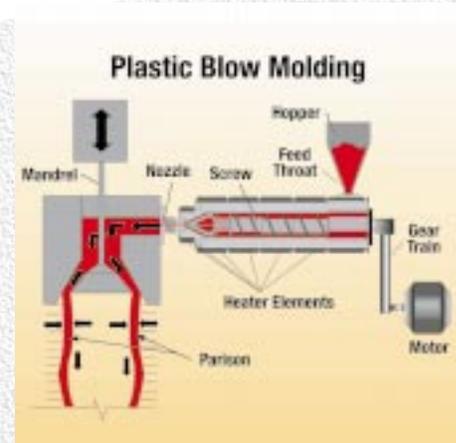# 1746-BLM Blow Molding Module
Provides Parison Control in Your Plastic Blow Molding Applications

Product Profile

Introduction

If you have been looking for an easy to install, simple to operate and reliable module that provides an effective performance for parison wall thickness control in your plastic blow molding application, look no more. Allen-Bradley is proud to introduce the 1746-BLM module, one of the newest Allen-Bradley specialty modules for plastic molding applications.

The 1746-BLM module is based on the Allen-Bradley Small Logic Controller (SLC™) form factor and architecture.

Product Description

The 1746-BLM module is an intelligent specialty module that offers OEMs and end-users with the following benefits:
• Easy installation and integration
• Simple to use
• Quality performance
• Support for various machine applications

These benefits are achieved by extending the capabilities of the SLC platform into plastic molding applications.

Easy to Install and Integrate

No more trying to figure out how to integrate different stand alone proprietary controls to make your plastic applications work. Simply slide a 1746-BLM module into a SLC chassis and you have a system that works with the integrated processor, multiple racks and operator interfaces.

Controller Integration

All data generated within the 1746-BLM module is available to the SLC controller across the backplane.

Software Integration

Ladder logic programming is also easier. Since the 1746-BLM is a "smart" module, you need only enable the module and perform configuration and calibration. The module performs the "work" of very high speed closed loop process control and advanced mathematics without additional programming.

Operator Integration

The 1746-BLM module is capable of simultaneous servo control of four machine axes. It can control two accumulator machine heads or four heads of a continuous extrusion machine. The 1746-BLM module performs its servo control task independently but it receives its configuration and run-time information from the SLC 500™ processor. The 1746-BLM module in turn provides process variables and alarm status control back to the processor. Everything necessary for machine control is taken care of independently of operator interface. Thus, this allows maximum flexibility in the choice of operator interface.

We make the graphical screens available to those who choose to use Allen-Bradley PanelView 900™ operator interface.

Networking Integration

Networking to multiple machines is also made easier due to the tightly integrated solution.

Therefore, 1746-BLM module is easy to install and easy to integrate. It gives you a blow molding solution as well as an architecture solution. For those currently taking the advantage of the SLC architecture using the 1746-BLM module will further extend your current investment into plastic applications.

Simple to Use

For many years, molders have been using slide switch based parison programmers to control their blow molding process. These programmers were quite easy to use. The 1746-BLM module offers the simplicity of slide switch operation with the high performance of modern electronics. The 1746-BLM module makes control operation easier and with higher resolution. The 1746-BLM module is a smart module. It offers an interpolation

feature and a maximum of 256 set-points for the parison profile. Whether 10 set-points or 256 set-points are entered, the module automatically calculates and interpolates the profile. The set-point has an update rate of 10KHz (100µs period). The means higher profile resolution and more accurate blow molding performance.

Other features include the ease of changing profile parameters. For example, the profile can be offset to add or subtract part weight without changing the profile shape. It can also be scaled to change the shape but not the weight.

Thus, the automatic interpolation and other simple-to-use features increase user productivity - more accurate profile in lesser time.

Support Various Machine Applications

The 1746-BLM module is designed to work with a variety of plastic machine applications including the accumulator machine, reciprocating screw machine, and continuos extrusion machines. The modularity of the SLC architecture allows multiple modules to be used on larger machines.

Support for Accumulator Machines

The 1746-BLM module controls parison wall thickness on accumulator machines by following a set-point profile of wall thickness versus accumulator ram position. In this configuration, the module is capable of controlling up to two blow molding heads. For each head, one analog I/O channel is used for mandrel position control, while another is used for accumulator ram velocity control. Optionally, the module may simply

monitor the position of the ram. The mandrel position and accumulator ram velocity are both normally specified as a function of the accumulator ram position. Since the module supports a mixture of time-based and position-based modes, one may also specify accumulator position as a function of time.

Support for Continuous Extrusion Machine Application

The 1746-BLM module controls parison wall thickness on continuous extrusion machines by following a set-point profile or wall thickness versus time. The module is capable of controlling up to four blow molding heads in the module. Each of the module's four analog I/O channels is used for mandrel position control. Mandrel position is a function of the elapsed time since the last synchronization signal indicating start of parison drop.

Support for Reciprocating Screw Machine Application

Reciprocating screw machines have multiple heads and a single screw/accumulator. Control of screw position is performed by the SLC processor. The module may be used to monitor the screw position in either of two ways on this type of machine - with analog input on the 1746-BLM or with a separate high speed analog module. In either case, analog channels on the 1746-BLM module can be used for control of parison tooling or for monitoring / control of reciprocating screw motion. Since the module supports a mixture of time-based and position-based modes, one may also specify screw position as a function of time.

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Specification

	Analog Inputs	Analog Outputs	Excitation Output	Digital Inputs	Digital Outputs
Conversion Rate	10KHz	10KHz			
Resolution	14 bits	14 bits			
Differential Input Range	+/-10Vdc				
Output Voltage Range		+/-10Vdc	+/-10Vdc		
Maximum Continuous Current			2mA (10KΩ linear pot)		
Isolation from SLC backplane	500Vdc	500Vdc	500Vdc	500Vdc	500Vdc
Type				Optocoupler	Open Collector
Input Voltage Range				0 to 30Vdc	
Protection				Polarity reversal	
Maximum OFF State Voltage					30Vdc

Environmental

Power Requirement	5 Watts (1A @ +5Vdc)
Operating (ambient) temperature	0 to 60ºC
Storage Temperature	-40 to +85ºC
Relative Humidity	5 to 95% (non-condensation)

Agency Certification

(UL)® (CSA)® (CSA)® CL I DIV 2 GP A,B,C,D TEMP CODE CE

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