



# PolyComp

**LEADERS IN LED DISPLAYS**

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## Polycomp Static Communication Protocol

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# 1. Connecting Description

**Note:** This protocol is not communication type specific. For this reason, it can be used on RS232, RS485, TCP/IP and others.

When using communication types like RS232, RS485, TCP/IP etc, it is recommended to use the following settings:

## Default settings

Baud rate: 9600  
Start bits: 8  
Stop bits: 1  
Parity: none

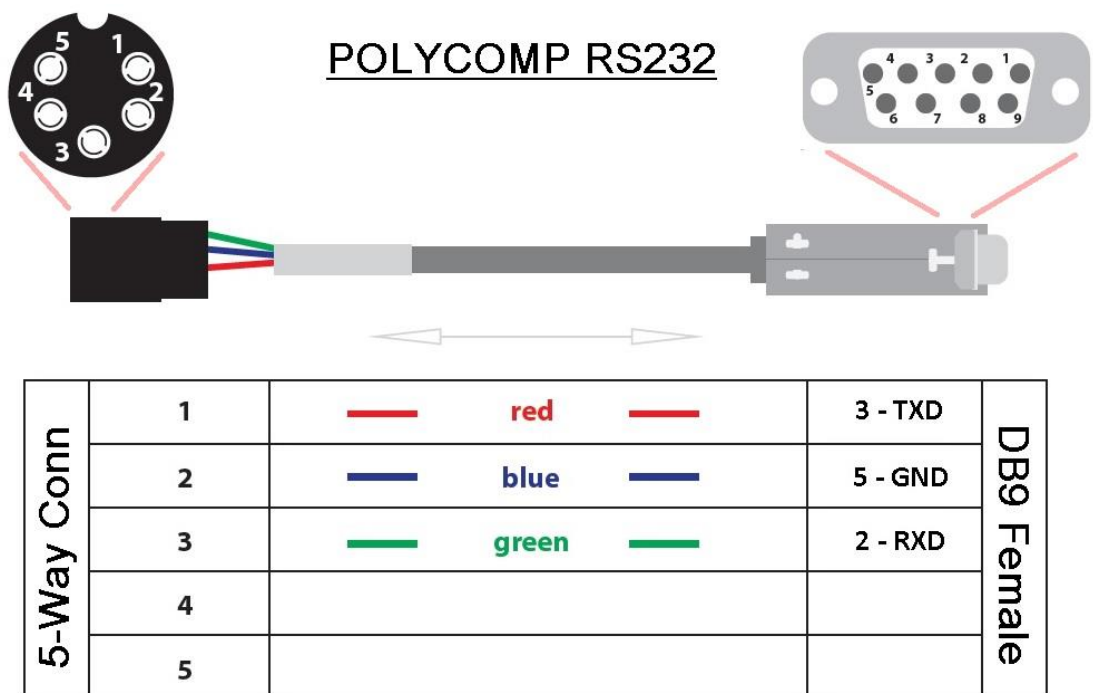
When you power up the display, the display will perform a self-test and display the results of that test. All communication settings will also be displayed at this time. Be sure to use this given communication settings on your communication device when communicating with the display.

E.G. 9600,8,1 #1. This means Baud 9600, Start bits 7, Stop bits 1, Address 1.

# 2. RS232 communication

- RS232 connections can only be used for short distances of up to 100 metres.
- RS232 is not bus capable and you can only talk to one display per COM port

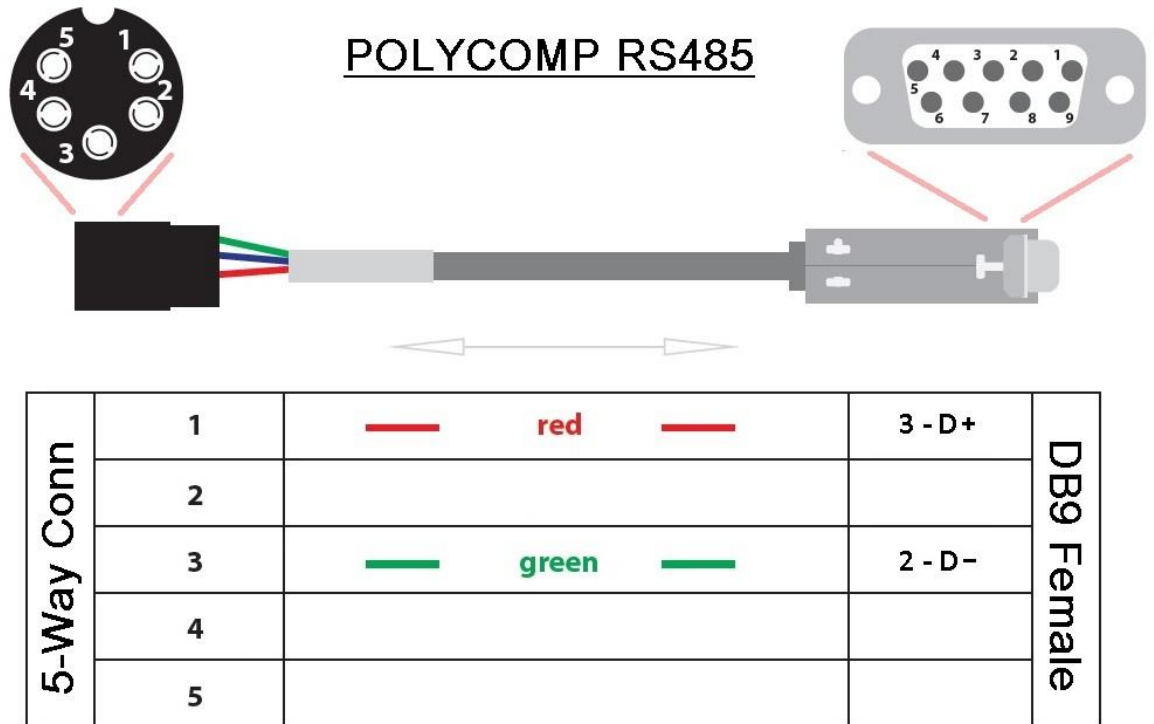
## Wiring



### 3. RS485 communication

- RS485 connections can be used for longer distances of up to 1000 metres.
- RS485 is bus capable and you can talk to many displays on the same COM port

#### Wiring



## 4. Communication Protocol

### 1. Protocol description

Byte Number	Number of Bytes	Description	Value			Comment
			Dec	Hex	ASCII	
1	1	Header Sync	0	0x00	null	
2	1	Static indicator	83	0x53	S	
3	1	Sign address	X	X	X	value = 1 - 127 (0 = "Broadcast")
4	1	End of header	3	0x03	ETX	
5	X	Data	X	X	X	Text to be displayed
2nd last	1	End of text	4	0x04	EOT	
Last	1	Checksum	X	X	X	Checksum calculated with Xor

### 2. Checksum calculation

The checksum is an EXCLUSIVE 'OR' function. This is calculated bit, by bit starting at the "Header SYNC" continuing to and including the "End of Text".

### 3. Data modifiers

Data modifiers allows the user to set color and flashing parameters of the text being displayed. It is achieved by sending a Byte of (Dec = 28 or Hex = 0x1c) followed by one of the following commands:

Description	Value		
	Dec	Hex	ASCII
Default all text modifiers	68	0x44	D
Set Text that Follows to Red	82	0x52	R
Set Text that Follows to Green	71	0x47	G
Set Text that Follows to Yellow	89	0x59	Y
Set Text that Follows to Blue	66	0x42	B
Set Text that Follows to Pink	80	0x50	P
Set Text that Follows to Cyan	67	0x43	C
Set Text that Follows to White	87	0x57	W
Set Text that Follows to Multi Color	77	0x4D	M
Toggle on And Off the Flash Status of the Text that Follows	70	0x46	F

#### 4. Communication example

Byte Number	Value			Description	CRC Xor Sum (in Dec)
	Dec	Hex	ASCII		
0	0	0x00	NULL	Header Sync	0
1	83	0x53	S	Static Indicator	83
2	1	0x01	SOH	Sign Address	82
3	3	0x03	ETX	End of header	81
4	80	0x50	P	Data	1
5	79	0x4F	O	Data	78
6	76	0x4C	L	Data	2
7	89	0x59	Y	Data	91
8	67	0x43	C	Data	24
9	79	0x4F	O	Data	87
10	77	0x4D	M	Data	26
11	80	0x50	P	Data	74
12	28	0x1C	FS	Modifier	86
13	71	0x47	G	Set Text to Green	17
14	32	0x20	SPACE	Data	49
15	73	0x49	I	Data	120
16	83	0x53	S	Data	43
17	28	0x1C	FS	Modifier	55
18	70	0x46	F	Toggle Text Flash on	113
19	28	0x1C	FS	Modifier	109
20	77	0x4D	M	Set Text to Multi	32
21	32	0x20	SPACE	Data	0
22	84	0x54	T	Data	84
23	72	0x48	H	Data	28
24	69	0x45	E	Data	89
25	28	0x1C	FS	Modifier	69
26	70	0x46	F	Toggle Text Flash off	3
27	28	0x1C	FS	Modifier	31
28	87	0x57	W	Set Text to White	72
29	32	0x20	SPACE	Data	104
30	66	0x62	b	Data	10
31	69	0x65	e	Data	111
32	83	0x73	s	Data	28
33	84	0x74	t	Data	104
34	4	0x04	EOT	End of Text	108
35	108	0x6C	I	CRC	

In this example the text “POLYCOMP IS THE best” is sent to the display. The word “**POLYCOMP**” will display in the default colour red. The word “**IS**” will display in green. The word “**THE**” will display in multi color and will be flashing. The word “**best**” will display in white.