

S12

Parallel or Multiplexed BCD to 7 Segment Display

Features

- 4 or 6 digit large display
- 12 to 24 VDC data and power Inputs
- Easy hook up to programmable controller
- Full parallel or digit strobe input
- Positive or negative true logic
- Sourcing or sinking inputs
- Standard 1/8 DIN case, NEMA 4X/IP65 Front

Applications:

The S12 display is designed to be a window for programmable controllers. Working with any 12 to 24 VDC PLC output card, it accepts full parallel or strobed data from the controller register and displays temperature, setpoint, time, speed or other data within the programmable controller to keep operators aware of important parameters.

Description:

The S12 is a 12 to 24 VDC, 4 or 6 digit .56" LED, 7 segment remote display mounted in a 1/8 DIN housing. Data is received full parallel, 4 lines per digit or may be switch selected to receive all data on 4 binary lines using individual digit strobe lines. Decimal position, positive or negative logic, two different display codes, as well as input filtering are selectable by dip switches behind the removable front lens. Any number of displays can be linked together using the optional ribbon cable and strobe lines.

Specifications:

Display: High efficiency .56 inch, 7 segment red/orange LED

Power: 12 VDC -10% to 24 VDC +10%,

Current: 175 mA maximum

Display Codes: Two types of "display codes", switch selectable. Hexadecimal (H) code displays 0 - 9, A - F.

B (B) code displays 0 - 9, -, E, H, L, P, (blank).

Input Mode: Data can be entered full parallel (24 lines for six digit). Several displays can be linked together using the optional parallel ribbon cable. By connecting together the six digit strobes of each display, each display can be updated by its separate strobe. A dipswitch change allows use of six separate digit strobe lines to enter data one digit at a time over four data lines. Minimum strobe pulse is 1 msec but can be set by dip switch to react only to longer pulses, thus preventing data from being entered by noisy signals. If strobe input is held at "display update" voltage level, the display changes as data changes. Four digit versions have display centered. Display data and strobes are connected to terminals for four inside digits.



Decimal Point: Dip switch selectable in any position or none.

Data Inputs: (Binary data and strobes)

Voltage: High; greater than 75% of supply voltage. Low; less than 50% of supply voltage. Impedance; 4.7K resistor to ground. (Input type 4, last digit of number has 4.7K resistor to +DC supply voltage. Inputs must be driven low by "sinking" device. Use only with output modules that sink to ground.) Polarity (DIP switch selectable); Unit accepts either positive or negative true data.

Terminations: "X"; 32 contact screw terminal on plug-in adapter "X" with connector for ribbon hook up of multiple displays. See data on S12 ribbon cable.

Temperature: Operating +32°F (0°C) to +130°F (+54°C). Storage -40°F (-40°C) to +200°F (+93°C).

Strobe Input:

The strobe input controls data entry into the display. It is used to latch the data or enable the display to be updated by new data inputs. The polarity of the strobe is set by SW2. Minimum strobe pulse is 1 mSec. The S12 can be set by SW7 and SW8 to react only to longer pulses, thus preventing data from being entered by noise signals. If the strobe is held at "Display Update" voltage level, the display changes as the data changes.

Parallel Data Input:

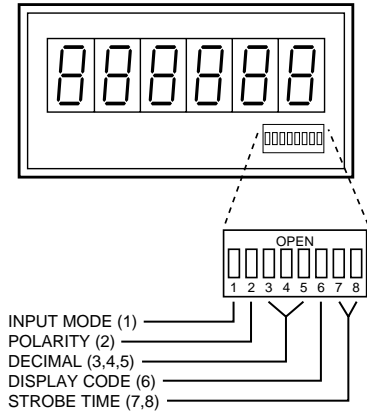
Data can be entered full parallel (24 lines for 6 digits). When driving a single display, strobe inputs do not need to be connected if A: S12 has INPUT TYPE 1 and SW1 is ON or B: S12 has INPUT TYPE 4 and SW1 is open.

Otherwise, connect all strobes together and jumper to ground (to +DC power if negative polarity is selected). The display will change as data changes. Several displays can be linked together with the optional ribbon cable which connects data and power to every display in the link. Connect the digit strobes together for each display. Connect the strobe bank for each display to an output driver programmed to be normally high (normally low if negative true polarity). When data on the parallel ribbon needs to be displayed, activate the selected display strobe bank for the time set on switches 7 and 8 to update the display. Data must be constant at least 2 mSec. before and after the strobe is returned to the latch voltage level.

DIP Switch Selection:

The S12 Display is designed with several switch selectable options which are set by the end user. New units are normally shipped with switches 2 and 6 in the ON (down) position and 3,4,5,7 and 8 in the OPEN (up) position. If changes are needed, locate the switches behind the front bezel.

Front Select Switches:



Dip Switch Settings:

SW1: DATA INPUT MODE

- 1= Parallel (24 data lines)
- 0= Multiplex (4 data lines)

SW2: INPUT POLARITY

- 1= Data is positive true; high strobe input latches display, low strobe updates display.
- 0= Data is negative true; low strobe input latches display, high strobes updates display.

SW3,4,5: DECIMAL POINT

SW3	SW4	SW5	DEC.
1	1	1	NONE
1	1	0	XXXXXX.
1	0	1	XXXXX.X
1	0	0	XXXX.XX
0	1	1	XXX.XXX
0	1	0	XX.XXXX
0	0	1	X.XXXXX
0	0	0	NONE

SW6: DISPLAY CODES (see Display Code Table)

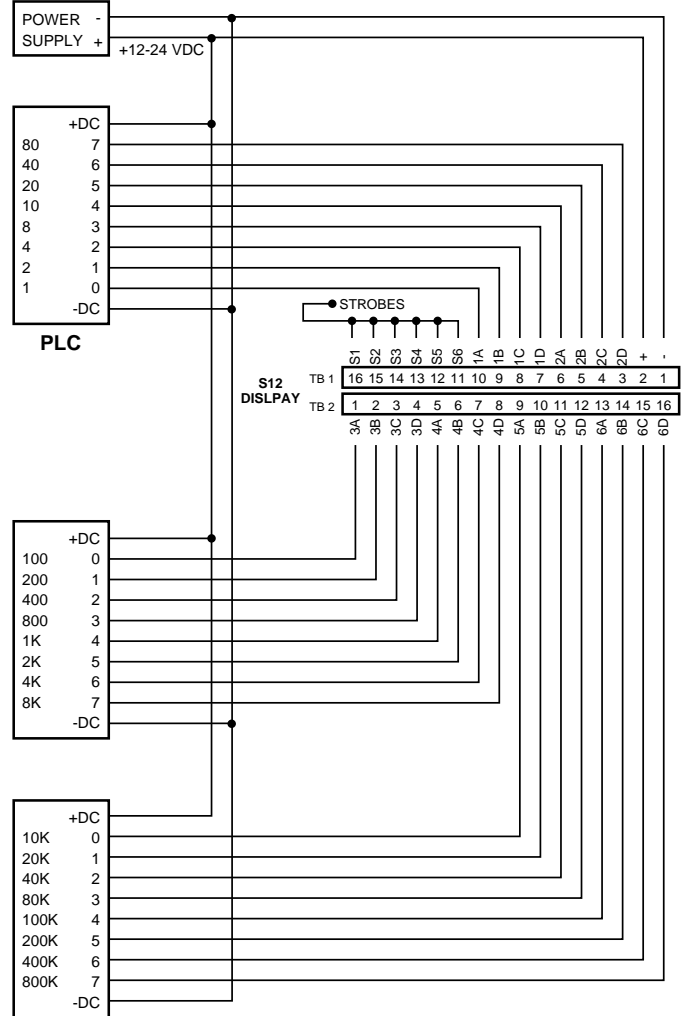
- 1=Hex Code
- 0="B" Code

SW7,8: STROBE RESPONSE

(For best noise protection use longest time possible)

SW7	SW8	RESPONSE TIME
1	1	1 mSec
1	0	2 mSec
0	1	10 mSec
0	0	25 mSec

SAMPLE WIRING: 6 Digit Parallel



SLAVE DISPLAYS

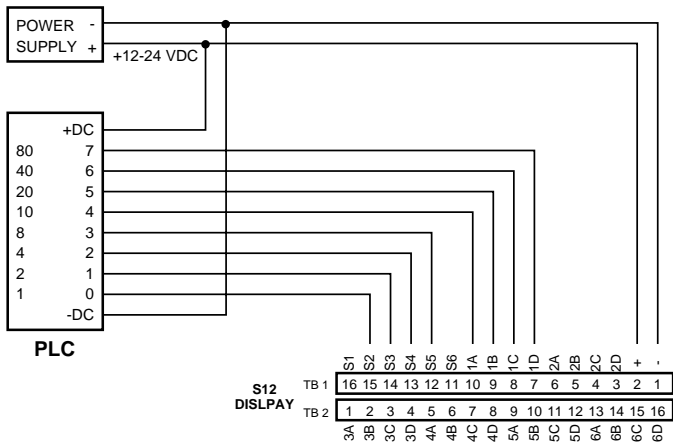
Display Code Table:

DATA	HEX CODE DISPLAY	"B" CODE DISPLAY
8421		
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	A	-
1011	b	E
1100	c	H
1101	d	L
1110	E	P
1111	F	(BLANK)

Multiplex Data Input:

If SW1 is open, all data is entered in a multiplex fashion on 4 lines only (TB-1 pins 7,8,9 and 10). The strobe lines must be normally high (normally low for negative true polarity). Activate digit strobes one at a time to latch each digit as data is sent for that digit. (Digit 1 is LSD, digit 6 is MSD.) *Data must be constant at least 2 mSec. before and after the strobe returns to the latch voltage level.* Any number of displays can use the same 4 wire data bus using individual strobes to update each digit of the each display.

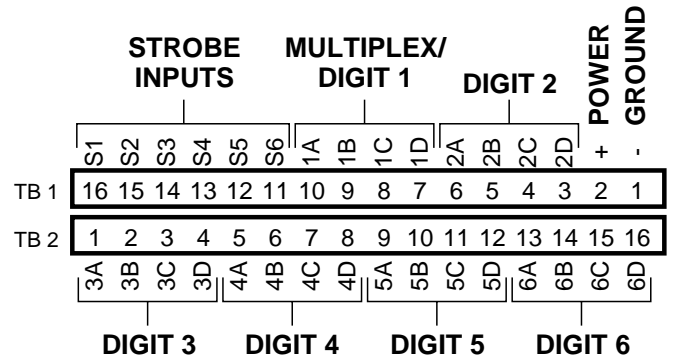
Sample Wiring: 4 Digit Multiplex Input



RIBBON CABLE FOR MULTIPLE UNITS OF S12

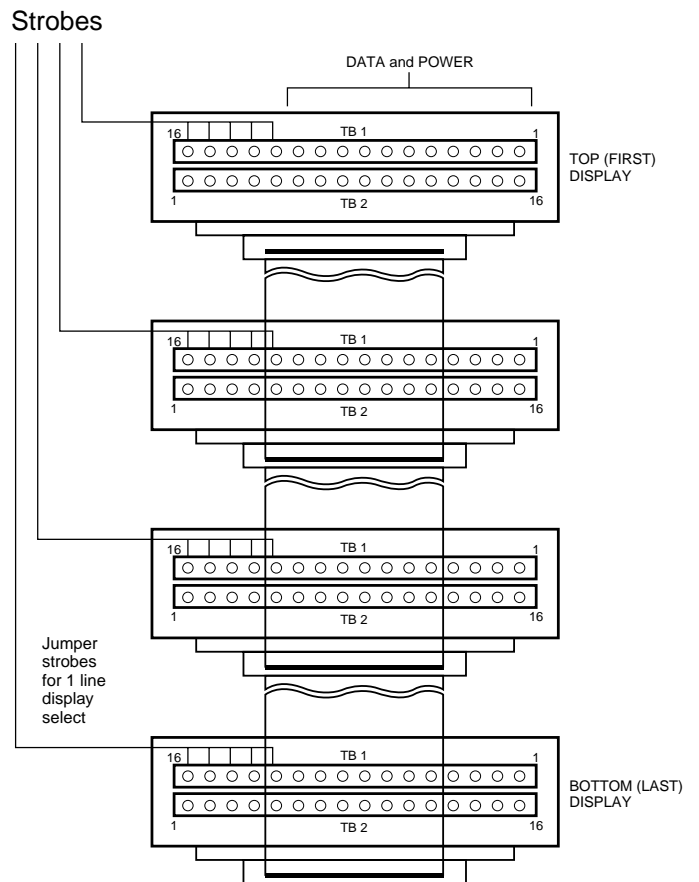
Wiring

Terminal Adapter "X"



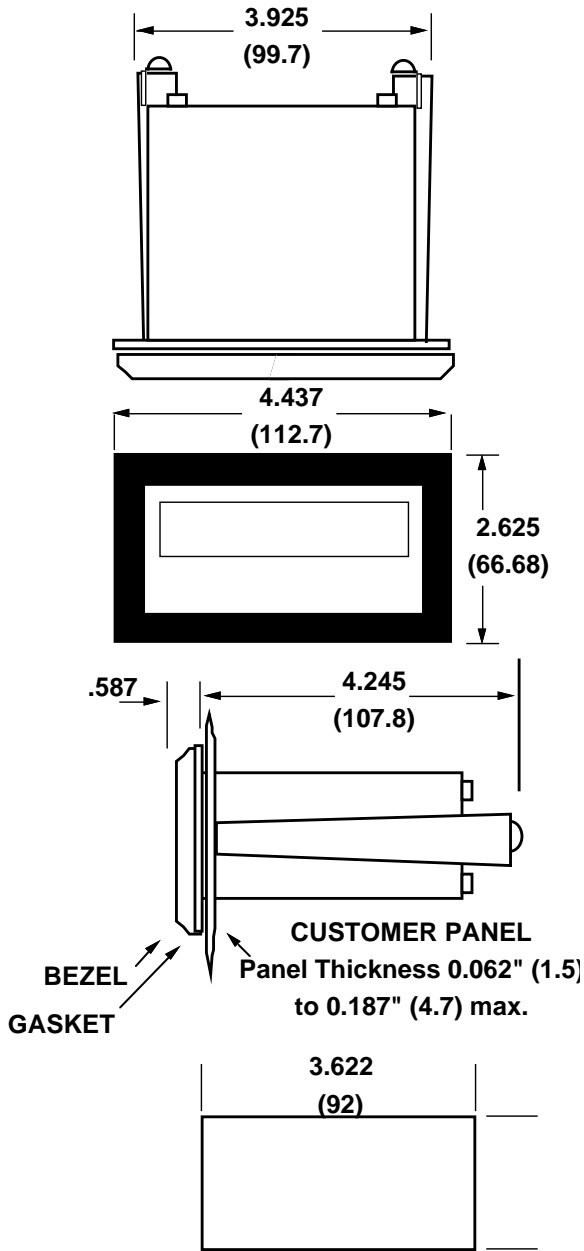
4 digit units have display centered wire data and strobes to digit 2 through 5.

Ribbon Cable Wiring:



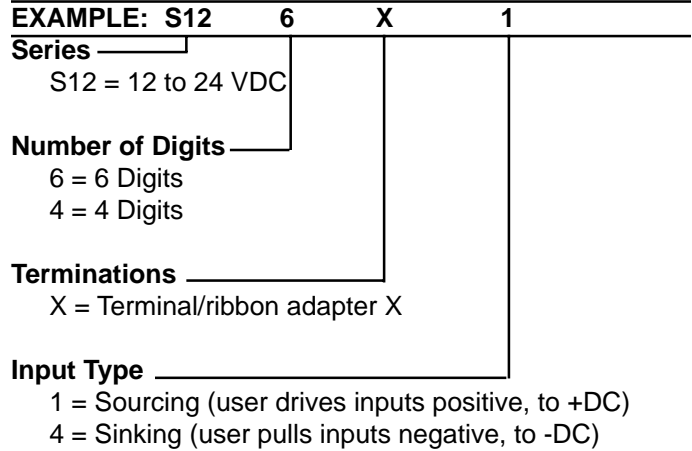
SLAVE DISPLAYS

Dimensions:



SLAVE DISPLAYS

How To Order:



Accessories

S12 RIBBON FOR ADAPTER "X"

Ribbon is continuous with connectors attached each 12 inches.
 Part Number: S12RX__ Specify number of units to be linked together.
 Example: #S12RX4 is cable to connect four S12 units spaced 12 inches apart.

S12 ADAPTER "X" FOR RIBBON CABLE

(Supplied as termination "X" when ordered on S12 display)
 May be ordered separately #S12AX.
 May be used at PLC to convert ribbon cable to screw terminal.

*** SPECIAL LENGTH ORDER FORMAT**

S12RX - Specify ribbon lengths between connectors in 6 inch increments using alphabet letters to indicate number of 6" intervals. Eg. A=6", B=12". C=18", etc. List the interval between the top display and next highest first, then list lower ones in order. S12RXACCB is a ribbon to connect 5 displays with 6" between 1st (top) and 2nd, 18" between 2nd and 3rd, 18" between 3rd and 4th, 12" between 4th and 5th (bottom).