

## Roll Force Measurement System



### FEATURES

- Prevent mill overloading
- Increase roll life
- Control product quality
- Zero tracking with manual override
- Local and remote indication
- Easy retrofit for existing mills
- Direct replacement for RFS-3 and Model 56000 systems from BLH

### DESCRIPTION

Rolling mill separation forces are measured accurately and conveniently with the RFS-4 system.

Extensometers on the mill posts or load cells in the screw provide an electrical signal proportional to the mill separation force. A G4 instrument with tailor made software read signals from both sides of the mill and amplify them.

The G4 have up to 8 channels to provide accurate and reliable information on sum (total), difference (work-drive), work total,

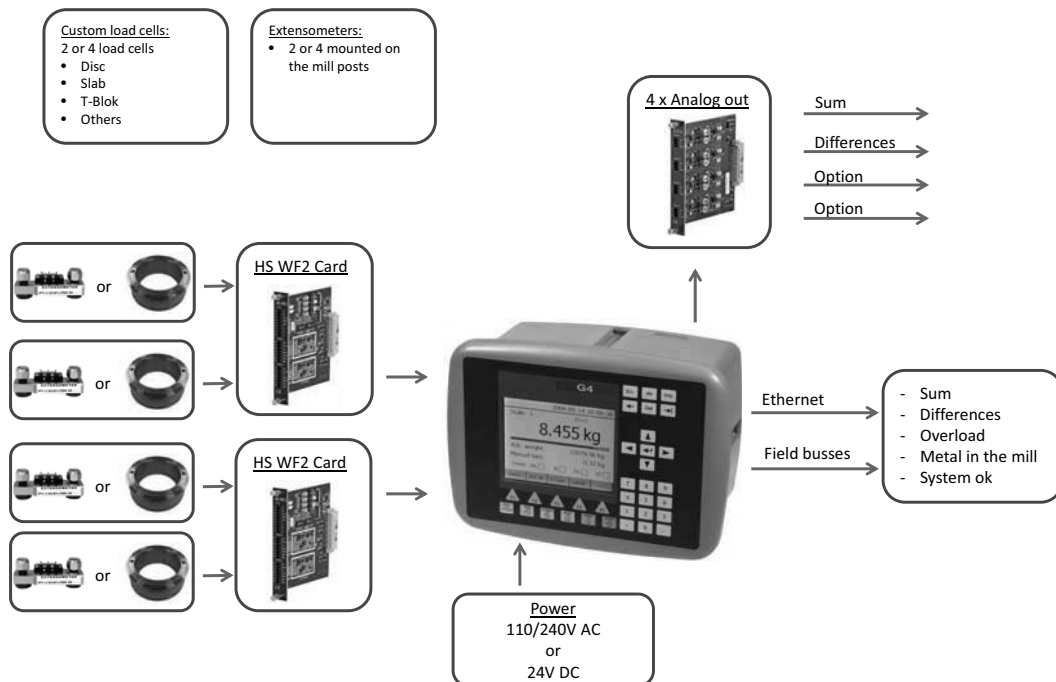
and drive total values that can be displayed on the graphic color display.

Analog signal outputs for each value are available on the rear panel rack terminals. Separate relay outputs are provided for "Metal in the Mill" and "Mill Overload" conditions.

### APPLICATIONS

- Hot and cold rolling mills
- Overload Safety
- New and retrofit

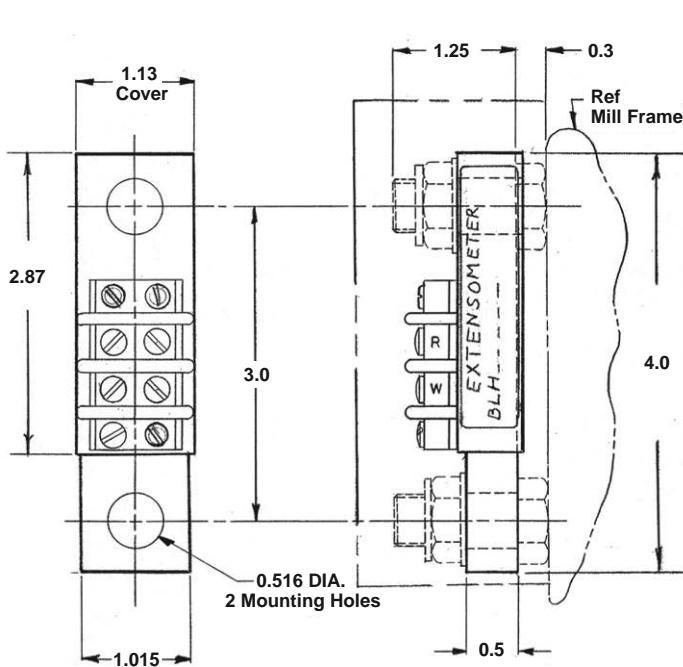
### CONFIGURATION



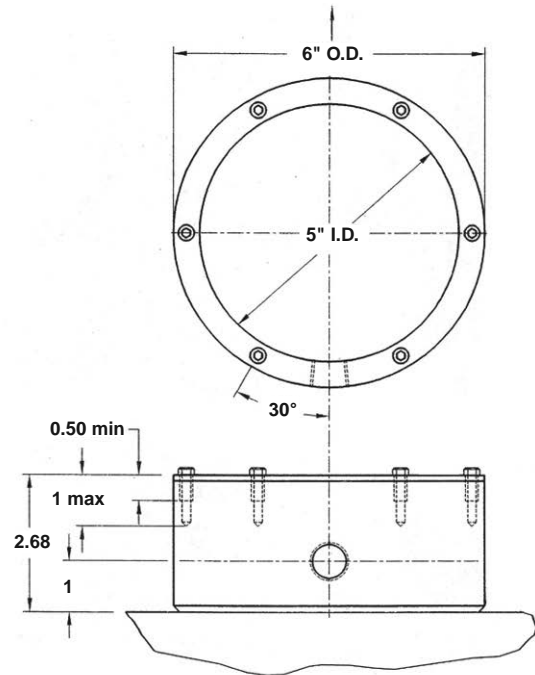
**SPECIFICATIONS - CONTROLLER (G4)**

<b>Environmental</b>			
Temperature range			
Rated performance	-10 to +50°C		
Storage	-25 to +85°C		
Protection	IP65 (panel)	IP65	IP65
EMC, RF	CE (Industrial), UL, cUL		
<b>Display</b>	Color TFT LCD screen with backlighting, 5.7" 320x240 pixels		
<b>Keyboard</b>	Touch screen and 34 membrane keys		
<b>Power</b>			
DC SUPPLY module	19-29VDC, 40W		
AC SUPPLY module	115/230VAC 50/60Hz, 40W		
<b>CPU module:</b>			
<b>Interfaces:</b>	Isolated		
RS232 and RS485, ports	For process data and control		
Protocol	Modbus RTU		
Baud rate	Up to 115 kbaud		
USB, supported units	Version 1		
Keyboard	USB keyboard for PC		
Memory stick	USB type for PC For backup and restore of set-up parameters. For change to a new program version		
Ethernet	For process data and control		
Protocol	Modbus TCP and EtherNet/IP		
Field bus or Industrial Ethernet, Optional	For process data and control		
Available field busses	Profibus or DeviceNet. CANbus, Ethernet/IS, ProfiNet and other on demand!		

**OUTLINE DIMENSIONS - EXTENSOMETER**



**Extensometer Outline**



**Cover Outline**

**SPECIFICATIONS - EXTENSOMETER**

Accuracy <sup>1</sup> :	<±0.85% of F.S.O.
Nonlinearity:	<±0.25% of F.S.O.
Hysteresis:	<±0.40% of F.S.O.
Repeatability:	±0.5% of F.S.O.
Calibrated output:	8mV/V ± 0.5% = 66.6µm/m (microstrain)
Overload capability	
Zero <sup>2</sup> :	300% of F.S.O. (24mV/V)
Maximum:	550% of F.S.O. (44mV/V)

Strain bridge	
Input resistance:	525Ω ± 125Ω
Output resistance:	350Ω ± 50Ω
Insulation resistance:	5000MΩ
Excitation:	10V DC
Thermal effects (24°C to 65°C)	
Zero <sup>3</sup> :	±0.055%/°C of F.S.O.
Rated output:	±0.011%/°C of reading.
Operating temperature range:	-17°C to 121°C

Notes:

1. Accuracy is the Root Sum of the squares of nonlinearity, hysteresis, repeatability and span.
2. Cancelled by the instrument Zero Adjust capability.
3. The autozero capability of the instrument cancels any thermal zero shift.
4. Specifications only valid for extensometer, not application.

**SPECIFICATIONS - LOAD CELL**

All load cells are customized in specifications and dimensions.

Accuracy <sup>1</sup> :	1.0% of RO
Nonlinearity:	0.5% of RO
Hysteresis:	0.5% of RO
Repeatability:	0.25% of RO
Calibrated output:	2mV/V
Capacity:	1-15MN
Strain bridge	
Input resistance:	350Ω ±5 (or 700Ω±10)
Output resistance:	350Ω ±5 (or 700Ω±10)
Insulation resistance:	5000MΩ
Excitation:	5-30V DC
Thermal effects	
Zero <sup>2</sup> :	±0.04 %/°C of RO
Rated Output (RO):	±0.04 %/°C of reading.

Operating temperature range:  
-40 to 100 °C, (more on demand).

## Notes:

1. Accuracy is the Root Sum of the squares of nonlinearity, hysteresis, repeatability and span.
2. The autozero capability of the instrument cancels any thermal zero shift.
3. Specifications only valid for load cell, not application.