FLARE

RS-485 Serial LED Display

Features

- 6 digit bright 1/2" LED display

- Uses RS-232 or RS-485 serial communications

- Simple packet message format or direct communications mode

- Easily networked with other Flares

- Programmable address, start and end characters, and communications parameters

- LEDs display alphabetic chars in seven segment font

- Settings saved in nonvolatile EEPROM

Description

The Flare is a six digit LED display unit, which uses standard serial communications to interface to a computer or other device. It displays numbers and alphabetic characters in a seven-segment font. The communications settings are fully programmable, and once programmed are stored in nonvolatile memory. Flares can be networked together by attaching more than one of them to the same connection, or connected and operated in a direct mode where all the Flares on the net display the same data.

The communications parameters and net address can be programmed through three contacts on the rear connector. The contacts can be wired to buttons on the front panel, or the settings can be programmed once in the office and the Flare mounted without programming connections.

Specifications

Display	6 Char. LED
Character Size	0.5" (12.7mm)
Memory	EEPROM
Set-Up	3 Programming Buttons
Communications	RS-232 or RS-485; selectable baud rate, data bits, parity
Networkable	Yes; 256 addresses
Power Supply	115 VAC or 8 to 24 VDC
	230 VAC or 8 to 24 VDC
Operating Temperature	32° to 122° F (0° to 50° C)
Dimensions	W= 4.44", H= 2.63", D= 4.25"
Cutout	W= 3.62", H= 1.77"
Environmental	NEMA4 / IP65

Message Format

The Flare has two message modes, packet mode and direct mode.

Packet mode has the data surrounded by an address and a start and end character. This can be used for networking Flares, or to attach it directly to a device which is used to driving networkable devices.

Flare packet messages are sent in the following format:

Start Character, ID Hi, ID Lo, Data, Data, ..., End Character

The defaults are

Start Character	'#'
ID	'01' (two characters, ASCII)
End Character	13 (Carriage return)

A transmitted ID of '0','0' will display on all the Flares on the net. Otherwise, the data is displayed on the Flare(s) with that address. Characters not in a message packet will be ignored. All of these parameters (Start Character, ID, End Character) can be programmed with the settings buttons on the rear connector.

For example the string '#01123456', (Carriage Return), will display '123456' on connected Flares with an ID of '01'.

In direct mode, all the characters received will be displayed (no packet protocol). A (Carriage Return) will clear the six character screen. The Flare is put into direct mode by giving it an ID of 'F0' hex or greater.

Communication Parameters

The Flare supports the following baud rate and communications parameters:

Settings	Menu Indictor
BAUD: 300, 1200, 2400, 4800, 9600	br
PARITY: ODD, EVEN, IGNORE	PR
DATA: 7 bits, 8 bits	dAt
LEAD CHAR: 00-FF	LC
END CHAR: 00-FF	EC
ID: 00-FF	Id

(Note: for Lead Character and End Character, program the ASCII code of the character. The driving device has to transmit a one byte ASCII character; for example, the default start character is '#', or 23 hex.)

Key Inputs and Programming

The Flare has three key inputs for programming communications setting. The key inputs should be wired as simple contact closures between the key input and +DC (TERMINAL 4).

RUN/PROGRAM Key: switches between RUN mode, when it displays serial characters, and PROGRAM mode where settings are entered

DATA Key: switches between DATA items

NEXT Key: steps to the next item in the setup menu.

The current selections are saved in EEPROM. Both the data items and the menu items loop. Press the RUN/PROGRAM Button to exit from PROGRAM mode.

Connector Pinout

○ 1 • AC INPUT

○ 2 • AC INPUT

○ 3 • EARTH GROUND

○ 4 • +DC OUT (+DC INPUT)

○ 5 • -DC (GROUND)

○ 6 • KEY 1 (RUN/PROGRAM)

○ 7 • KEY 2 (DATA)

○ 8 • KEY 3 (NEXT)

○ 9 • TX+/TXA

○ 10 • TX-/TXB

○ 11 • RX+/RXA

○ 12 • RX-/RXB

ASCII Character Table

The Flare supports all the alphabetic characters in a seven segment LED font. ASCII 16-30 (usually non printing characters) print out as the corresponding hex number with a lower right decimal point. (SEE TABLES BELOW)

ASCII Character to Display Table

Char.	Display	Char.	Display	Char.	Display
A(a)	A	O(o)	O(o)	2	2
B(b)	b	P(p)	P	3	3
C(c)	C(c)	Q(q)	q	4	4
D(d)	d	R(r)	r	5	5
E(e)	E	S(s)	5	6	6
F(f)	F	T(t)	t	7	7
G(g)	g	U(u)	U(u)	8	8
H(h)	H(h)	V(v)	U(u)	9	9
I(i)	I(i)	W(w)	u	-	-
J(j)	J	X(x)	H	_	-
K(k)	F	Y(y)	y	.	.
L(l)	L(l)	Z(z)	2	?	?.
M(m)	n	0	0	=	=
N(n)	n	1	I		

ASCII Code to Display Table

Code	Display	Code	Display
16	0.	24	8.
17	1.	25	9.
18	2.	26	A.
19	3.	27	b.
20	4.	28	C.
21	5.	29	d.
22	6.	30	E.
23	7.	31	F.

How To Order:

EXAMPLE: FLARE   A   1

Series

Power
A = 115 VAC or 8 to 24 VDC
B = 230 VAC or 8 to 24 VDC

Communications
1 = RS-485
2 = RS-232