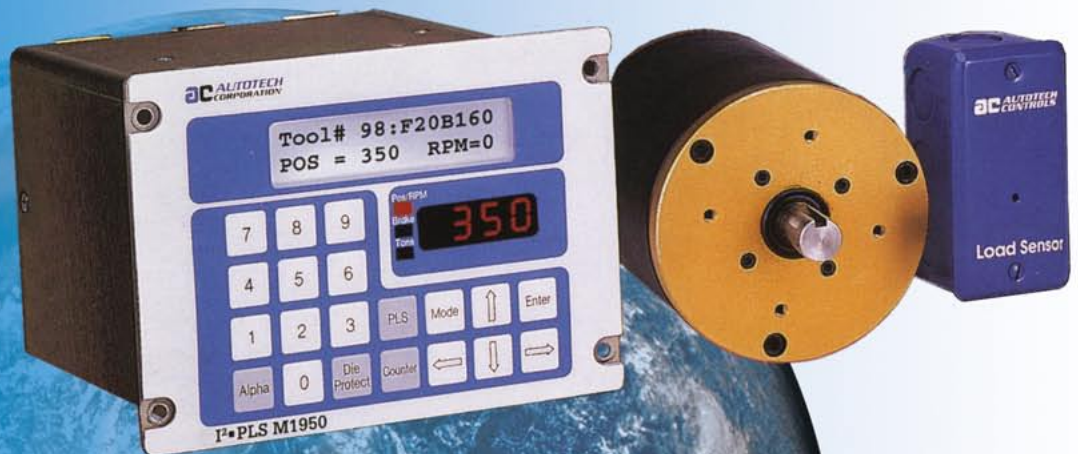




The Innovative Force in Automation Controls



UTICOR EZAutomation



balmoral technologies

Balmoral Technologies Pty Ltd

ABN 34 003 789 599

38 Leighton Place Hornsby NSW 2077 Australia

Tel 61. 2. 9482 4000 • Fax 61. 2. 9482 4222

Email: sales@balmoral.net.au

www.balmoral.net.au

West Australian Distributor: Pacific Automation • Tel: 08 9361 7177



Programmable Limit Switches (PLS)

A Programmable Limit Switch is an electronic cam switch that duplicates the functions of either a rotary cam switch or limit switches actuated by linear machine movement. A PLS system consists of a solid-state programmable control unit and a position transducer.

Autotech exclusively uses resolvers as position transducers. The resolver is coupled to the moving shaft and produces an analog position signal. This position signal is then converted to digital format inside the control unit.

Thereafter, the position is displayed on the front of the unit and also compared to the user programmed "dwell" settings. As the actual position reached the preprogrammed set points, the outputs are turned "ON" and "OFF". The dwell setting are easily programmed from the key pad.

Autotech's PLS offer many advanced features such as Zero Offset Adjustment, Dynamic Zeroing and Programmable Rate Offset. Zero Offset allows the operator to easily align the "resolver zero" to the "machine zero". Dynamic Zeroing (Mod Z) allows modification of the zero reference for selected channels based on an external trigger independent of the actual resolver position. Programmable Rate Offset (ROF) allows automatic adjustments of set points to compensate for machine speed changes.

The Autotech microprocessor-based PLS uses a patented DMA technique employing "look up" tables to achieve the fastest machine operation in the industry; 20,000 setpoints in 85 microseconds.

Resolver Decoders - BUS TYPE

M7350

Series Position Feedback BusModules™

PLC plug-in Resolver Decoder Modules

- Resolver Based Position feed back system
- Absolute position - No loss of position during power loss
- Resolver offers reliability under extreme conditions
- Noise-immune ratio-metric decoding
- Programmable resolution from 20 to 4096 counts per turn
- Programmable Offset for electronic alignment
- Programmable position format - Binary, BCD, or Grey code
- Broken resolver cable detection



M7350

Shut Height Feedback BusModules™

Dual Resolver Decoder Module

- Resolver Based Shut Height feed back system
- Uses AVG-Autotech's RL210 128:1 gear ratio resolver
- Absolute position - No loss of position during power loss
- Broken resolver cable detection
- Occupies only one slot in rack



M7450

Load Monitor BusModules™

Cost effective PLC plug-in load monitor allows complete integration of load with PLC.

- Monitors Up to 4 sensors
- Sensors with built-in 4-20 mA output simplify wiring
- Built-in sensor integrity checks
- Programmable Over & Under Limits for Press Protection, Die Protection and Process Trend



Position Transducers

Resolvers

Extremely reliable and rugged brushless resolvers form an integral part of the majority of Autotech's PLS systems. The resolvers are designed to operate reliably under severe environmental conditions such as mechanical shock and vibrations, temperature and humidity changes, oil mists, coolants and solvents.

Our resolvers are offered in size 25 and size 40 housings. Built-in single or dual gear-trains for multi-turn or linear applications are available. You have a choice of NEMA 134, NEMA 4X, Explosion proof or submersible ratings to suit your applications needs.

Resolver Decoders

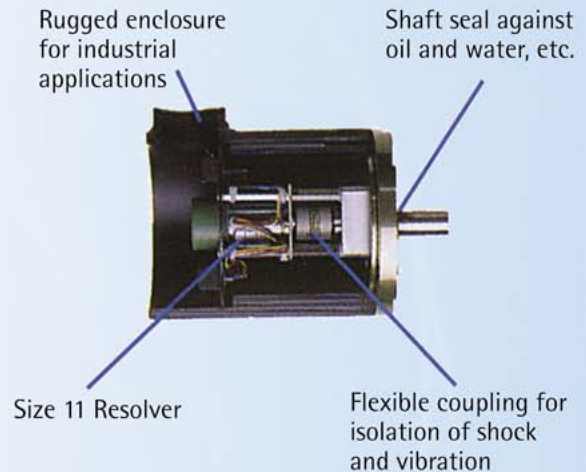
Resolver Decoders decode the analog outputs from a resolver into a digital format to feed into a PLC or other controllers. Autotech uses a highly "noise immune" ratiometric decoding technique in all decoder products. A wide range of decoders are available with various features such as zero Offset capability, flexible resolution or counts per turn, choice of output types (TTL, sinking or sourcing) output format, (BDC, binary or gray code) and single or multi-turn models. Autotech also offers plug-in decoders for A-B 1771 I/O rack, IBM PC, Modicon 984, Quantum TSX and GE. See the Resolver Decoders-Summary of Features on the following pages for additional information.

DigiSolver Resolver-based Absolute Encoder

DigiSolver is a resolver with a built-in decoder. Autotech uses an extremely "noise immune" ration-metric decoding technique to resolve the analog outputs of the resolver into digital format. DigiSolver combines the ruggedness of a resolver with the reliability of solid-state electronics.

No broken disc! No disc misalignments! No LED aging!

DigiSolver has all potted electronics and consequently, is a very rugged and reliable replacement for optical encoders. It will outlast any other encoder under harsh industrial environments containing mechanical shock and vibrations, temperature and humidity charges, oil mists, coolants and solvents. DigiSolver is available with choice of counts per turn, output types (TTL, sourcing or sinking), output formats (BCD, binary or gray code) single or multi-turn models, and housing types as described in the resolver action.



Resolver Decoders - Summary of Features

Product Features:	ResoCoder & DigiSolver	DM7 Series	M1150-M10 Series	M8000 Series	M7000 Series
					
Characteristics	Resolver with integrated decoder electronics. Models: Low cost plastic body Recoder and industry std. DigiSolver*	Front panel mount versatile, decoder completely programmable, with Pos / RPM display	Front panel mount programmable decoder for multi-turn applications	Resolver decoder modules for Allen-Bradley 1771 rack	Resolver decoder modules for Modicon 984 PLC, Quantum PLC, GE-90-30 PLC, Ti 550 PLC
Application	Single turn or multi-turn	Single turn	Multi-turn with single-turn or multi-turn resolver input	Single turn or multi-turn	Single turn or multi-turn
Absolute	Incremental or absolute	Absolute	Semi-absolute or fully absolute	Fully absolute	Fully absolute
Output update rate	<1μ sec	<200μ sec	1-4m sec	<1μ sec	0.6 sec
Resolution (counts per turn)	Incremental up to 1024 or absolute up to 8192 single/18bits multi-turn	Programable 20-16384 (up to 14 bits)	1 Part in 1,000,000 over total travel, 12 bits/turn	Up to 8192 (13 bits) 17bits multi-turn	20-1000 counts/turn for Quantum 20-4096 other PLC's
Zero Offset	No	Yes	Yes	Yes	Yes
Output Format	BCD, Binary, Gray or Analog 0-10V or 4-20mA or quadrature	Field selectable BDC, Binary, Gray code or Analog 0-10V/4-20mA	BDC	BCD	Binary for Quantum; Binary, BCD, Gray Code for other PLC's
Output Types, TTL, PNP & NPN	Yes, and open collector and Analog	Yes	Yes	Yes	TTL
Optical Isolation:	No	Yes	Yes	Yes	Yes
Self Diagnostics	No	Yes	Yes	Yes	No
PC-Synchronisation	Yes, optional	Yes	Yes	Yes	Yes
Short-circuit proof Outputs	Only on PNP type output on DigiSolver	No	No	No	No
NEMA Rating (face plate)	NEMA 13, NEMA 4, Explosion Proof, NEMA 4 x (ResoCover only)	NEMA 12	NEMA 12	NEMA 1	NEMA 1
Size (W x H x D)	Size 25 (2.5" dia.) Size 40 (4.0" dia.) only DigiSolver	4.11" x 2.19" x 6.12"	4.11" x 2.19" x 6.12"	2 slots (single-turn) 3 slots (multi-turn)	Single slot

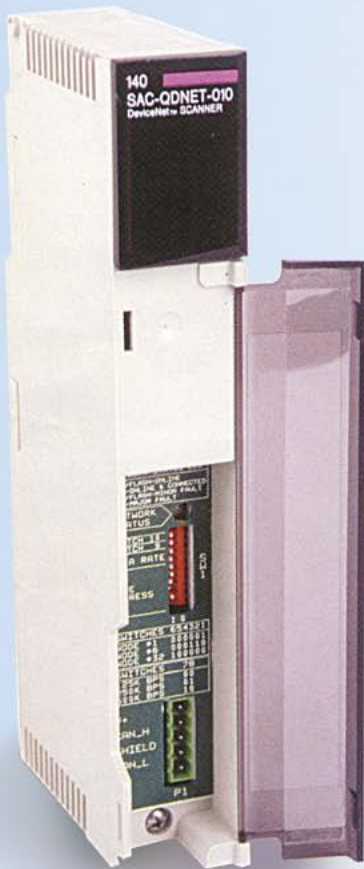
* The two models differ in available features. Call factory for more information and application assistance.

Programmable Limit Switches (PLS's) - Summary of Features

Product Features:	M1050 Series	M1151 PLS	Mini PLS Series	M1500 PLS	M1950 PLS
					
Characteristics	Advanced self-contained PLS series includes a registraton, glue gun controller and a multi-turn PLS	Smallest size PLS with advanced features	Modular versatile family includes fastest PLC, and Multi-turn PLS	PLS integrated with 16 inputs, 12 outputs PLC	Most advanced PLS with die protect, tonnage monitor and serial communications modules
Position Sensor	Single-turn Resolver	Single-turn Resolver	Single/Multi-turn Resolver, Linear Rod	Single-turn Resolver	Single turn
Number and type of Outputs (can cascade up to 7 units)	8 or 16, 8-built-in; 8-external Power Outputs	8 or 16, Logic Outputs; External Power Outputs	8-40 in mutiples of 8, Logic Outputs; External Power Outputs	6 PLS and 16 PLC, Built-in Power Outputs	Up to 80, Logic Outputs, External Power Outputs
Number of Programs	8 to 60 (depending on type)	4	Unlimited: Plug-in program modules	8	100 PLS, or 100 Die Prot., or 30 tonnage
Multiple Setpoints per channel	Yes	Yes	Yes	Yes	Yes
Scan Time	100-1500µ sec. varies w/speed compensation programming model	120-200µ sec.	57µ sec. u 3.5 msec depending on the unit	480µ sec. for PLS, 300µ sec fixed overhead, 6µ sec. per inst. For PLC	100-280µ sec.
Resolution (counts per turn)	16-999	16-999	10-4096: 10-1000 per inch (linear)	16-999	16-999
Self Diagnostics	Yes	Yes	No	Yes	Yes
Speed Compensation	Yes	Yes	Yes, except M1250 & M1450-LTO	Yes	Yes
Mod Z	Yes, except M1052 and M1056	Optional	Yes, except M1450-MR OF	Yes	Optional
Serial Link	M1051 only	No	Only on M1450-300 and M1451	Yes	Yes
Shift Register	No	Optional	No	No	No
Brake Wear Monitor	Yes, except M1052, M1053 & M1050-M10	Optional	M1451 only	Yes	Yes
Tachometer	Yes	Yes	Yes	Yes	Yes
Motion Detector	Yes	Yes	Yes	Yes	Yes
Size (W x H x D)	7.25" x 5.25" x 5.12"	4.11" x 2.19" x 6.12"	5.25" x 4.25" x 7.25"	7.25" x 5.0" x 6.70"	6" x 4" x 10"
NEMA Rating (Face Plate)	NEMA 12	NEMA 12, NEMA 4: Optional	NEMA 12	NEMA 12	NEMA 12

DeviceNet Scanner... *for the Schneider TSX Quantum PLC*

Lets you connect you DeviceNet devices to a Modicon TSX Quantum PLC

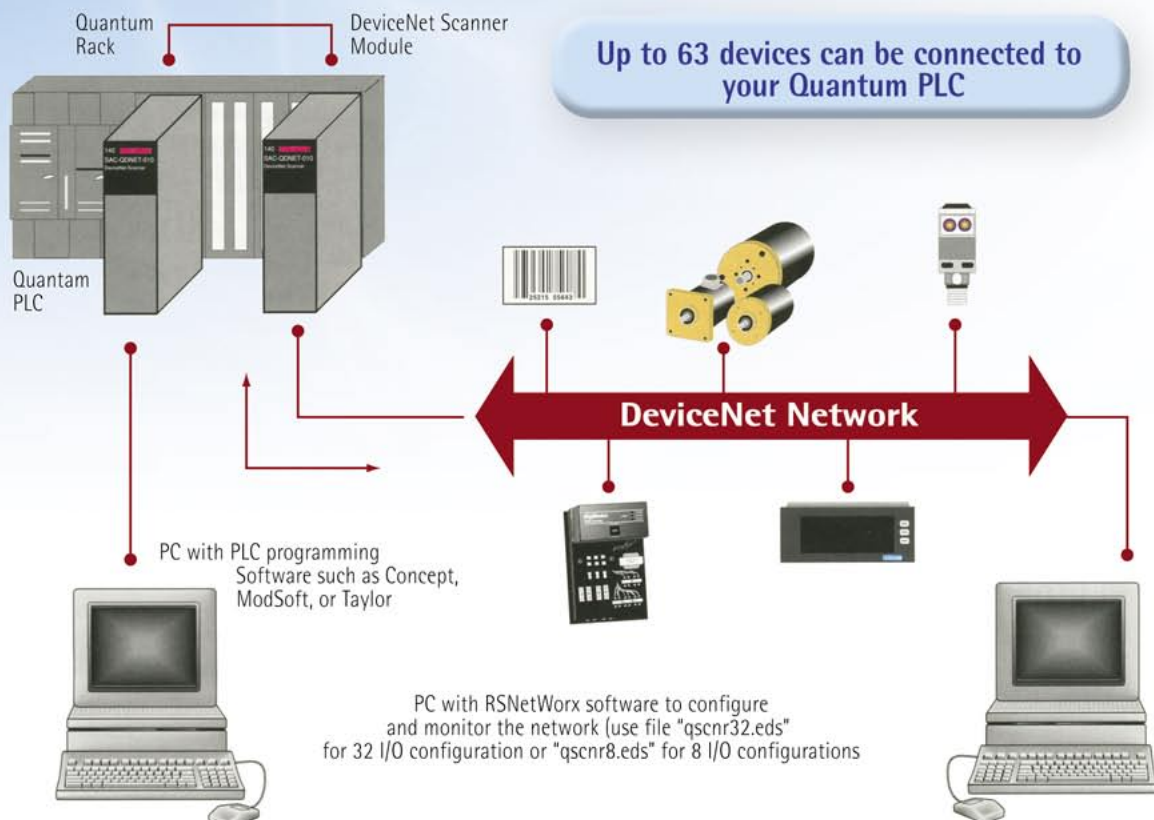


- A single-slot module that resides in a Modicon TSX Quantum PLC rack; can be local, remote or DIO rack.
- Lets you connect up to 63 slave devices.
- Communicates directly with the PLC's backplane using 8 to 32 input and output registers.
- DeviceNet time can be saved by not transferring I/O values unless a change-of-state (COS) has occurred.
- DeviceNet transfer of I/O data can be scheduled (cyclic data).

The quantum PLC DeviceNet Scanner acts as an interface between DeviceNet such as photo-electric sensors, proximity switches, valve manifolds, motor starters, process sensors, bar code readers variable frequency drives, panel displays, and operator interfaces and a **Modicon TSX Quantum PLC Processor**. It provides connection to a single DeviceNet network and communicates with DeviceNet devices over the network to:

- Read inputs from a device
- Write outputs to a device
- Download configuration data
- Monitor a device's operational status
- Update the scanner's exec

Information exchange includes:
device I/O data, status information, and configuration data.



The Touch PLS.... a NEW frontier



Super Fast, Accurate and Integrated

- Touchscreen Graphical PLS setting
- 4096 bit/rev, 0.1 deg. 30 μ Sec Scan
- Absolute Position with Max. RPM of 3600
- 67F-248F, NEMA 4, Expl. Proof, Resolver
- Ratio Converter for Resolver 2500ft away
- Leading/Trailing Edge Speed Compen.
- Flash Module for User Programmes
- Built-in Productivity Monitor.

AVG Autotech, the Company that invented the first microprocessor based Programmable Limit Switch back in 1975, is introducing yet another revolutionary concept in PLS technology, a PLS with a Graphical Touch Screen. You no longer have to contend with LED's, keypads and tens of codes to remember. The TouchPLS depicts your machine settings and status pictorially. Programming and fine-tuning the PLS settings is graphical and visual in a Windows type of environment.

The TouchPLS retains all the advanced PLS features that have been the hallmark of Autotech that has made it the market leader in PLS's:

1. Highest processing speed, an incredible 26 microsecond response time for processing 12 bit resolution 256 set points, that includes all the over head for Speed Compensation. Without Speed compensation, the TouchPLS can respond in nanoseconds.
2. Highest Processing Power per cubic inch, 16 channel PLS, Touchscreen interface, communicating to PLC networks, Ethernet connectivity, 256 color LCD, Productivity monitor, Alarm monitor, and even a graphical touchscreen interface for the PLC itself, all built in a compact package.
3. Simplest Human Interface with graphical cam settings that can be fine tuned in motion.
4. Highest immunity to a hostile environment. Resolver can operate from -67 degrees F to over 248 degrees F, under water, outdoors in Alaska or the Mohavi desert, 2500 ft away from the PLS. We even have an explosion proof resolver. The TouchPLS just like all other Autotech PLS's has a built-in broken wire detector to make sure that the Resolver is properly connected. The Resolver to PLS wiring has the patented short circuit proof design. Autotech Resolver is practically indestructible except for normal wear and tear.

Incredible Integration and connectivity to control networks!

The TouchPLS has total communication with any control network. Resolver position, PLS settings, input/output status, can be transmitted to or from the PLC network. This speed of communication is limited only by the limitation of the control network configuration.

For more information and for software/firmware downloads go to our website www.uticor.com

Visit us at: www.balmoral.net.au | sales@balmoral.net.au | Telephone 61. 2. 9482 4000



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Balmoral Technologies Pty Ltd

ABN 34 003 789 599

38 Leighton Place Hornsby NSW 2077 Australia

Tel 61. 2. 9482 4000 • Fax 61. 2. 9482 4222

Email: sales@balmoral.net.au

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West Australian Distributor: Pacific Automation • Tel: 08 9361 7177