Low Cost Smart Bargraph-Digital Meters

For V/mADC Input And/Or RS-232C/485, Remote Displays

MODEL HI-QSLIM

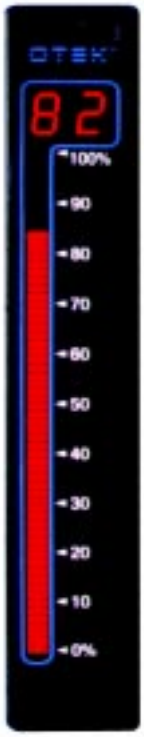
HI-QSLIM1

8 DIGITS
7 SEGMENTS

Zero & Span Adjustments Behind Overlay Not Shown

HI-QSLIM3 Horizontal Version (Center Zero Available)

HI-QSLIM2



DESCRIPTION:

OTEK's new **HI-QSLIM** series of Low Cost Smart Indicators complement the extensive and proven HI-Q line of **Intelligent Programmable Controllers**. We have applied our expertise to bring you the industry's first low cost bargraph, without sacrificing the quality and reputation of our HI-Q line.

The HI-QSLIM1 offers eight (8) digits, seven-segment 0.6" display with limited alpha characters and 0-9 numerals plus decimal points.

The HI-QSLIM2 has 51 segments (2% resolution & 2 digits(1%)).

The HI-QSLIM3 gives you 1% resolution with its 101 segment high intensity bargraph & 2 digit displays.

Whichever you choose for your application, you can depend on its quality and OTEK's limited lifetime warranty.

FEATURES:

- RS-232C or RS-485 I/O
- ASCII Characters
- Stackable in 1 Inch Centers
- Vertical or Horizontal Viewing
- Zero & Span Front Panel Controls
- Only 2" Deep NEMA4 Housing 6x1x2"
- 5VDC, Isolated 10-32VDC or 90-265VAC Power Input
- Standard Unicolor Red or Custom Multicolor (R,G,Y)
- Free Custom Software for Minimum Purchases
- Compatible with Any RS-232/422/485 ASCII System
- Polycarbonate Overlay

HI-QSLIM3

APPLICATIONS: (See Note 2)

- Remote Display for RS-232/485
- Process Meter (4-20mA/0-5VDC)
- Trend Indicator
- Counter
- Timer
- Inclinometer Indicator
- Well Depth
- Distance
- Position
- Altitude
- Temperature
- Pressure
- Flow
- Humidity
- pH
- RPM
- Strokes Per Hour/Per Minute

ORDERING INFORMATION (10-02-07)

HI-QSLIM-1 ☐☐☐

SERIAL I/O
0 ..... None
1 ..... RS232C
2 ..... RS485
9 ..... Custom

SIGNAL INPUT
0 ..... None
9 ..... Custom
(Serial Input Remote Display)

POWER INPUT
0 ..... 5VDC
1 ..... 10-32VDC
2 ..... 90-265VAC
9 ..... Custom

HI-QSLIM-2 ☐☐☐

SERIAL I/O
0 ..... None
1 ..... RS232C
2 ..... RS485
9 ..... Custom

SIGNAL INPUT
0 ..... None
3 ..... 4-20mADC
4 ..... 5VDC
9 ..... Custom

POWER INPUT
0 ..... 5VDC
1 ..... 10-32VDC
2 ..... 90-265VAC
9 ..... Custom

HI-QSLIM-3 ☐☐☐☐

SERIAL I/O
0 ..... None
1 ..... RS232C
2 ..... RS485
9 ..... Custom

SIGNAL INPUT
0 ..... None
3 ..... 4-20mADC
4 ..... 5VDC
9 ..... Custom

POWER INPUT
0 ..... 5VDC
1 ..... 10-32VDC
2 ..... 90-265VAC
9 ..... Custom

MOUNTING
0 ..... Vertical
1 ..... Horizontal

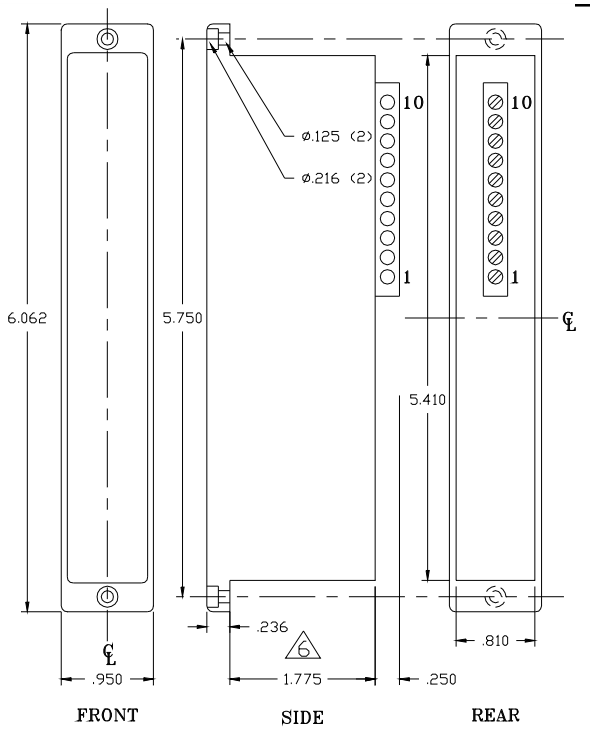
60% of ACTUAL SIZE

2 DIGITS &
51 SEGMENTS

60% of ACTUAL SIZE

2 DIGITS &
101 SEGMENTS

MECHANICAL INFORMATION



TYPICAL CONNECTIONS (All Models)

Notes: 1. Refer to your specific model# before making connections
2. Always apply power before signal
3. 5VDC ±5% (0.25V) at connector
4. Notice terminal orientation before connecting

Terminal #	Description	Notes
10	Dig. Gnd.	RS-232C & Digital Signal Ground
9	Int 0	Do Not Connect Reserved for Custom
8	T 0	Default Control
7	RXD/DO	Receive Data (RS-232C/485)
6	TXD/DO	Transmit Data (RS-232C/485)
5	Hi Pulse In	+Digital Signal Input or Contact
4	+Signal In	+Analog Signal Input
3	-Signal In or Low Pulse In	Internal Instrument Ground for Analog, Inputs
2	+Power In	+For VDC or AC High Input
1	-Power In	Gnd. for VDC or AC Low Power In

SPECIFICATIONS

PARAMETER	HI-QSLIM-1	HI-QSLIM-2	HI-QSLIM-3
# Segments	None	51	101
# Digits	Eight (8)	Two (2)	Two (2)
Analog Input Accuracy		±1%	±0.1%
Analog Input Resolution		1% (1 in 100)	±1% (1 in 100)
Polarity		Unipolar	Unipolar
Zero & Span		Yes	Yes
Input Impedance mA/VDC		200Ω/100KΩ	200Ω/100KΩ
Digital Input		TTL/CMOS	TTL/CMOS
Multilevel Inputs		Dry Contact to 250V	Dry Contact to 250V
Frequency Response TTL		10K Hz	10KHz
Serial I/O	RS-232C/RS485	RS-232C/RS485	RS-232C/RS485
Characters	ASCII	ASCII	ASCII
Baud Rate	9600 Std.	9600 Std.	9600 Std.
Address Selection	Via Serial Port	Via Serial Port	Via Serial Port
Power Req't @5VDC	2W	2W	2W
Power Input Non-isolated	5VDC±5%	5VDC±5%	5VDC±5%
Power Input Isolated	10-32VDC (or 24VAC)	10-32VDC(or 24VAC)	10-32VDC (or 24VAC)
Power Input Isolated	90-265VAC	90-265VAC	90-265VAC
Operating Temperature	0-60°C	0-60°C	0-60°C
Storage Temperature	-20 to 70°C	-20 to 70°C	-20 to 70°C
Humidity	5-95% N.C.	5-95% N.C.	5-95% N.C.
MTBF (Calculated)	100,000Hrs	100,000Hrs	100,000Hrs
Front Panel	NEMA 4	NEMA 4	NEMA 4
Weight	3 oz. (84g.)	3 oz. (84g.)	3 oz. (84g.)

** Specifications Subject to Change Without Notice! Contact OTEK for Your Custom Needs!!*

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Serial Communications Protocol for the HIQ-SLIM 2 and SLIM 3 Remote Display (8-06)

I. INTRODUCTION

The SLIM 2 and SLIM 3 uses the standard OTEK communication protocol, ASCII S + <ADDRESS> + <COMMAND> + <CR>. The starting character is S followed by the address. The default address is 01. The command follows and must be terminated by a carriage return <CR>. This document applies to firmware release SL2_R100 and SL3_R100.

II. UPDATING THE DISPLAY

The seven segment digital display is controlled using the "d" command. Sending S01D45 displays 45 on the seven segment display. The BR. and BR* command sends data for the bargraph display. The serial string S01BR.45 will illuminate 45% of the bottom LED bargraph segments.

III. DEFAULT AND USER MODES

The SLIM 2 and SLIM 3 have two modes of operation. In DEFAULT mode, the device uses factory set operating parameters defined in section V. In USER mode, address, baud rate, configuration, flashing, and intensity settings revert to the state they were in the last time a WRITE command was issued. Which mode is used is determined on powerup by the position of an external jumper. To enable the factory default settings, jumper terminals 1 and 8 together. Serial commands can also change the operating modes (RST, RST/C).

IV. DISPLAYED ASCII COMMAND SET

This table shows the decimal ASCII number, the character for that number and the character as displayed on the SLIM 2 AND 3 digital display. Sending ASCII 8 (BS - destructive backspace) will erase the previous character sent to the SLIM 2 AND 3 input buffer. Sending ASCII 27 (ESC) will clear the SLIM 2 AND 3 input buffer.

Decimal	Char.	Display	Decimal	Char.	Display	Decimal	Char.	Display	Decimal	Char.	Display
45	-	-	56	8	8	67	C	c	79	O	o
46	.	.	57	9	9	68	D	d	80	P	P
47	/	_	58	:	_	69	E	E	81	Q	_
48	0	0	59	;	_	70	F	F	82	R	r
49	1	1	60	<	_	71	G	g	83	S	S
50	2	2	61	=	=	72	H	h	84	T	t
51	3	3	62	>	_	73	I	i	85	U	U
52	4	4	63	?	_	74	J	J	86	V	_
53	5	5	64	'	_	75	K	_	87	W	_
54	6	6	65	A	A	76	L	L	88	X	_
55	7	7	66	B	b	77	M	_	89	Y	Y
						78	N	n	90	Z	_

V. COMMANDS

COMMAND	DESCRIPTION	RANGE	EXAMPLE
ADDRn	Changes the address. Default is 01.	n = 0 to 2 ASCII characters.	S01ADDR99<CR>
BAUDnn	Changes the baud rate. Default is 9600.	nn = 12 ? 1200 baud. nn = 24 ? 2400. nn = 48 ? 4800. nn = 96 ? 9600.	S01BAUD2400<CR>
BR.nn	Illuminates nn % of the bars from the bottom of the bargraph.	nn = 0 to 100. Non-numeric data is ignored. Only integer values are displayed.	S01BR.45<CR> 45% of the bottom bars are illuminated. S01BR.4.5<CR> 4% of the bottom bars are illuminated
BR*nn	Illuminates nn % of the bars from the top of the bargraph.	nn = 0 to 100. Non-numeric data is ignored. Only integer values are displayed.	S01BR* +-/45<CR> 45% of the top bars are illuminated.
CONFn	Change the SLIM configuration. Default is 4.	n = (return). Returns current config. 0 = no echo of serial input. 4 = echo serial inputs.	S01CONF<CR> Shows current configuration.
Dnn	Displays ASCII characters on 7 segment display. See also section II.	nn= ASCII chars.	S01DHI<CR> display shows HI
FLASHn	Flashes display	n = 0 to 1 no flashing. n = 2 to 3 slowest (1.14 S). n = 4 to 5 slow. n = 6 to 7 medium. n = 8 to 9 fastest (142 mS).	S01FLASH0<CR> S01FLASH3<CR>
INTn	Change display Intensity. There are four levels. Default is 9.	n = 0 off. n = 1 to 3 dim. n = 4 to 6 medium. n = 7 to 9 brightest.	S01INT0<CR> display off S01INT9<CR> display max
PTn	Light decimal point position. Default is 0.	n = 0 no decimals on. n = 1 to 2, numbered from left of the display.	S01PT1<CR> 1st decimal point on.
RST	Resets SLIM to user values held in EEPROM.	N/A	S01RST<CR>
RST/C	Resets SLIM to factory default values.	N/A	S01RST/C<CR>
WRITE	Saves configuration data to EEPROM. Data saved includes: D+B mode, ADDR, BAUD, CONF, FLASH and INT	N/A	S01WRITE<CR>