (super pack) systems
- palletizing systems

Throughputs of: 400—600—900—1200—1500—2200 bags per hour.



Point Level Sensors

Golconda's rotary paddle bin monitors consist of some of the most reliable, rugged and economical point level control sensors available for detection of dry bulk materials. These easy to install units are proven performers in a wide variety of bulk materials. Golconda's paddle units can be used to eliminate bin overflow, maintain a predetermined material level, indicate plugging of conveyors and pneumatic lines or provide any of a number of level control functions.



Unlike many other available paddle units Golconda's paddle level indicators incorporate a feature that automatically shuts off the motor of the unit when the paddle is in a stalled position, which both extends the life of the motor and minimizes maintenance.

Golconda offers a variety of interchangeable paddle assemblies to meet the needs of a wide variety of applications. Different material densities, particle sizes and flow characteristics require specific paddles to provide optimum performance.

- Feed
- Pellets
- Rubber
- Coal
- Clay
- Grain
- Rawhide
- Silica Sand
- Wood
- Metals
- Peanuts
- Resin
- Foundry Sand
- Sawdust
- Rocks
- Calcium Dust
- Malt
- Regrind
- Limestone



High Temperature Industrial Cameras

The scanning pyrometer system consists of the following items:

Imaging Pyrometer

The imaging pyrometer is mounted on the process wall through an access port. The image and pyrometer information are then sent to the image processor.



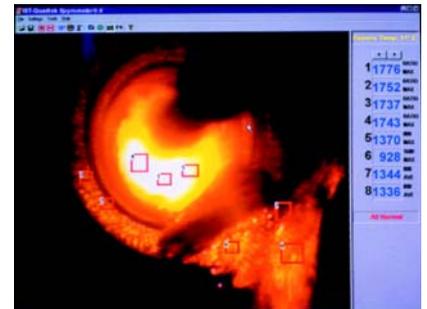
Image processor

The image processor overlays six separate temperature measurements on to a coloured image.



Features and benefits

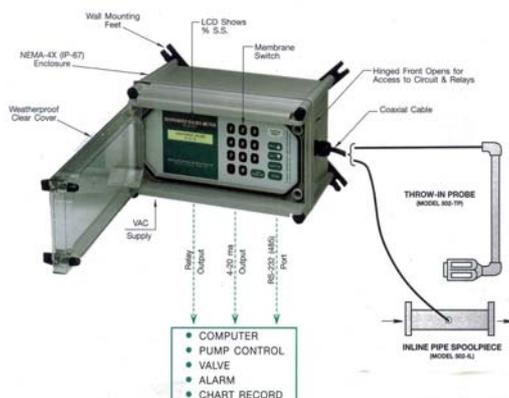
- Combined Temperature measurement and video image
- Six temperature measurement zones
 - moveable and sizeable
 - dedicated 4-20mA analogue outputs
- Monitor temperature and shape of flame to reduce fuel cost
- Lower NOx emissions by monitoring temperature of feed and flame
- Provide robust control variables to expert systems and waste-derived fuel interlock
- Temperature trend aids in control of air cooling along and across the grates
- Red river and snowmen detection
- Observe bed depth and clinker flow



Suspended Solids

The Suspended Solids meter measures percent suspended solids in sewage sludge and industrial slurries within the range 0.1% to 10.0% solids by weight.

Non-homogeneous materials such as sewage sludge, require output damping to prevent widely fluctuating readings. However, homogeneous slurries, such as Kaolin clay require very little damping. This meter uses a running average of many readings to smooth the output; adapting the sampling rate to suit the field conditions.



Benefits

- Automatic pushbutton calibration
- Ultrasonic self-cleaning
- Intelligent micro-controller
- Advanced self-diagnostics
- Error trapping algorithm
- Automatic Dynamic Damping
- 4-20 mA output linear with % suspended solids
- No optics to foul
- Not sensitive to colour
- High and low % suspended solids set-point relays

System Upgrades

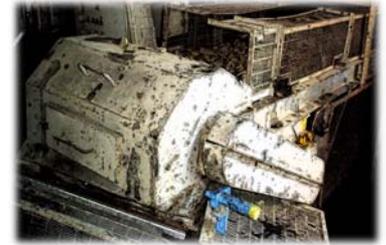
Your weighing equipment may look sound from the outside, but what about the controls. Well designed and maintained, the mechanical parts of your machinery will last for a lifetime. However, look where controls have gone in the last twenty years. Old controls will be giving you problems with accuracy, repeatability, maintainability; so it goes on.

Golconda have many years of experience in upgrading older equipment to the latest, most reliable PLC and computer based control systems available. We have huge experience of materials handling and weighing systems, so we have libraries of proven software solutions for most applications. Where no standard solution exists, we can engineer specific systems to make the most of your existing machinery. So, if you have controls based on obsolete technology:

- Dedicated Electronics
- Modular Process Controllers
- Bespoke Batch Processors

you can gain the benefits of upgrading now.

We will carefully plan the changeover process, to ensure the least disruption to production. If you want to include enhancements as part of the upgrade, we would normally make sure that the upgrade works, before installing any additional functionality.



Benefits of Upgrading

Open Solution

Because the upgrade will be based on standard hardware and software, you will be able to make changes, additions, etc. yourself, rather than being tied into a single supplier.

Expandable

It will be easy to add more equipment to the system, as the system will expand to meet your latest needs.

Communications

Modern control systems have a wide variety of communications options, notably Ethernet. This means that you can connect your upgraded controller to your choice of data logging and visualisation system.

Integration

Modern control systems allow closer integration with other control systems, as well as your higher-level business systems.

Accuracy and Repeatability

Modern systems have much greater accuracy and repeatability than some older ones. This means that you will no longer have to allow for wide variations in value when weighing your expensive ingredients.

Reliability

Modern control systems are inherently more reliable than older ones. This inevitably means less unscheduled downtime.

Maintainability

In the rare event that the upgraded system fails, the time to repair is much less than with older systems—leading to greater production.

Upgrade Examples

Coving Manufacture, East Midlands

This example is a single Loss-in-Weight feeder handling plaster for the production of decorative coving on a continuous basis. The machine is some 15 years old and working well. However, the process controller had been discontinued by the manufacturer. We replaced the controller with a Rockwell Automation SLC-500 and PanelView 550. The client can now rest assured that spares and maintenance will no longer be a problem

Blending, North West

Here, there are three, 150 T/h Loss-in-Weight feeders, used to continuously blend product for delivery to road tankers. The feeders are around 20 years old and originally had dedicated electronics for controls. We replaced the three sets of printed circuit boards with a single Rockwell Automation SLC-500 and PanelView 550. However, the original sequencing controls were in good order, so we left them alone.

Cement Manufacturing, North West

This system comprises two weigh-belt feeders, simultaneously feeding clinker and gypsum at a controlled rate. Originally, they were controlled by bespoke electronics. In this case, we replaced the two control panels with a single unit housing a Rockwell Automation SLC-500 and PanelView 550. We also replaced the load cell amplifiers with modern, microprocessor based units.



Summary

Whatever your requirement, from a Single Level Indicator through to a Major Turnkey Project, Golconda has a solution for you.

Golconda is committed to providing the best possible service to its clients and, if required, can offer a complete package from inception, through design, and manufacture, to final hand over.

For further information, or to discuss your requirements, we can be contacted at:

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Examples

Here are just two examples of systems that we have recently completed.

ALPHAGARY

Alphagary, Melton Mowbrey

Plastic Pellet Manufacturing Plant

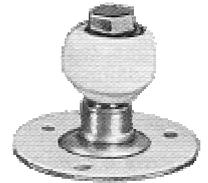
- Rockwell Automation PLC, SCADA, Batch, approx 1,000 I/O
- Continuous Raw Materials Blending
- Five Batch Weighers
- Two Liquid Injection Systems
- Three Extruders
- Eight SLC500 Panels
- RSBatch Server with three Workstations
- RSView SCADA with eight Workstations
- Ethernet Network
- Plant and Office Computers, Formulation, Trending, Analysis
- Motor Starter Panels
- Value ~ £1½m



Blue Circle Cement, Cookstown

Cement Plant—Central Control System

- Rockwell Automation/ORSI PLC and SCADA, approx 1,500 I/O (40% analog).
- Three Dual-Screen Windows NT Workstations
- Multiple processors, two ORSI CP16, three Rockwell Automation PLC-5
- ARCNet and Data Highway Plus communications throughout the plant
- Value ~ £200k



Our Reference List:

Food & Petfood

- APV
- Bennington Foods
- Bisto
- British Sugar
- Brooke Bond
- Buhler
- Courage
- Findus
- Kellog
- Lyons Tetley
- Nestlé
- RHM
- Primetime Petfoods
- Salt Union
- Spillers Foods
- Tate & Lyle

Water & Waste

- Severn Trent
- Yorkshire Water
- Southern Water
- Thames Water
- Welsh Water
- North West Water
- East of Scotland Water
- Patterson Candy
- SHS International Ltd
- Putzmeister Ltd

Miscellaneous

- Alcan
- Corus
- GEC Alstom
- Rolls Royce

Building Materials

- ARC
- Blue Circle Industries
- BOCM
- British Gypsum
- Butterley Brick
- Castle Cement
- Croxton and Garry
- Hanson Brick
- Hepworth Building Products
- Lafarge
- Marley Roof Tile Company
- Pilkington
- Redland Aggregates
- Rugby Cement
- Tarmac
- Tilcon

Chemical & Plastic

- Exxon
- Hydro Polymers
- Laporte
- Millenium Chemicals
- Mono Containers
- Polypipe
- Shell