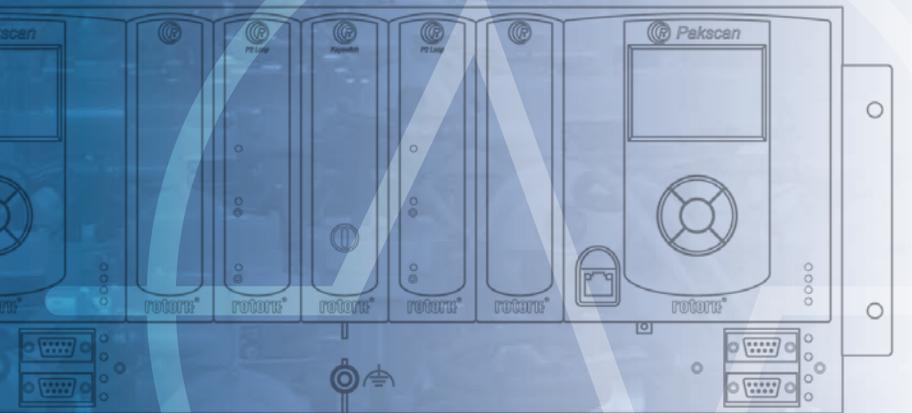


Electric Actuators and Control Systems

rotork® Controls

Established Leaders in Valve Actuation



Pakscan P3 Systems

Network Control

rotork® Controls

Pakscan

Two wire control system

Modern facilities require up to date communications right down to plant level. Plant managers demand more information more quickly than ever before. Process operators need full control facilities at all times of the day and night. Maintenance managers want information so that their services can be scheduled economically.

To meet these requirements design engineers include field communications networks to allow every piece of critical plant to be controlled and monitored by computer. These computers are assigned to management, operations and maintenance tasks within their own network, exchanging data about the equipment and process under their control.

The Pakscan 2 wire communication system provides the vital link between valve actuator and supervisory control. It is an intelligent, reliable, high integrity, fast and easy to install network between field equipment and control or equipment room. It is specially designed for use with Rotork Actuation products.



Pakscan - putting you in the picture

With their high reliability and efficiency, coupled with low maintenance costs, Pakscan networks have proved to be the unrivalled leader in valve actuator communications.

Each Pakscan system has three primary elements - field units, the 2 wire loop and a master station. Together they provide the core around which the overall control strategy may be built.

Additional facilities may be added to the systems to give control of other manufacturers' products, to provide specialist operator interface facilities, or to combine with our own In-Vision dedicated SCADA package.



Installed Cost Savings

- Direct cost reduction by using a single twisted pair instead of expensive multicore cable
- Direct reduction in engineering effort and associated costs due to simple network design
- Direct reduction in commissioning time and associated cost due to faster and easier installation
- Reduced down time losses leads to increased plant productivity

Minimum Cost of Ownership

- Increased information flow permits optimised and correctly scheduled maintenance of the valves and actuators
- Inbuilt system fault tolerance allows for continuing operation of the plant even when a fault exists within the system.
- Minimal downtime in the unlikely event of a component failure as Pakscan is simple to repair
- Large number of in-built diagnostic features with automatic fault location indication and communication performance data

High Performance

- Commands to the actuators have priority over data collection
- Full monitoring and control of every field unit and actuator connected
- Compatible with all current Rotork actuators
- Master station monitors the full network at all times, reducing the host system burden
- Field unit parameters may be altered from the master station

Easy Integration

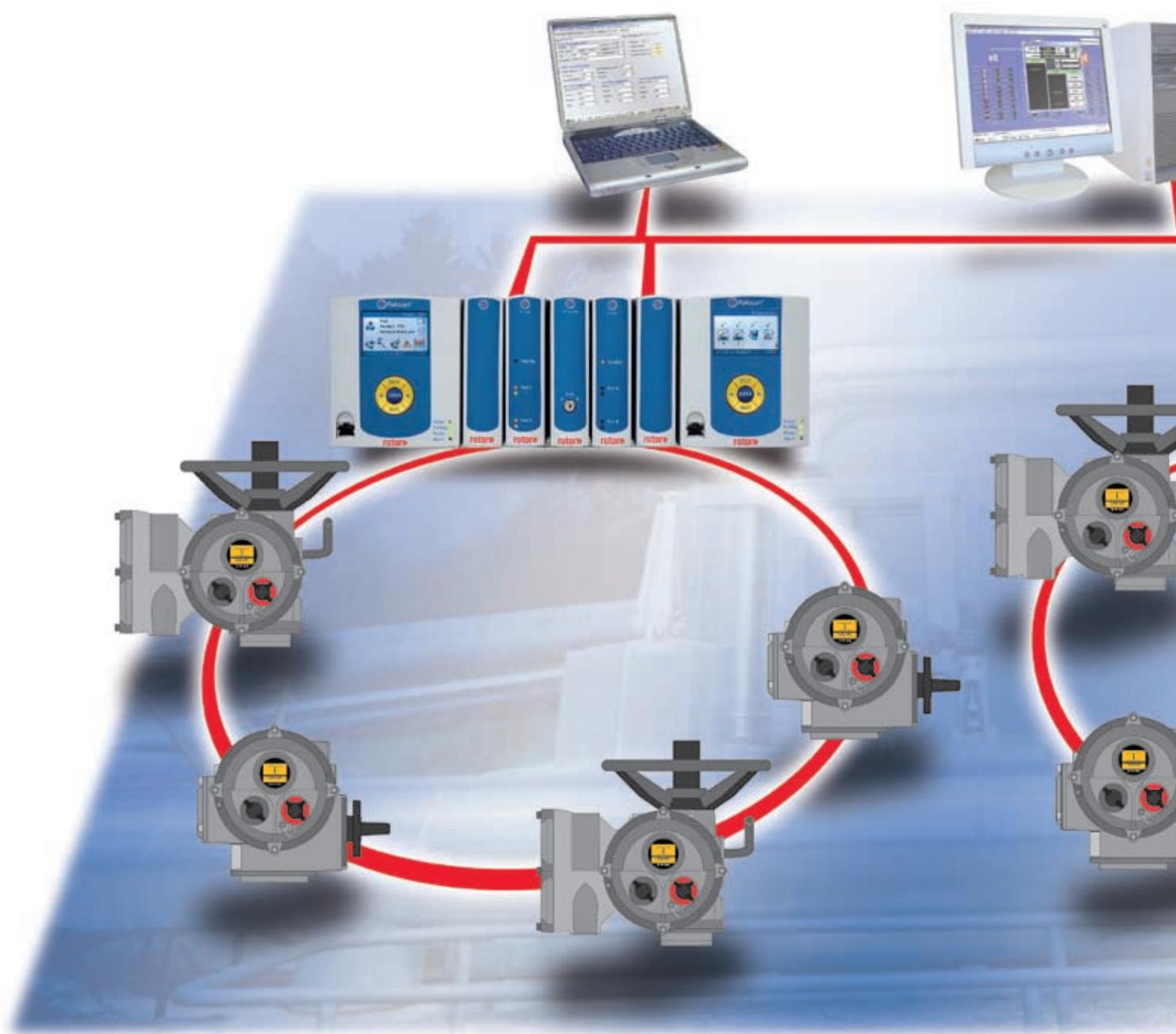
- Master station supplied fully pre-configured
- Proven communications to all major DCS and PLC suppliers
- Industry standard Modbus RTU / TCP protocol to DCS, PLC or In-Vision
- Multiple host communications capability
- Multiple data base organisation for maximum data transfer efficiency

High Plant Capacity

- Single network with the capacity for up to 240 actuators on a single 20km 2 wire loop
- Capable of controlling various field devices including actuators, mixers and pumps
- No restriction on inter-node distances

Maximum Reliability

- Field units integral with and double sealed inside Rotork actuators
- High levels of surge protection overcome noisy field environments
- All parameters are set non-intrusively
- Full isolation maintained between the network cable and the connected actuator or master station
- Secure network communication protocol
- Complete cable fault protection with redundant field communication path
- Pakscan P3 includes options for redundant master station
- No repeaters necessary on the 2 wire field cables



In-Vision

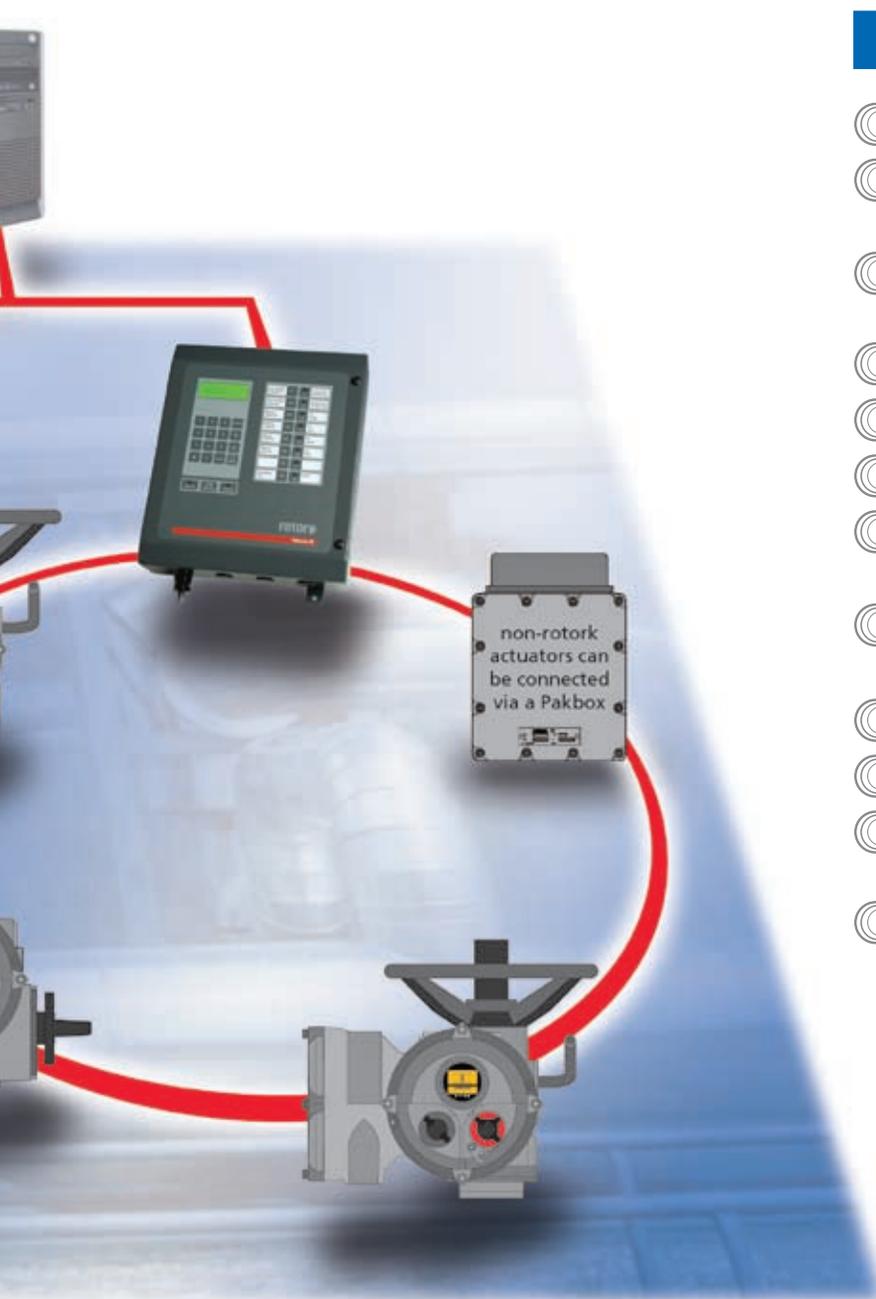
A complete SCADA package running on a PC, it is fully compatible with Pakscan systems. In-Vision will control up to 480 actuators through Pakscan master stations.

Master Station

The Pakscan IIS includes sequence and interlock control and operates with a maximum of 32 actuators. The Pakscan P3 is capable of controlling up to 240 actuators on a single Current Loop Option card. The P3 may include a fully redundant Hot Standby master station as an option.

Actuators

Rotork IQ, IQT, AQ, Q and A range actuators are all available with Pakscan field units. General Purpose field units connect to other plant equipment, pumps solenoids, etc.



Completely Engineered Package

- Clear cut performance responsibility
- Defined transaction times and cable distance
- Automatic cable monitoring and fault management
- Field cable fault tolerant
- Fully pre-programmed master station
- Screen and keypad built in
- Simple Modbus RTU / TCP host communications
- Field and host communication diagnostics
- Easily expanded
- Hot standby capability
- Commission without the need for a host DCS or PLC
- Proven track record

Applications

Since its inception Pakscan has found acceptance in all industry sectors and many diverse applications. Wherever Rotork actuators are to be found there will be a Pakscan system to operate them.

- Oil and Gas Storage
- Tank Farms
- Refinery plant
- Water Filtration plant
- Potable Water Treatment and Storage
- Waste Water Treatment plant
- Flood control
- Off shore platforms
- Gas production wells
- Power station boilers and turbines
- Metering skids
- Tunnels and Pipelines

The 2 Wire Loop

Loop Wiring

The Pakscan network carries a 15V, 20mA current loop signal. This signal is modulated by the master station to send data to the field and by the field units to send their replies.

The cable is a single twisted pair with an overall screen for protection which is easy to install, easy to maintain, low cost and highly effective in all operating conditions

Master Station

The master station is equipped with two processors, one controls the loop data and the other handles the host communications, screen display and keypad. All the set up data for the master station is held in non-volatile FRAM.

Full galvanic isolation is maintained between the 2 wire loop connections and the processors in the master station.

Field Control Unit

Each field control unit is fitted with a micro-processor, an EEPROM to hold the address and communication speed data, and a detector to sense the loop current.

As with the master station, the field control unit maintains full galvanic isolation between the loop signal detection circuits and the actuator electronics. In addition, the field control unit does not interfere with the actuator local controls which remain operable even in the event of a field unit malfunction.

Noise Protection

The Pakscan system protects against electrical interference by using a current loop and surge arresters. The use of a 20mA current loop automatically ensures that the system offers a low impedance to any noise currents and prevents these currents from generating significant voltage spikes. Any voltage spikes that do result are swiftly clamped to acceptable levels by the high speed surge arresters fitted at each field unit and the master station.

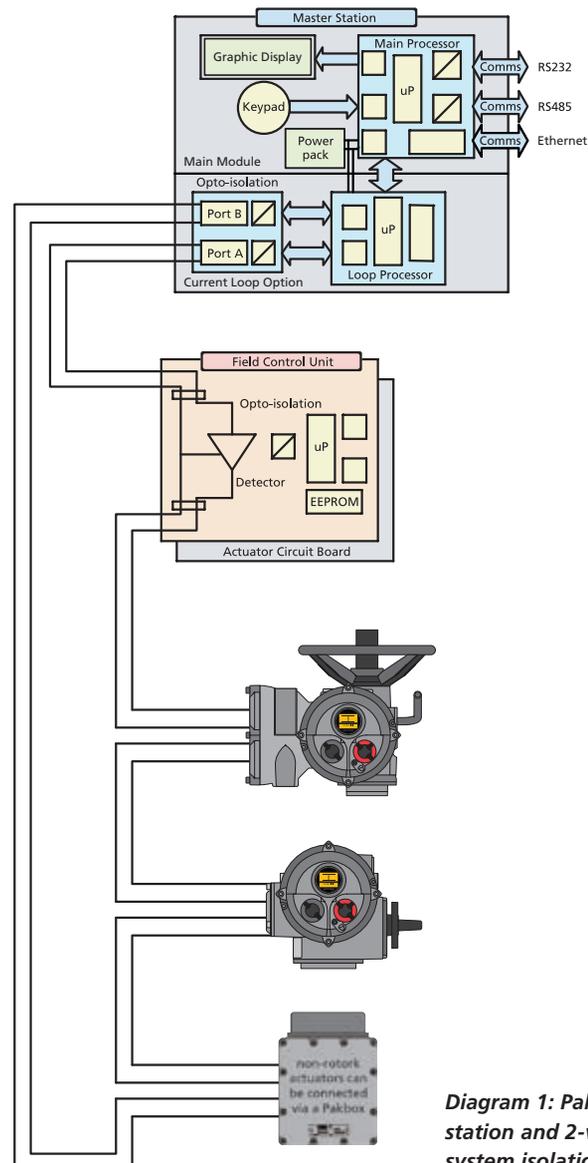


Diagram 1: Pakscan master station and 2-wire loop showing system isolation

System Performance Data

DCS or PLC communications

Modbus RTU Serial communications, monitor and control
Modbus TCP Ethernet communications, monitor and control

Field Network communications

Relative geographic position of each field unit address
Communications failure count for each field unit address
Location of any field cable fault by adjacent address
Test communication performance at various data speeds
Address range to be scanned

Field Unit Settings

Block and parameter settings for each address
Actuator type at each address

High Efficiency

Simple Configuration

Each system is supplied entirely preconfigured complete with a full data base and Modbus protocol configuration when it is delivered. To complete the plant specific settings the number of field units and the loop communication speed together with the host communication parameters are entered through the keypad.

It takes only a few moments to tailor the system to the actual plant and it is easy to reconfigure the settings if the design changes.

Cable Savings

The use of the 2 wire system greatly reduces the number of cable cores required to transfer signals from the actuator to the control centre.

Comprehensive Data Reporting

2 wires carry the data previously requiring 22 conductors. No additional actuator hardware is needed for position or torque data reporting from IQ and IQT actuators

Design, Construction and Commissioning Savings

The system is fully pre-engineered, obviating the need for costly wiring diagrams and reducing construction errors

With up to 240 field units on one 2 wire loop the total cost reduction is extremely significant.

Automatic Expansion

When additional actuators are fitted to the Pakscan network the system locates these, identifies them and includes them in the data reporting automatically. There is no need to reconfigure the system or modify the internal data base, simply change the setting for the number of field units by using the in-built keypad and screen.

Data and Control for Field Control Unit in IQ/IQT Actuators

Control Outputs -

- Open/Stop/Close/ESD digital control
- Set Position 0-100% analogue control

Position and Torque feedback -

- Actuator current torque value 0-120%
- Valve position analogue status (0-100% position feedback)

Actuator Status feedback

- Valve position digital status (open/closed)
- Actuator Alarm status
- Local/Remote selector position
- Local Stop selected
- Valve opening and closing digital status
- Actuator torque tripped at end of travel
- Actuator torque tripped in mid stroke
- Battery condition low
- Motor thermostat status
- Valve manual movement
- Contact failure to energise
- Excessive valve travel time
- Motor still energised at end of travel
- Communication failure
- Field Control Unit failure

Valve Signature data

- Torque profile in opening direction
- Torque profile in closing direction

Data and Control Available from a Pakscan Master Station

System Control commands

- Reset system (Reconfigure loop)
- Change station to standby mode (Hot standby systems only)
- Alarm accept
- Global ESD function

System Condition feedback

- Loop condition register
- Loop status
- Main station status
- Standby station status (Hot standby systems only)
- Map of field unit locations
- Cable fault type (open or short circuit)
- Loop data rate
- Configuration progress
- Actuator alarm present
- Field Control Unit alarm present

System Fault Tolerance

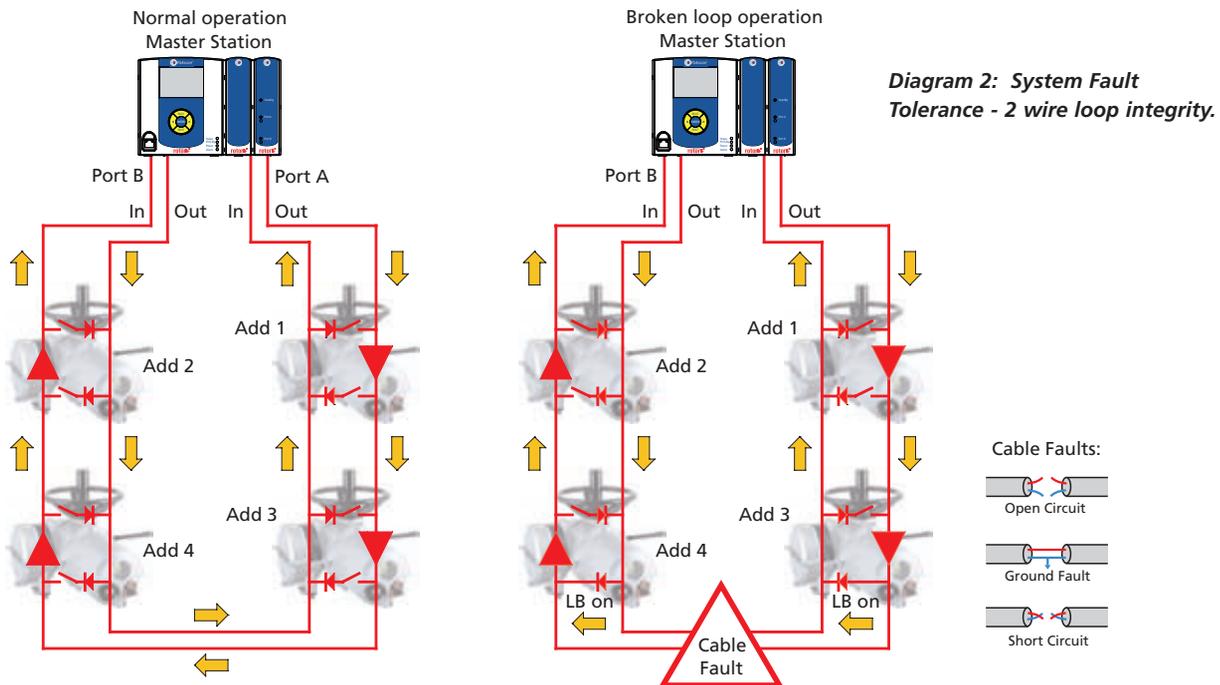


Diagram 2: System Fault Tolerance - 2 wire loop integrity.

The Loop System

The two wires are connected to, and taken from, each field control unit in turn. They originate from and return to the master station to create a single twisted pair 2 wire loop. As each device may now be accessed from either direction a redundant communication path is available. Pakscan fully utilises this fact in the event of a cable fault.

Cable Fault Tolerance

The integrity of the 2 wire cable is continuously checked whilst the system is running. In normal operation port A is a transceiver and port B a receiver only. The 20mA loop current passes from master station port A 'out' to port B 'in' and back from port B 'out' to port A 'in'. Port B is able to monitor communications from port A through the cable.

Should this communication fail for any reason, the master station ceases transmission and every field unit asserts its 'loopback' circuit. After a short period the master station then begins communication from port A to each field unit in turn, removing its loopback circuit. Progressively the current loop is extended until the fault location is revealed.

Port B reconfigures as a transceiver and the procedure is repeated. Once the process is complete, the system will have located the position and precise nature of the fault and maintained communication with all the field units on each side of the fault.

The loopback feature allows the system to have two communication routes without the need for two cable runs. It also allows the system to cope with cable breaks, short circuits or ground faults.

High Integrity Data Transmission

All messages passed over the network are totally under the control of the master station. A field unit may not transmit any data unless it receives a request from the master station. All data messages and commands are verified by framing and CRC checks.

Non-catastrophic failures due to noise are handled by the master station on a repeat as necessary basis. All messages require a response within the timeout period. If the timeout expires the master station will repeat the message up to a total of 3 times before indicating that the field unit is out of communication.

Fault Indication

If a cable fault occurs, Pakscan is able to inform the maintenance staff of the location of the problem and the nature of the fault. The master station includes diagnostic screens that show which actuators have instigated their loopback circuits and also the order of the addresses used on the loop. The position of the actuators in loopback will be adjacent to the cable fault.

Should two actuators inadvertently be programmed with the same address (which is not allowed), then the system can also tolerate this commissioning fault. The duplicated address will not be used for any command or data reporting and the field unit screen will indicate that a duplicate is present on the network.

The Field Unit

Actuator Field Control Units

Pakscan field units meet the same environmental requirements as the actuator in which they are located. Each unit is integrally mounted within the actuator's double sealed electrical housing and requires no access once fitted.

Variable parameters such as the address and baud rate are set non-intrusively over the two wire loop using a Paktester or via the infra-red link on the IQ and IQT actuators. Once installed and operating on the loop, changes to the parameters can be made from the master station for all settings except the field unit address. Each field unit has its own unique address to enable the master station to contact a specific actuator on the loop regardless of its hard wired position. All the field unit settings are retained in EEPROM ensuring they will remain unaltered even if the power is switched off.

Field unit positions on the loop do not have to follow a strict order and the set address may be in any order. If an actuator is switched off for any reason this will not interrupt the communication with the remaining actuators and the system will identify any unit that is no longer present on the network.

The master station is able to identify the unit that is missing and report the fact to the host system. Data relating to the missing address can either be returned to zero (as it is unknown) or left in the last known state.

Each type of field unit is able to identify itself to the master station and when it has done so the displays used for the information retrieved are tailored to the particular device. With IQ and IQT actuators the degree of valve opening is reported automatically without the need for additional components in the actuator.



An IQ FCU Printed Circuit Board

Actuator local controls and remote, hard wired, control inputs may be used in addition to the Pakscan system controls. These facilities remain operable even in the unlikely event of a field unit failure.

General Purpose Field Unit

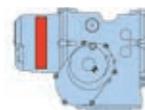
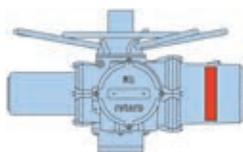
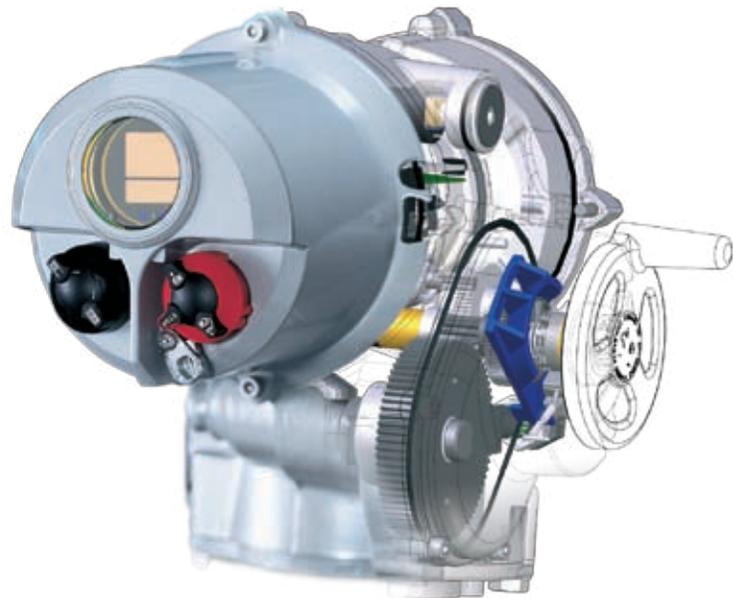
The application of 2 wire control around a process plant often results in a need to include transmitters, solenoids, or other sensors into the system.

The General Purpose field unit is specifically designed for digital and analogue inputs and outputs. It is available in 19" rack mounting form for use in an equipment room, or for field mounting in either a watertight IP65 enclosure or fully certified enclosure for use in hazardous areas.

The variable parameters are set in the same way as an actuator field unit using the non-intrusive Paktester.

Analogue Input Field Unit (IQ)

The IQ actuator also has the capability to have a special second field unit fitted which is used to feed back analogue transmitter data. The Analogue Input field unit takes two fully isolated analogue inputs (0-5V or 0-20mA) and transmits them back over the 2 wire network. This is particularly useful for filter controls where only a few analogue signals are needed in the control room. This card is set non-intrusively using a Paktester.



■ Pakscan Field Unit

Diagram 3: Location of Field Units within Rotork 'IQ', 'IQT' and 'Q' Range actuators.

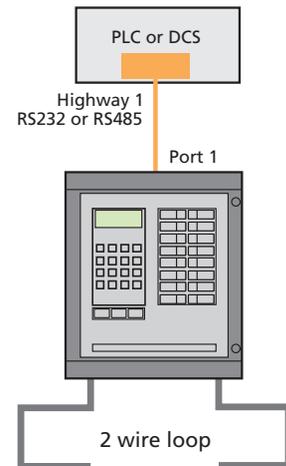
Serial Communications

Master Station to Host System

The Pakscan system acts as a slave to a host. The host system may be a DCS, PLC or SCADA system and it can communicate with the Pakscan equipment by either RS232 or RS485, half duplex, at data rates up to 115 k baud, (38 k baud on a Pakscan IIS). The information is passed using the universally accepted Modbus RTU protocol.

Information is continuously gathered by the master station from the field units, so ensuring that information requests by the host system are serviced with an immediate reply from the internal data base. This permits fully asynchronous data transfer between the field equipment and the host system.

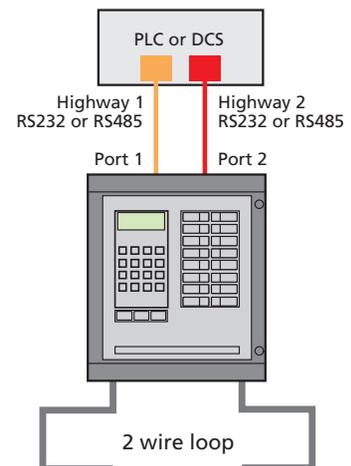
Command instructions from the host have priority and are processed immediately by passing the message to the field unit concerned.



Dual Communication Paths

All Pakscan master stations are fitted with a minimum of two serial communication ports and each is served by its own internal database. This provides the ability to communicate between the master station and two independent host systems, or to use a redundant communication path between the host and the Pakscan system.

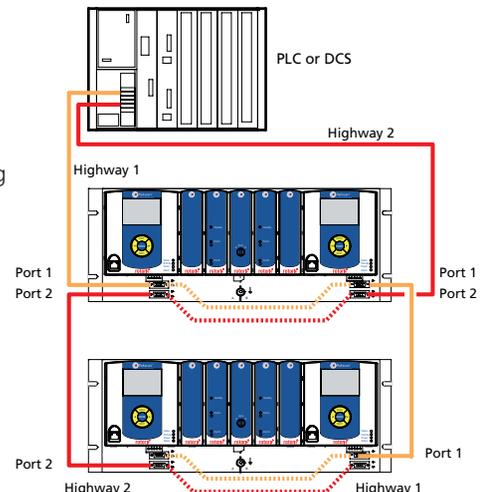
For those applications where high integrity of the control system is required, the use of dual communications paths protects against failure in one part of the communications system preventing the whole system from failing.



Multi-drop Capability

Every Pakscan master station is fitted with two half duplex Modbus communication ports that can be set to RS485, 2 wire. When the host system is controlling more than one Pakscan master station and 2 wire loop an RS485 multi-drop highway may be used to minimise the host system hardware and cabling. If the host system is unable to support RS485 then Rotork has a stand alone RS232/RS485 converter that may be used.

Multi-drop is especially useful in systems where full redundancy is being used. The hot standby stations are connected together on a multi-drop highway and the internal setting for port activity is set to 'standby passive' on both the A and B sides. The resulting communication will have transparent change over from A to B when the master changes sides.



Ethernet Connectivity

The Pakscan P3 and IIS master stations include the ability to connect to the host system using a Local Area Network and Ethernet communications.

The Pakscan P3 master station includes two integral Ethernet 10Base-T/100Base-Tx ports in each CPU module whilst the Pakscan IIS uses an external Pakscan Ethernet bridge module. The Ethernet ports use Modbus TCP protocol for communication to the host system.

The Pakscan P3 accesses the plant data directly from its data base communication to the host. The Pakscan IIS bridge makes the plant information available to the host system with minimal delay by holding current system data in its memory.

Modbus TCP

The protocol used for data exchange and control is Modbus TCP. This widely used protocol allows for the data to be broken into packets for Ethernet transmission over the LAN.

Most host DCS and PLC systems support Modbus TCP and the embedded data follows either the standard Pakscan Generic, Honeywell or Yokogawa formats.

LAN Connection

Up to 10 simultaneous connections are allowed for the Ethernet connection. Several host systems can access data at the same time at speeds of 10Base-T or 100Base-Tx.

Even when using the Pakscan Ethernet bridge, the internal data updates ensure that there are no delays in responding to messages on the LAN.

The LAN can be extended to a wide area network or even include a router onto the World Wide Web. Enabling the correct router port for Modbus TCP comms increases the security of the system when used over the internet.

The Ethernet ports on Hot Standby Pakscan P3 systems are interconnected using smart switches so that transparent change-over occurs in the event of a main unit failure.

Embedded Web Server

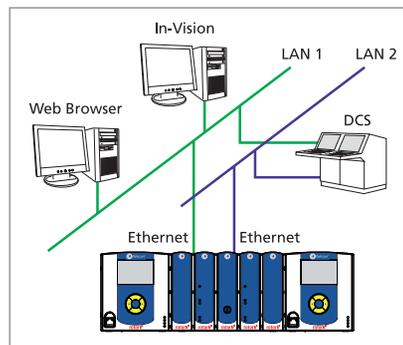
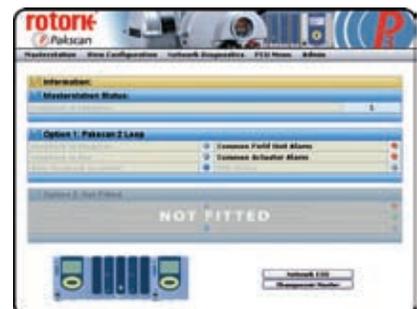
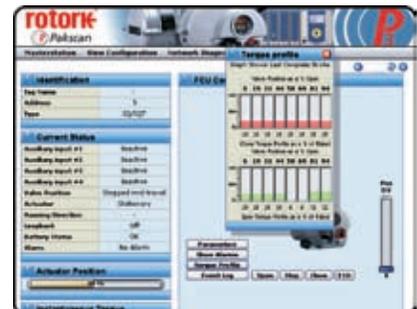
The embedded web server allows the system performance, diagnostics and set up to be viewed at any time by connecting a PC to the Ethernet LAN and browsing to the master station using standard Internet Browser software such as Internet Explorer.

With the correct passwords entered, parameters can be altered and outputs changed allowing rapid corrective maintenance in the event of a field fault.

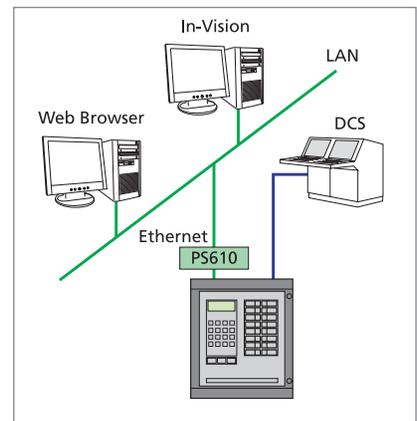
The server can even be configured to send e-mail messages to specified recipients should a system fault develop.

Security

The Modbus TCP communication protocol and the inherent protection of a router provide a high degree of security for the system. In addition the ability to alter the system or issue commands to the actuators is under password protection.



Pakscan P3



Pakscan IIS

Safety and Security

Some systems will require a higher degree of availability than others, though all systems need to tolerate simple component failures. All Pakscan systems include protection against internal failures designed to minimise their effect on valve movement and control. The actuator availability is maintained at all times.

The master station protects against communication failures with the supervisory system. Host communications to the DCS/PLC may be duplicated and either link can be used for data collection and control.

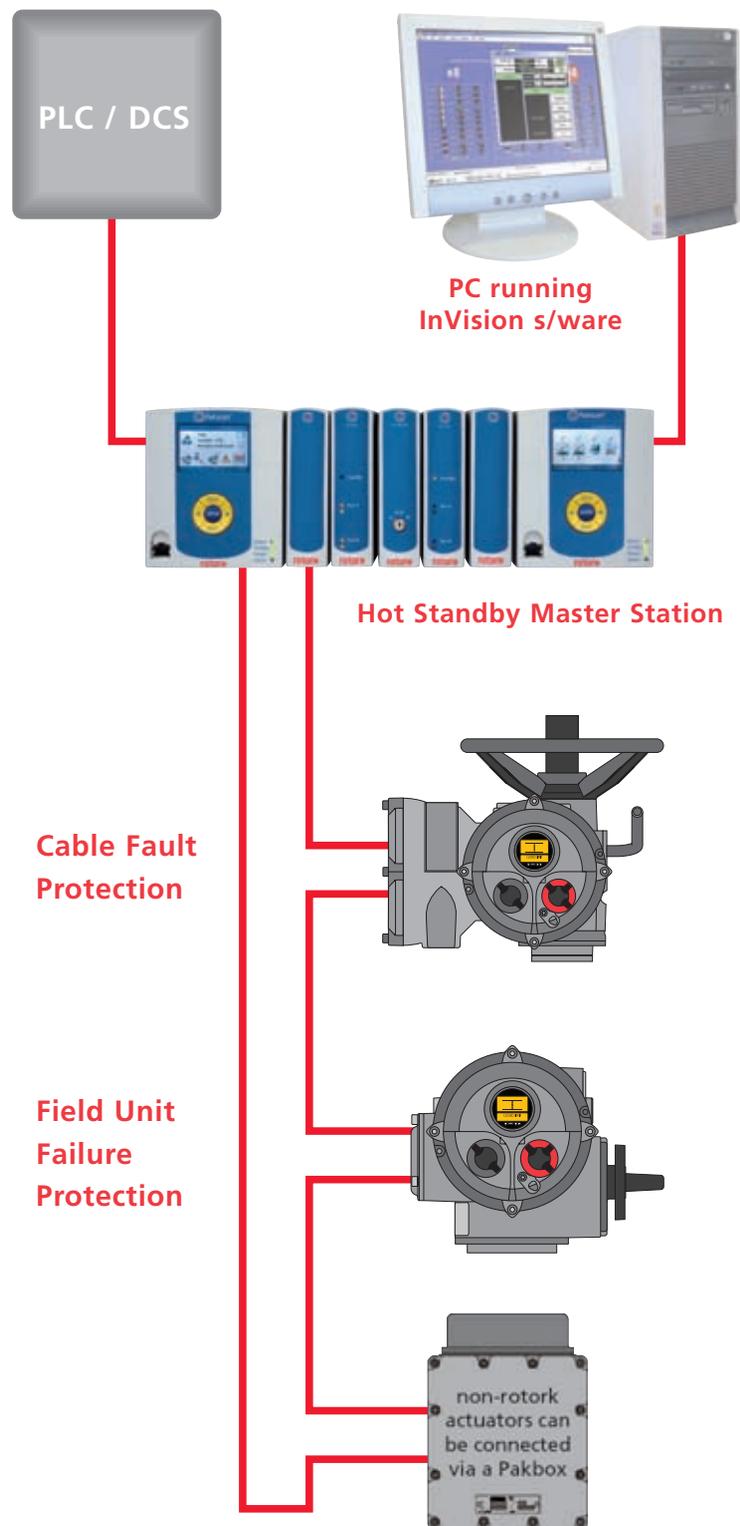
In the case of the Pakscan P3 the master station it may be duplicated with the second unit providing an on-line hot standby to the first. The system will give totally automatic change-over from the primary unit to the secondary in the event of a component failure. The change is made without interruption to the loop or host communication and is completely transparent to the host system. Indeed the only indication of a failure will be the alarm that is raised.

Indication of the status of the primary and standby master station is provided over the host communication link.

The network design is such that if there is a failure in either the field wiring or a field unit itself, then the fault will be either bypassed or isolated whilst control is maintained with all the remaining parts of the system.

Should a field unit develop an internal fault the master station will identify and report the problem. If the fault could cause the system to become inoperative then the master station automatically disconnects the faulty device and continues with control over the remainder.

The field unit fitted within the actuator does not interfere with the actuator local controls, so ensuring that even if there is a failure of the device the actuator may still be used to operate the valve.



High Performance

Pakscan networks use a unique proprietary protocol that achieves very fast update times whilst using relatively low data transmission rates. Compressing the data field to a minimum length allows more data to pass over the network in a given time at each data rate. The result is a system that can handle long transmission distances and a large number of units, without repeaters, whilst still maintaining a quick and efficient communication.

Field units are scanned in turn by the master station and report their current status back in compressed code messages, shortening the transaction period to a minimum.

The field cable used for the Pakscan network is typical instrumentation cable.

A simple twisted pair with overall screen using polyethylene insulation will suffice.

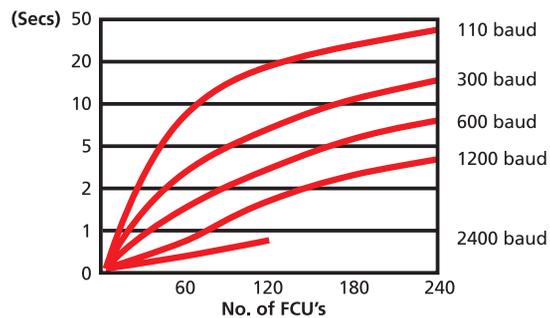
The use of low transmission speeds allows the current loop to achieve long distance communication with field devices without the need for repeaters. Where the loop distance is shorter then higher speeds can be used.

The communication protocol gives priority to instructions sent from the master station to the field units.

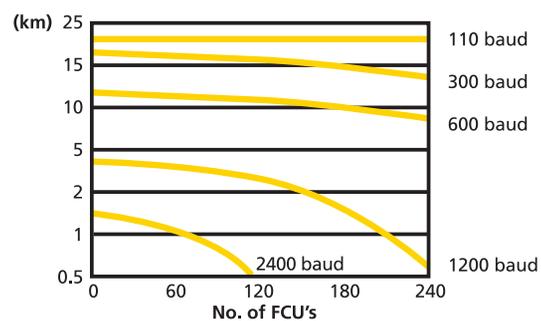
Commands are considered more important than reports so the routine polling of the field units is momentarily suspended when a command needs to be issued. Because command instructions occur infrequently there is a negligible effect on the the scan time for the system.

The scan time in the table shown below assumes that only one actuator has new data or a new event to report during each scan cycle. The loop protocol uses a 'report by exception' technique to minimise the message lengths. The field unit does not repeat the data sent once it receives confirmation of receipt by the master station. If the scan time is short then the probability of more than one actuator with a new event to report is very small and the figures given will be accurate.

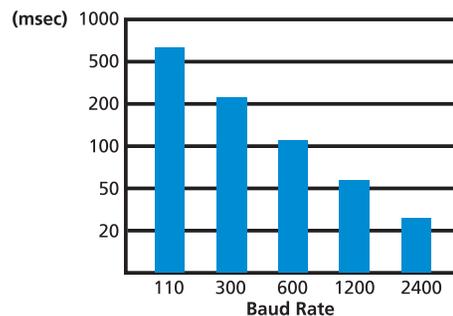
Scan Time (seconds)				
Baud Rate	Number of field units			
	60	120	180	240
110	8.4	19.3	31.1	42.9
300	3.1	7.1	11.4	15.8
600	1.6	3.6	5.7	7.9
1200	0.8	1.8	2.9	3.9
2400	0.4	0.9	N/A	N/A



Loop Distance (km) with 1.5mm ² cable		
Baud Rate	Number of FCU	
	60	120
110	20.3	20.3
300	17.1	15.9
600	12.2	11.1
1200	4.1	2.9
2400	1.5	0.3



Time to issue a command (msec)	
Baud Rate	Time
110	614
300	230
600	110
1200	60
2400	30



Product Range

Pakscan P3

Control room or equipment room mounting, this master station is capable of controlling up to 240 field units on the current loop option card. The surface or rack mounting 178 mm high unit has all the connections on the front and rear access is not required. The Pakscan P3 is complete with two serial ports, two Ethernet ports and a System Configuration Ethernet port. The integral display screen and keypad provide a full colour graphical interface for setting, diagnostic and control of the system.



Current Loop Option:

Field units:
up to 240.
Current loop: 20 mA 15V.
Cable: 500 Ohm, 3.5uF max.

Enclosure:

Surface mounting or optionally 19 inch rack mounting.

Supply voltage:

87-265 V ac, 47-63 Hz or 24V dc.
Power consumption: 30VA.

Host communications:

2 serial RS232 or RS485 (2 wire) ports
2 10Base-T/100Base-Tx Ethernet ports
Modbus RTU / TCP host communications
and TCP/IP web server protocols.

Refer to publication S001E

Pakscan P3 Hot Standby

The Hot Standby version of the P3 features two identical sets of modules in one chassis. Either may be the primary unit and transfer between the two is transparent and automatic on component failure. Control room or equipment room mounting, this master station is capable of controlling up to 240 field units on the current loop option cards.



Current Loop Option:

Field units:
up to 240.
Current loop:
20 mA 15V.
Cable:
500 Ohm, 3.5uF max.

Supply voltage:

87-265 V ac, 47-63 Hz or 24V dc.

Power consumption:
60VA.

Host communications:

4 serial RS232 or RS485 (2 wire) ports
4 10Base-T/100Base-Tx Ethernet ports
Modbus RTU / TCP host communications
and TCP/IP web server protocols.

Enclosure:

Surface mounting or optionally 19 inch rack mounting.

Refer to publication S001E

Pakscan IIS

The Pakscan IIS combines the field network control features of all Pakscan master stations with the logic and sequencing capabilities of a PLC. Up to 80 sequences and 128 interlocks can be programmed into the unit. Pakscan IIS master stations can each control up to 32 field units.

Enclosure:

Wall or Panel mounting, IP65.

Supply Voltage:

a.c. 90-264V, 43-440 Hz.
Power consumption: 50VA.

Field units:

up to 32.

Current loop:

20 mA 15V.

Cable:

500 Ohm max resistance,
3.9uF max capacitance

Host communications:

2 Modbus RTU half duplex comms ports, one fixed at RS232. the other two each selectable RS232/ RS485 (2 or 4 wire).

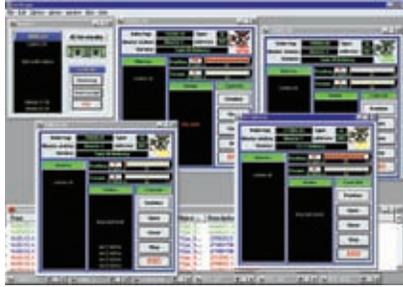
Refer to publication S112E



Product Range

In-Vision

PC based Supervisory Control



In-Vision is a user friendly PC based control and data acquisition software package that perfectly compliments Rotork's Pakscan 2 wire control systems.

In-Vision brings the computer animation and plant visualisation capabilities right to the fingertips of the plant operator. It requires as a minimum a Pentium processor and SVGA colour screen to show the condition of the process and will run on a variety of Microsoft operating systems including XP.

In-Vision system capability:

- Run Time Only system.
- Unlimited tag capability.
- Up to 480 valves or other devices per system (240 with torque displays).
- Full animation of valve status, text and graphic.
- Comprehensive Event and Alarm Log.
- Up to 100 mimic diagram graphics.
- Up to 500 pop-up graphic windows.
- Optional sounds for specific event reporting.
- Password security with 10 levels.
- Ability to include plant photographs.
- Dedicated Rotork Pakscan driver

Computer requirements:

- Pentium personal computer, at least 1.3 GHz
- 1024 MB Ram
- Allow for 2 GByte free hard drive space.
- CD ROM disk drive.
- Sound card and speakers.
- RS232C serial port.
- Mouse (PS2 compatible).
- Minimum screen resolution SVGA (800 x 600 pixel) 16 bit colour, recommended resolution XGA (1024 x 768 pixel) with 16 bit or 32 bit colour.

- Microsoft Windows XP.
- Optionally, use the Rotork TSI Touch Screen Interface.

In-Vision MD

PC based Diagnostic and Maintenance System

In-Vision MD is an optimised version of the standard In-Vision package specifically designed to bring the economic benefits of a tailored maintenance and diagnostics utility to the Pakscan system.

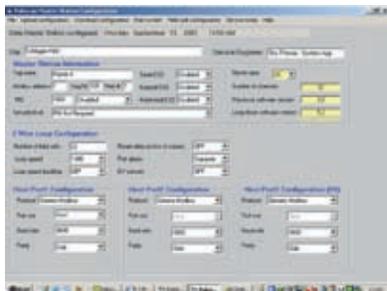
In-Vision MD includes:

- Status screens showing the current actuator condition, alarms present and allowing control of all the actuators and master station.
- Alarm and Event logs.
- Customer defined tag names and service descriptions.
- Torque profiles for IQ and IQT actuators.
- Standard screen layouts.

Refer to Publication S210E.

Mastertools

PC based Commissioning and Service/Maintenance Tool



Mastertools is the ideal utility for commissioning and maintenance on Pakscan IIS systems. It allows the system to be configured and its performance to be interrogated.

Reports showing how the system has been set up together with all the parameter settings in every field unit can be generated for future reference.

The program also allows the actuators to be remotely controlled from the PC and shows the reported data from each field unit. Only one actuator can be controlled or interrogated at a time in this mode. Both General Purpose field units and Actuator Control field units can be operated.

- Identifies the master station type it is connected to.
- Uses the 'configuraton mode'. setting in the master station for ideal access to all the data.

- Lists the set up of every field unit connected.
- Allows the tags to be set from the computer keypad.
- Lists all parameters in the master station and allows them to be altered.
- Generates full system reports for the master station and field units.
- Fully tests actuator control and reporting capability.

Computer requirements:

- Same as In-Vision, above.
- Optionally, use the Rotork TSI Touch Screen Interface.

Product Range

TSI - Touch Screen Interface



The TSI computer is designed specifically to match the Pakscan system and In-Vision. The installed package can be a full In-Vision system, or an In-Vision MD, either system runs perfectly on

the computer. The high brightness, full colour touch screen means that users who prefer not to use a keyboard or mouse can still operate the valves on the system, provided they have the correct level of access as set by the In-Vision password system.

Full graphics displays tailored to the touch screen application are engineered with the In-Vision system and special features such as a graphic screen pop up keyboard allow for user entries where a password or value has to be entered. The enclosure allows the TSI to be mounted on a wall or the outside of a cabinet and still maintain environmental protection of the computer hardware.

Cable entry is via the bottom of the enclosure.

- Panel or surface mounting enclosure
- TFT screen with touch sensitive overlay
- Intel Pentium processor on baby PC format mother board
- Includes RS485 and RS232 comms ports
- Connections for external keyboard, mouse and CD disk drive

To set up the TSI an external keyboard, disk drive and mouse are available.

Refer to publication S115E

Accessories

Paktester

The Paktester allows the variable parameters of all the different types of field unit available on the Pakscan system to be set. It connects directly to the actuator or field unit and allows the user to interrogate and control the field unit. It also performs diagnostic functions when fault finding on a system or actuator.



Pakreader

The Pakreader complements the Paktester by enabling any master station communications link to be examined. It is a serial communicator that acts like a hand held host system and provides for direct control over a master station.



Converter PS412

The PS412 converter is a stand alone RS232/RS485 converter that includes smart intelligence. Many PLC and DCS systems do not have a true RS485 communication port and this converter is exactly matched to the Pakscan system. The unit is supplied with a universal power pack for 90 - 264V ac.



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