![Autotech Controls logo] **aC AUTOTECH CONTROLS**

Programmable Limit Switch (PLS) for TI 505 Series I/O

Model M8251: Resolver based high speed control

Features

Easy Integration into New and Existing Systems

- Flexible, cost-effective, modular construction
- Fully isolated I/O
- Electronic Offset aligns PLS zero to machine zero
- Loads PLS setups from the backplane or IBM® compatible PC

Self-monitoring Diagnostics with Fault Output

- Broken resolver cable detection
- Special hardware-based microprocessor monitoring

Simultaneous Position and RPM Display

- Position, RPM, and output status available to backplane every 1.6 mSec
- Programmable under/over speed limits for motion output

Highly Repeatable, High Speed Power Outputs

- PLS outputs typically updated in 1.6 mSec (0.8 mSec version available)
- Output update time independent of controller scan time
- 16 Individually programmable PLS outputs
- Full optical isolation
- Up to 2 Amps per output, 10 Amps total per module

Advanced Features

- Leading/Trailing Edge Speed Compensation
- Mod Z (Modification Zero)
- Brake Monitor
- Stores 8 user PLS setups
- Angle On/Time Off outputs

Multiple Programming Options

- Through backplane
- RS485 Multidrop serial link
- Integral keypad and display
- Windows-based programming software

Applications

Automotive / Metal Forming

- Press automation
- Die protection
- Cam replacement

Paper / Film Converting

- Registration control
- Web control
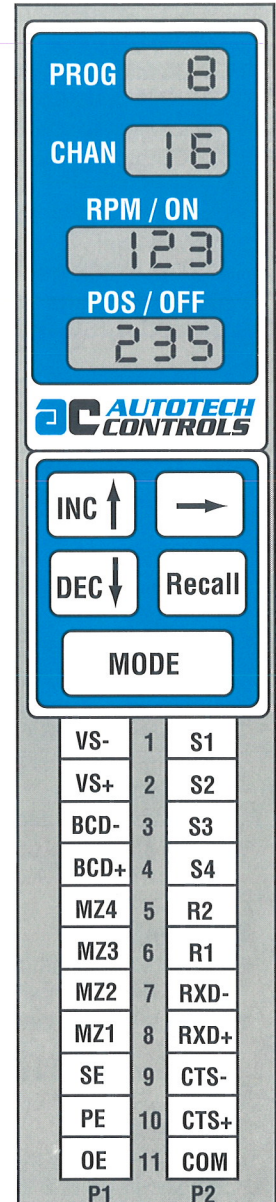- Corrugated processing

Packaging

- Glue gun control
- Labeling
- Form, fill and seal
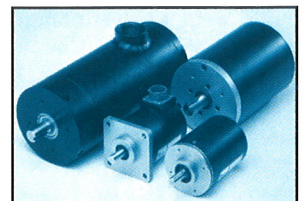
Bottling / Canning

- Filling
- Packaging
- Can making
- Can/Bottle decorating

Machine Control

- Any machine requiring highly repeatable, position-based outputs
- Can be used to replace optical encoders and high speed counters

---

Front panel display:

PROG	8
CHAN	16
RPM / ON	123
POS / OFF	235

aC AUTOTECH CONTROLS

Keys: INC↑, →, DEC↓, Recall, MODE

VS-	1	S1
VS+	2	S2
BCD-	3	S3
BCD+	4	S4
MZ4	5	R2
MZ3	6	R1
MZ2	7	RXD-
MZ1	8	RXD+
SE	9	CTS-
PE	10	CTS+
OE	11	COM
P1		P2

Autotech Resolvers

Specifications

A complete, functional PLS consists of a Cradle (SAC-TO505-010), a Functional Module (ASY-M8251-010), an Output Module (ASY-M8250-NOUT or ASY-M8250-POUT), and an Autotech Resolver.

PLS MODULE SPECIFICATIONS
Part number: ASY-M8251-010

CARD LOCATION:
Uses two slots (any location) in TI 505 Series I/O rack

PLC COMMUNICATION
Through input and output registers; allocate 32 Input and 32 Output registers

POWER REQUIREMENTS:
Backplane:
5 VDC @ 650 mA
Customer (Power Input):
24 VDC ± 15% @ 100 mA

ENVIRONMENTAL CONDITIONS
Operating temperature:
10° F to 130° F (-23° F to 55°F)
Relative humidity:
5 to 95% non-condensing

RESOLVER INTERFACE
Position transducer:
Resolver, Autotech Series RL100, E7R, E8R, RL101, RL500 or equivalent
Cable length between resolver and M8251:
2500 feet max., shielded
Resolver cable:
Overall foil shielded, twisted pair, such as Autotech's cable: CBL-10T22-XXXX

PROGRAMMING
All features programmable from keypad, IBM® compatible PC, or through the backplane.

Number of PLS setups:
8
PLS setpoints:
160 per PLS setup (maximum of 80 per group of 8 outputs)
Scale factor:
Programmable from 16 to 999, common to all PLS setups (resolution 17 to 1000 counts/turn)
Offset:
Programmable from 0 to Scale Factor value, common to all PLS setups

Speed Compensation:
Programmable in scale factor units per 100 rpm, up to full scale factor value. Each PLS channel can have its own speed compensation value.
Motion Detector:
Low and high motion limits: common to all PLS setups. Programmable from 0 to 1999 RPM

RESPONSE TIMES
PLS outputs:
1.6 mSec (0.8 mSec version available)
Tach. Update Time:
15 ms
Position, Tach., and Output Status available to backplane:
Every 1.6 mSec typical (0.8 mSec version available)

CONTROL INPUTS
Program Enable (PE) & Supervisor Enable (SE):
PE & SE control programming of the PLS.
PE & SE both must be TRUE for setup programming (scale factor, offset, program # etc.).
With PE TRUE & SE FALSE, only setpoints can be programmed.

Output Enable (OE):
When TRUE, PLS Channel outputs are enabled, (Fault and Motion are always enabled)

Electrical specifications (All Inputs):

Optical Isolation:
2500 VAC RMS
Input Current :
3mA typical @ 24VDC
Logic Levels
TRUE: 21 to 27 VDC (not to exceed V+ relative to V-)
FALSE: < 1VDC

OUTPUTS
(An output module is required for connection to field devices)
Fault Output:
Normally energized. De-energizes if broken resolver wire or internal fault is detected.

Motion Output:
Output energized whenever resolver RPM is between programmed limits.
Number of PLS Outputs:
16

OUTPUT MODULE SPECIFICATIONS
Part Number:
ASY-M8350-POUT (DC Current Sourcing)
ASY-M8350-NOUT (DC Current Sinking)

Customer power:
24VDC Nomimal ± 15%
All Outputs (16 PLS, Fault, and Motion):
Up to 2 Amp per output; 10 Amp total per module
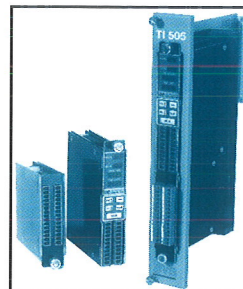Optical Isolation: 5,000 Vrms

Figure 1

Figure 2

Figure 1 shows the M8251 PLS completely assembled.

Figure 2 shows components of the assembly (from right to left): Cradle (SAC-TO505-010), a Function Module (ASY-M8251-010), and an Output Module (ASY-M8250-NOUT or POUT). Autotech Resolver (required for the system) not shown in Figures 1 or 2.