

MODEL 61202L
BAROMETRIC PRESSURE SENSOR



OCTOBER 2001

MANUAL PN 61202L-90

R. M. YOUNG COMPANY

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61202 Barometer mounted on mast.



Barometer shown with 61002 Pressure Port

1.0 SPECIFICATIONS

Pressure	600 to 1100 hPa standard range
Digital Resolution	0.1 hPa
Operating Temperature	-50 to +60 °C
Accuracy	±0.3 hPa at 20 °C ±1 hPa at -50 to +60 °C
Update Rate	2 seconds
Serial Output	Full duplex RS-232 Half duplex RS-485 9600 baud Polled or continuous ASCII text output
Analog Outputs	4.00 to 20.00 mA Standard range 600 to 1100 hPa Other ranges user settable
Analog Resolution	Depends on range 0.1 hPa typical
Power	7 to 30 VDC at 30mA
Case Weight	Fiber-reinforced Thermoplastic Net 1 lb 5 oz Shipping 4 lb

2.0 INTRODUCTION

MODEL 61202 Barometric Pressure Sensor is a versatile electronic barometer featuring high accuracy, low power, wide operating temperature range, and calibrated outputs in several formats.

Low power consumption and wide temperature range make the 61202 ideal for remote applications using battery or solar power. Accuracy better than ±1 hPa is maintained over the entire pressure and temperature ranges.

All models include full duplex RS-232 and half duplex RS-485 serial connections. Model 61202L is configured for 4-20mA output.

The standard pressure scale for analog outputs spans 600 to 1100 hPa. A narrower range may be selected via software menu. Serial outputs run in continuous or polled modes. In polled mode, a network of up to 32 sensors may be individually addressed.

3.0 INSTALLATION

The 61202 may be mounted to a mast or panel. Always mount the barometer so the cable exit faces down. For mast mount, use the V-block and U-bolts. For panel mount, remove the V-block and U-bolts to exposes holes in the mounting plate.

To access electrical connections, remove the 61202 top cover. Loosen the nut on the weather-proof strain relief on the bottom of the case. Run cables through the nut and strain relief opening. Connect wires to the labeled terminals on the circuit board as shown in attached WIRING DIAGRAM. Place jumpers at J1 to select RS-232, RS-485, or analog output. Finger-tighten the strain relief nut and replace the cover.

When installed outdoors, we recommend using the barometer with a Young Model 61002 Pressure Port to minimize pressure errors caused by wind flow over the barometer inlet.

3.1 JUMPER SETTINGS

Jumper J1 selects the data output format (Voltage, 4-20mA, RS232 or RS485). Jumper J2 selects other parameters such as (B) POLLED/CONTINUOUS, (C) 50/60 Hz noise reduction. Refer to wiring diagram for specific jumper settings.

4.0 OPERATION

Operation begins 3 seconds after power is applied. Outputs are updated once every 2 seconds.

4.1 ANALOG OUTPUT

Be sure jumper J1 is in the IOOUT (factory default) position .

Standard current output range is 4.00 to 20.00 mA full scale for 600 to 1100 hPa (0.0032 mA per 0.1 hPa).

Other pressure ranges within the 600 to 1100 hPa span may be selected via software commands but the full scale output signal range will always be the same, 4-20 mA. See SOFTWARE COMMANDS for details.

4.2 SERIAL OUTPUT

The baud rate is 9600. Serial output may be set to CONTINUOUS (factorydefault) or POLLED mode using jumper J2. All serial output is numeric ASCII text representing pressure in hPa. Each string is terminated with a CR (ASCII 13). Example:

```
0983.9
0983.9
0983.9
0983.9
```

In CONTINUOUS mode, serial data is automatically sent once every 2 seconds.

In POLLED mode, the unit sends data only after receiving a poll command. The poll command is Ma! where a is the address. The default address is 0 (ASCII 48). Upon receiving a properly addressed poll command, the unit sends data at the next available 2-second output interval.

4.3 SOFTWARE COMMANDS

All commands sent to the 61202 must use a minimum delay between characters of 20 milliseconds. Characters arriving faster than this may be missed.

When IN OPERATE MODE sending three ESC (ASCII 27) characters activates the COMMAND mode. If using RS-485 connections, send the ESC characters only when the unit is not transmitting data. Otherwise, the characters will be missed.

COMMAND mode is indicated by a ">" prompt. All commands must be terminated with a CR (ASCII 13). Use "???" to list available commands and current setup parameters as shown below.

>??

```
YOUNG MODEL 61202 BAROMETER V.BAR0404
```

```
-----  
Rn SET REFERENCE TO SEA LEVEL  
On SERIAL OUTPUT FORMAT  
Kn SET CALIB OFFSET  
Sn SET CALIB SLOPE  
Ln ANALOG OUT LO RANGE  
Hn ANALOG OUT HI RANGE  
T1 TRANSFER EEPROM OUT  
An SET POLL ADDRESS  
Ma! POLL ADDR a (DURING OPERATE)  
XX EXIT TO OPERATE
```

```
O:1 K:0 S:10000 R:0 L:9750 H:10250 A:0  
VM:7940 VO:2 IM:2521 IO:-989 IV:976  
PS:2086 PO:13374 TS:18145 TO:9688 DCBA:1111 WD:N  
>
```

Rn sets sea level reference where n is the offset value in hPa x 10. This value is added to the measured pressure to give the equivalent pressure at sea level.

On sets serial output format where n is the format type.
n = 1 Normal setting (pressure only)
n = 2 Diagnostic output for factory only

Kn sets an offset where n is hPa x 10. For example, to add an offset of +0.2 hPa, enter K2. The Kn offset is applied after the Sn multiplier is applied. Kn is normally set to 0.

Sn sets a multiplier where n is the multiplier x 10000. For example, to multiply by 1.0123, enter S10123. The Sn multiplier is applied before the Kn offset is applied. Sn is normally set to 10000.

Ln sets the LOW end of the analog output range where n is hPa x 10. Use with the Hn command to set the analog output span. The standard value is 6000 for 600.0 hPa. Ln entries are limited to values between 6000 and 10000. For example, to set the LOW end of the range to 800 hPa, enter L8000.

Hn sets the HIGH end of the analog output range where n is hPa x 10. Use with the Ln command to set the analog output span. The standard value is 11000 for 1100.0 hPa. Hn entries are limited to values between 7000 and 11000. As an example, to set the HIGH end of the range to 1050 hPa, enter H10500.

T1 dumps the internal EEPROM contents. This is for factory use only.

An sets the address for POLLED mode. The address may be any ASCII character in the range '0-9', 'A-Z', or 'a-z'.

Ma! is the POLL command where 'a' is the address. A response appears only when the address in the POLL command matches that of the unit being polled. This

command functions only while the 61202 is in OPERATE mode and is listed in the HELP screen only as a convenience.

XX returns barometer to operate mode.

Values shown at the end of the list are calibration parameters for factory use only. All settings are retained when power is removed.

5.0 MAINTENANCE

The Model 61202 barometer requires no regular maintenance. Periodic calibration certification, if required, is available from the factory.

6.0 WARRANTY

This product is warranted to be free of defects in materials and construction for a period of 12 months from date of initial purchase. Liability is limited to repair or replacement of defective item. A copy of the warranty policy may be obtained from R. M. Young Company.

7.0 CE COMPLIANCE

This product complies with European CE requirements for the EMC Directive. Please note that shielded cable must be used.

Declaration of Conformity

Application of Council Directives:
89/336/EEC

Standards to which Conformity is Declared:
EN 50082-1(IEC 801-2,3,4)

Manufacturer's Name and Address:
R. M. Young Company
Traverse City, MI, 49686, USA

Importer's Name and Address:
See Shipper or Invoice

Type of Equipment:
Meteorological Instruments

Model Number / Year of Manufacture:
61202 / 2001

I, the undersigned, hereby declare that the equipment specified conforms to the above Directives and Standards.

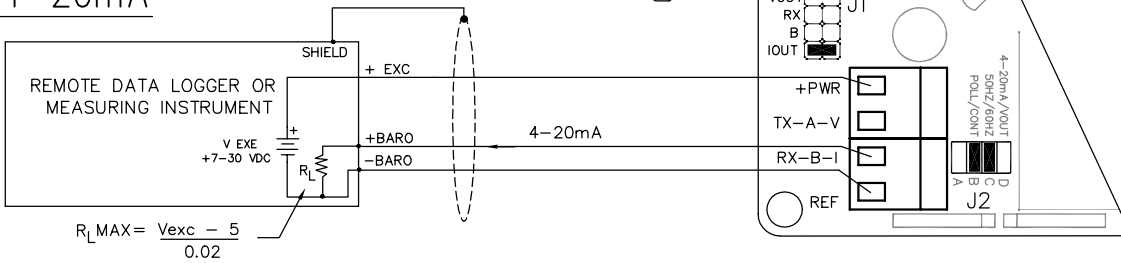
Place / Date:
Traverse City, Michigan, USA / October 1, 2001



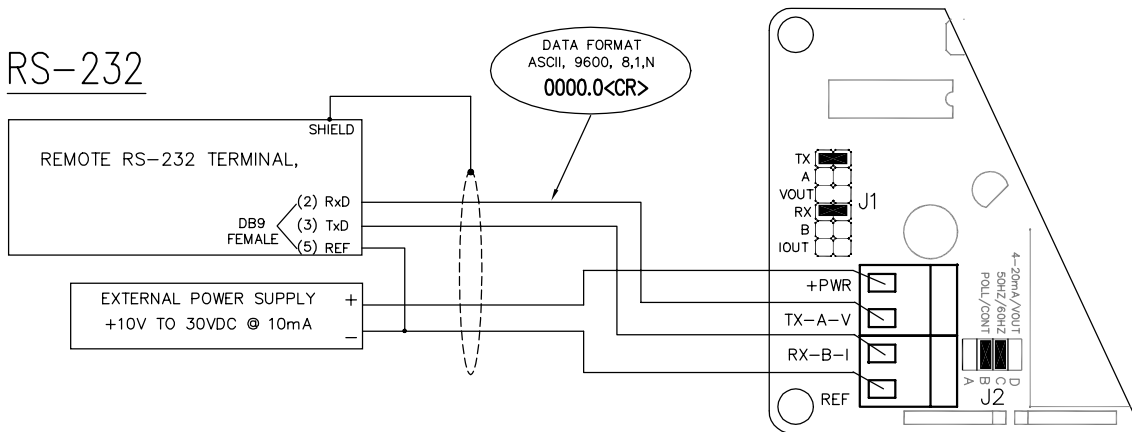
David Poinsett
R & D Manager, R. M. Young Company

MODEL 61202L- WIRING DIAGRAMS

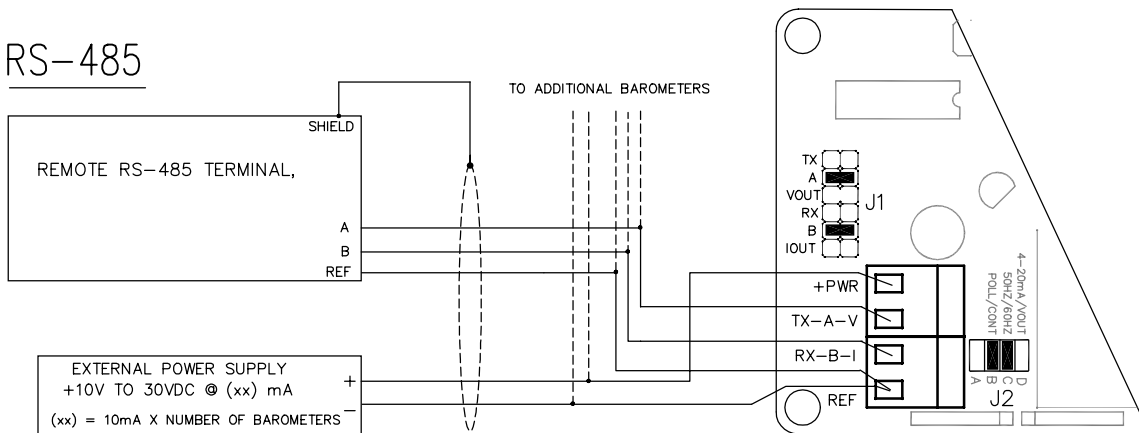
4-20mA



RS-232



RS-485



J1 JUMPER SETTINGS

JUMPER	OUTPUT		
	4-20mA	RS-232	RS-485
TX		ON	
A			ON
Vout			
RX		ON	
B			ON
Iout	ON		

J2 JUMPER SETTINGS

JUMPER	SERIAL OUTPUT		NOISE REJ		ANALOG OUT	
	POLLED	CONT	50 HZ	60 HZ	4-20mA	0-5Vdc
B	OFF	ON				
C			OFF	ON		
D					OFF	ON

NOTE: JUMPER "A" NOT USED