NEW M1200 PRO-DIE™ Series

starting at $1500

Simple Operation and Human Interface

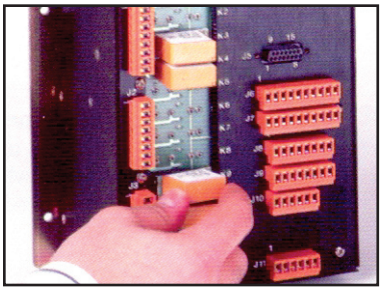
The M1200 has a 2x20 alphanumeric display for English language prompts and messages for the user. In addition, the display with VFD technology makes it easy to read on **the plant floor.**

Hot Keys for Easy Setup

Hot Keys make programming as well as accessing of information very easy for operator

Field Replaceable relays to drive field devices directly

The M1200 has **field-replaceable relays on board. The** electromechanical relays, **have the capability to drive any field device**



Slug Detect Delay

Programmable number of stroke cycles between the detection of a slug fault and the deactivation of the **E-Stop or T-Stop output. Programmable from 0-99**

Multiple Setup Storage

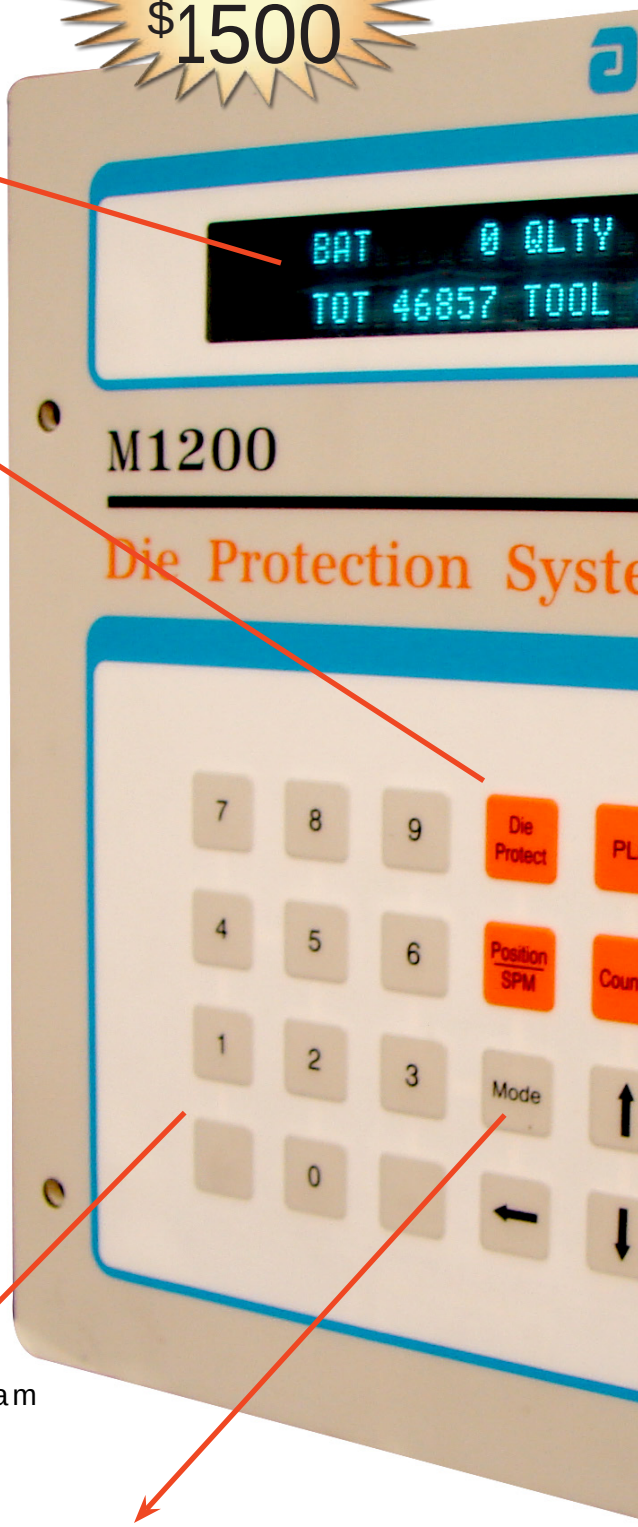
The M1200 can store setup information for up to 60 dies. A name of up to 8 **characters identifies each** die.

Numeric Keys

Used for inputing program parameters

Mode Keys

Steps to the next programmable or default display in the programming sequence, Die# 1: DIE NAME, SMP = 10, POS = 100



Cost Effective System with 4 Die Protection Inputs & 4 PLS Outputs for just $1500!

12 inputs, 14 outputs optional

Names of Sensors and Setups

The M1200 allows 8 character names for sensors and for different setups. User can access program information using **either numbers or names. With names (labels), the** operators need not memorize, or refer to sheets for **programming or accessing the information about a** setup or sensor.

Review Feature for Quick Setup and Diagnostics

Setting of position windows for sensors **used to be a very time** consuming, trial and **error based procedure.** With the M1200's review **screen, setup becomes** extremely easy. During setup, the M1200 captures sensor events. User can review press angles where **sensors became active during the press cycle, and** then program the positon windows & event type accordingly, for each sensor.

Counters for Information and Scheduling

Quality Counter: **Presettable** 6 digit down counter that can **be used to schedule periodic** inspection of parts.

Tool Counter: A tool counter is an up counter and keeps **track of the total hits made by** the associated tool that can **be used to schedule periodic preventive maintenance of** the dies.

Total Counter: The total counter, an up counter, shows **the total number of hits made by the press since last reset** of the counter.

Batch Counter: **Presettable down counter de-energizing the Top Stop output when count becomes zero and is used for making batch of parts.**

Expandable, Call the Factory

PRO-DIE™ Highly Intelligent System

Inputs detect a Variety of Events

Pos Hi: This event requires that the sensor input must be high within position window. If the sensor input is low anywhere within the window, it is considered as fault. The input must go low atleast once any where outside the window.

Pos Lo: This event is similar to Pos Hi except that it requires that the sensor input must be low within position window. If the sensor input is high anywhere within the window, it is considered as fault.

Rising Edge: The sensor input must go from low to high level within the programmed window, and remain high for the rest of the window.

Falling Edge: The sensor input must go from high to low level within the programmed window and remain low for rest of the window

Pulse: The sensor input must go from low to high to low again within the programed window. This event type is useful in detecting part ejection.

Immediate Stop (E-Stop) or Top Stop

Most presses have two stop circuits: Emergency or E-Stop and Top or T-Stop. As the names imply, the E-Stop circuit is used to stop press immediately under emergency situations, while the Top Stop circuit stops the press at the top. Each sensor input can be programmed to activate either E-Stop or T-Stop under fault condition. The choice between E & T-Stops depends upon the event. The idea of die protection is to stop the press before any damage is done.

Engagement angle avoids press sticking at bottom

M1200 has programmable engagement angle to avoid press sticking at bottom. The engagement angle is defined as the press position (before bottom) beyond which, if the press is stopped, it will engage with the stamping material and hence, likely to stick at bottom. To avoid sticking, the M1200 stops the press at top if an E-Stop fault is detected after the engagement angle.

Built-in System Integrity and Diagnostics Checks

Sensor integrity check ensure working sensors

The Ml200 protects dies by monitoring events captured by various sensors. For effective die protection, the system must be able to detect a malfunctioning sensor. A defective sensor's output remains stuck at low or high logic level, and does not change even when stimulating event occurs. The Ml200 detects and reports defective sensors by ensuring that each sensor output makes transition between the two states during each press cycle.

Broken Resolver Cable Check

The Ml200 has built-in hardware to detect a broken resolver connection. If one or more wires from the resolver are broken, the unit detects and warns user of broken cable fault by displaying fault on the display as well as by de-energizing a fail-safe, fault output.

Broken resolver coupling/chain detection

The M1200 has built-in features to detect broken resolver coupling/chain. If the resolver is stationary while the press is running the Ml200 detects "No Motion" fault, warning the operator of possible broken resolver coupling or chain.

Slippage

Yet another problem in a die protection system may be the slippage between resolver and the press shaft. One of the inputs of M1200 along with a proximity sensor and a cam, can be used to detect a slippage problem.

M1200 ProActive Die Protection System

ProActive Die Protection - M1200

Standard Unit with 4 Sensor inputs, 4 PLS outputs, 4 Counters with Electromechincal Relays

M1200 Series Features

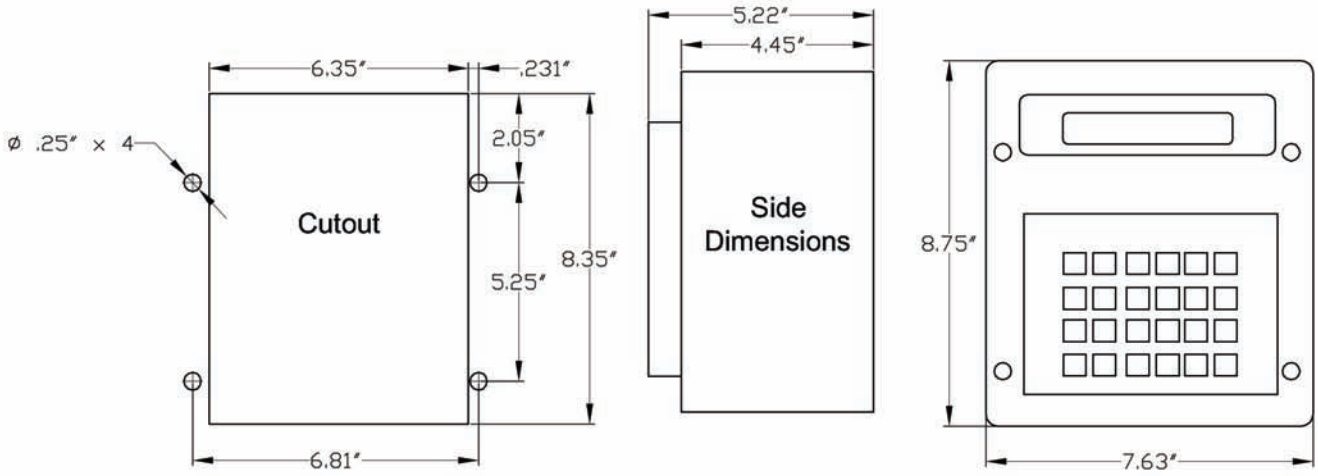
- Broken Resolver Coupling/Chain detection
- Resolver Slippage & Broken cable detection
- Built-in Diagnostics
- Pre-built Library of Sensor Names
- Hot keys for Easy Setup
- Slug Detect Delay
- Choice of E-Stop or Top-Stop
- Programmable Engagement Angle to prevent press sticking at bottom
- 2x20 Bright vaccum Fluroscent Display

Part Number	Description	Price
SDP-M1200-00E	Standard Unit with 4 sensors inputs, 4 PLS outputs, 4 counters with Electromechnical Relay	***$1500***
SYS-M1200-E7R	Complete System with 4 sensor inputs, 4 PLS outputs including Electromechanical Relays, 4 counters, 3/8" shaft E7R Resolver, 30 ft. cable	***$2150***
SYS-M1200-RL100	Complete System with 4 sensor inputs, 4 PLS outputs including Electromechanical Relays, 4 counters, 5/8" shaft RL100 Resolver, 30 ft. cable	***$2495***

Note: For Part Numbers and Price of individual components, cables & accessories, and other product variations such as greater number of inputs and outputs or different resolver housings ***CALL THE FACTORY***

The M1200 ProDie System is expandable to have 12 sensor inputs, 14 PLS outputs, motion detector and brakewear monitor

M1200 unit with cut-out, side and front dimensions



Detailed Specifications

Input Power:
105 to 135 VAC, 50/60 Hz, 30 W Operating
Temperature:
-10°F to 122°F (-23°C to 50°C)
Dimensions:
7.6" W x 8.7" H x 5-1/4" D

RESOLVER INTERFACE

Position Transducer:
Resolver, Autotech's Series E7R and RL100
Cable Length between Resolver and M1200;
2500 feet max, toil shielded,
Resolver Cable:
Autotech's CBL-10T22-Mxxx

PROGRAMMING

Scale Factor:
Fixed at 360
Offset:
Programmable from 0 to 359; common to all Die Protection and PLS programs
Die/Tool Identification:
One 8-character name per program. Search by name.
Number of Programs or Setups:
60 programs

DIE PROTECT SPECIFICATIONS

Number of Sensors:
4, Expandable to 12
Event Detection:
Programmable rising edge, falling edge, pulse, pos hi or pos low detection within programmed window.
Die Protection Fault Output:
Programmable for each sensor:
E-STOP: Stops the press immediately (See Engagement Angle).
T-STOP: Stops the press at top. Sensors can selectively be disabled.
Sensor Name:
One 8-character name per sensor. Ability to select names from a library or enter a customized name.
Slug Detect Delay:
Programmable number of stroke delays between the detection of a slug fault and the deactivation of the E-Stop or T-Stop output.
E-Stop Engagement Angle:
Programmable angle from 90° to 1903. E-Stop does not occur between Engage -ment Angle and 190°.
Top-Stop Angle:
Programmable angle at which the Top Stop output is activated, when required.

COUNTERS

Batch Counter:
Six digit presettable down counter. Counts down to zero. Top Stop output de-energizes at programmable T-Stop Angle, Resettable from keypad or input.
Quality Counter:
Six digit presettable down counter. Counter output de-energizes at programmable T-Stop Angle when Quality Counter =0
Total Counter:
Six digit resettable up counter. Resets at power up or from keypad or input.
Tool Counter:
Six digit tool specific up counter. Resets from keypad.

INPUTS

Electrical Specifications (all inputs)
Optical isolation:
1500 V
Logic Levels: (except 120V Brake Input)
TRUE: <1.0 VDC @ 7ma (or terminal tied to Sig Ref. (J9-1)
FALSE: 20 to 24 VDC (or open circuit)
Fault Reset:
TRUE: Resets all faults including Die Protection, Brake Wear, and Motion
Program and Supervisor Enable:
TRUE: Allows programming of parameters.
FALSE: Parameters can only be viewed.
Output Enable:
TRUE: allows all outputs to function
FALSE: De-energizes all outputs
Batch, Quality, and Total Reset:
Three separate inputs, one for each
TRUE: Resets the desired counter to its preset value
FALSE: No action

OUTPUTS

Fault Output:
Detects resolver broken wire and M1200 internal faults. Without Fault: Relay remains energized.
With Fault: Relay de-energized.
Motion Output:
Relay energized when resolver RPM is between programmed high and low motion limits.
E-STOP Output:
Relay de-energized when Die Protection Fault is detected. When no fault detected, relay stays energized.
T-STOP Output:
Relay de-energized when Die Protection Fault is detected. When no fault detected, relay stays energized.
Counter Out:
Relay de-energized when Quality Counter equals zero. Relay energized when counter is non-zero.

TYPES OF OUTPUTS

A. Electromechanical SPST Relay:
10 Amp resistive continuous @120VAC

PLS SPECIFICATIONS

Number of PLS Outputs:
4, Expandable to 14
PLS Setpoints:
17 per program
Speed Compensation
(Available for Channels 1-6 only):
Programmable up to 359 degrees per 100 rpm. Each PLS channel has its own speed compensation.