

# Strain Gage Measurement Solutions



**Mastering a world of applications using  
Specialty I/O Modules for Allen-Bradley PLCs**







From truck scales to food products, assembly lines to blister packs, **Helm modules** provide you precise force and position measurements within a world of applications.

## Strain Gage Input

**Helm modules** connect directly to the Allen-Bradley PLC backplane. This seamless integration eliminates the cost of adding additional I/O and auxiliary control boxes. Each module features two independent channels of strain gage signal conditioning, adjustable high-low alarm setpoints and on-board power supply. The modules are compatible with all industry standard load cells and transducers.

### Applications:

- Metalforming
- Pharmaceutical
- Assembly
- Powder Metal
- In-die
- Compaction
- Die Cast
- Thermoforming

### Specifications:

- 12 Bit Resolution
- Internal Time Conversion
  - 140 Microsecond – HM-604
  - 100 Microsecond – HM-1520 and HM-1756
- Gage Excitation  $\pm 4$  volts DC
- Internal Diagnostics
- Single Slot – 2 Channel Input
- Strain Gage Input 175-700 ohm



Model HM-604



Model HM-1520



Model HM-1756

| Application  | 1746       | 1769        | 1756        |
|--|------------|-------------|-------------|
| Standard Peak Monitoring                           | HM-604-PLM | HM-1520-PLM | HM-1756-PLM |
| Thru-the-Stroke Monitoring with Resolver Interface | HM-604-TSM | N/A         | HM-1756-TSM |
| Force Versus Position                              | N/A        | N/A         | HM-1756-LDT |
| Ultra High Speed<br>Up to 5,000 RPM                | N/A        | N/A         | HM-1756-UHS |

# Weigh Scale Applications

**Helm weigh modules** are factory programmed for the static force measurements found in weighing applications. The dual channel, single-slot modules also feature a built-in programmable tare function for accurate, no drift operation. No external amplification or junction boxes are required.

## Applications:

- Filling
- Batching/Blending
- Process Weighing
- Level Control
- Bulk Weighing

## Specifications:

- 16 Bit Resolution
- Internal Time Conversion  
10 Microsecond
- Module Accuracy 0.01% Full Scale
- Strain Gage Input  
2 – 350 ohm or  
4 – 700 ohm



Licensed through the Rockwell Automation Encompass program since 1994, Helm modules reside directly on the I/O back plane. Helm is a Global member of this best-in-industry association.



Point I/O HM-1734 shown. Also available in armor point version.

| Platform | Model      |
|----------|------------|
| 1734     | HM-1734-WM |
| 1738     | HM-1738    |
| 1746     | HM-604-WM  |
| 1756     | HM-1756-WM |
| 1769     | HM-1525    |

# Resolver Input

**Helm resolver modules** interface with all sine-cosine type resolvers for absolute position monitoring. Combining strain gage and resolver modules delivers real time signature analysis for accurate part quality control.

## Applications:

- Programmable Limit Switch
- Die and Brake Monitoring
- Packaging
- Conveyors
- Signature Analysis

## Specifications:

- 12 Bit Resolution
- 0.1 Degree Scaling
- Internal Time Conversion  
200 Microsecond
- Master/Slave Operation
- Strokes Per Minute
- Internal Diagnostics



Model HM-1530



Model HM-571



Model HM-7100-D

| Platform | Model     |
|----------|-----------|
| 1746     | HM-571    |
| 1746     | HM-7100-D |
| 1769     | HM-1530   |

# System Integration

**Helm control systems** combine basic machine operating functions with PLS, die monitoring, tonnage control, brake stopping time and servo feed interface in one affordable system. Expandable I/O configuration allows for easy integration of auxiliary factory operations including conveyors, transfer systems and scrap removal. Production downtime reporting, job recipe management, counters and on screen fault prompts are standard in all Helm-Pak systems. A variety of mounting options and operator interface displays are available.



**Helm machine control systems** utilize the latest design technology and meet or exceed all ANSI and OSHA safety requirements.



**The modular design allows the Helm-Pak** to be customized for a wide range of applications. All systems include Ethernet communication for plant-wide networking capability.

# Load Cells and Force Transducers

**Helm manufactures a complete line** of standard and custom designed load cells. Capacities range from a few pounds to several thousand tons. All load cells are manufactured under controlled laboratory conditions and supplied with certificate of calibration.



"The quality of a part is directly related to the force applied. But first, you must make a good measurement."

— Donald F. Wilhelm  
Founder, Helm Instrument  
1923 – 2006

**Helm Instrument Company** is the leading designer and manufacturer of process control systems, force transducers and software for the metalforming industries. Helm introduced press load monitoring and signature analysis in 1968, in-die force sensing in 1972, and holds numerous patents on sensor designs, instrumentation and applications. From our strategic location in the industrial Midwest, we supply and support our customers with a complete staff of representatives worldwide.

## Helm Instrument Company, Inc.

361 West Dussel Drive  
Maumee, OH 43537  
P: 419.893.4356  
F: 419.893.1371  
E: Sales@helminstrument.com  
www.helminstrument.com

