FlexiPanels® - TouchScreen Based HMI

FP4057T
5.7" TFT Color Touch Screen

FP5043T
4.3" TFT Color Touch Screen

FP4035T
3.5" TFT Color Touch Screen

FP4030MT
3" Multicolor Touch Screen

FP5121T
12.1" TFT Color Touch Screen

FP5070T
7" TFT Color Touch Screen

gross automation

RENU ELECTRONICS PVT. LTD.

Salient Features :-

- 3" to 12.1" Graphical Touchscreen Multicolor / TFT Color Display

- Floating point support, Bar graph, Built-in RTC

- Ladder editor with powerful instruction set

- Support for Recipes and 32K color Bitmaps for color LCD Models

- Communication Ports:
  One / Two serial ports to connect PLC at RS232 / 422 / 485 levels / Printer / Programming Port
  One USB (Device) port as Programming Port
  One USB (Host) port to connect USB memory drive#
  One optional Ethernet port to connect PLC / Programming Port / Remote monitoring#

- Dual Port communication supported for units with two serial ports

- User defined Function keys to support various tasks

- Data Logging, Transfer logged data on USB memory drive#

- Trending (Real Time & Historical#)

- Alarms (Real Time & Historical)

- Multilanguage (Unicode) support with true type Windows® fonts

- IP66 design. CE, UL approved. RoHS compliant

- Common Programming software for the entire FlexiPanels® family.........FREE!!
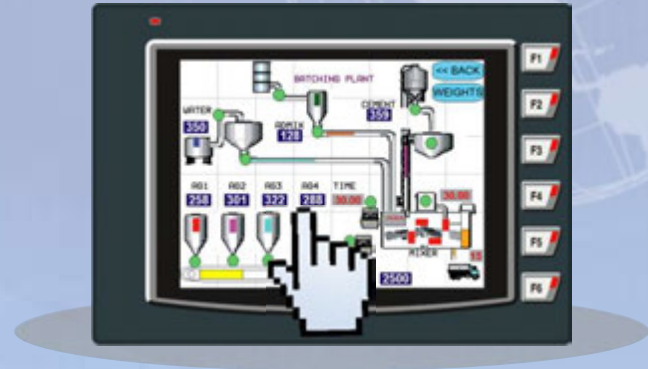
Not supported in FP4030MT models.

Operations :-

The FlexiPanels® support Operator interface features. The user can also implement logic, specific to application using standard Ladder programming. A PLC logic block can be executed at power up, during every scan or upon a timer interrupt. The FlexiPanels® operator interface functions revolve around Screens and Tasks that can be assigned to screens and application.

Function Keys

FlexiPanels® HMIs are also available with Touch Screen and Function keys. The Function keys also have built-in LEDs. The function keys are independent of Touch Screen. These function keys are screen dependent Function Keys. User can assign any application related task / actions to these function keys.

Touch Keys Task

Touch Keys in FlexiPanels® can be assigned Tasks for three instances: when the screen is touched, while the screen is touched and when the screen is released. Multiple tasks can be assigned to a touch key. In addition to above, tasks for data entry, alarm management etc. can be defined. These definitions allow Complete flexibility in cursor control and key operations when changing data.

Alarms

Real time and historical Alarms can be defined in FlexiPanels®. User-friendly Alarm object can be defined on the display. Alarms can be real time or historical. Keys can be assigned to acknowledge Alarm, view and scroll.

Recipes

Recipes data is stored in the FlexiPanels® memory. With one button stroke, a set of data can be downloaded to the PLC. Once in the local memory, the recipes data can be edited using simple data entry objects.

Bitmaps / Wizards

Different bitmaps can be embedded on the FlexiPanels® screen. Transparent buttons can be used for data entry and set points on bitmap images. Bitmaps can be imported into the application and displayed on the FlexiPanels® screens. In addition, several wizards are supported to create commonly used objects such as Analog meters, Lamps, Buttons and Bar graphs. 32K colors are supported for bitmaps.

Easy events logging and trend tracking

Touch Screen based FlexiPanels® models support data logging feature. A part of FlexiPanels® memory can be allotted for data logging. Real time as well as Historical Trending is also supported. The user can also display multiple trends with different pen color on one screen.

Ladder Support

FlexiPanels® support ladder functionality. User can define logic in the unit using FlexiSoft® software. The execution of ladder could be through communication port or through I/O. Only HMI version of FlexiPanels® also support ladder functionality. It is used for critical applications where data is processed before sending it to controller. The FlexiLogics® support following different types of instructions :

I/O Instructions -

NO contact	NC contact	Output
Falling Edge	Rising Edge	Inverter
Inverter Coil	Positive Pulse Contact	Negative Pulse Contact
Positive pulse coil	Negative Pulse Coil	

Data Transfer -

MOV word	MOV DWORD	Invert Transfer
Table Initialize	Table Block Transfer	Table Invert Transfer
Data Exchange	Multiplexer	Demultiplexer

Math-

Addition	Subtraction	Multiplication
Division	Addition with Carry	Subtraction with Carry
Increment	Decrement	

Compare -

Greater than	Greater than or equal	Equal
Not Equal	Less Than	Less than or Equal

Logic -

AND	OR	XOR
Shift	Rotate	

Data Conversion -

Hex to Ascii	Ascii to Hex	Absolute Value
7 segment decode	Ascii conversion	Binary Conversion
BCD conversion	2's complement word	2's complement Double word

Timer -

TON	TOFF	TSS

Counter-

Up counter	UP Down Counter

Program Control -

Subroutine CALL	Subroutine RET	For
Next	Master Control Set	Master Control Reset
Jump Control Set	Jump Control Reset	En Intr
Dis Intr	DT	Step sequence Init
Step sequence Input	Step sequence output	

Function -

Moving Average	Digital Filter	PID1,4
Upper limit	Lower limit	Maximum Value
Average Value	Function generator	Minimum Value

Special -

Device Set	Device Reset	Register Set
Register Reset	Set Carry	Reset Carry
Encode Decode	Bit Count	Flip Flop
Direct I/O	Set Calender	Calender Operation

The execution of ladder logic is in microseconds. Ladder monitoring for debugging is also supported in FlexiPanels® configuration software.

Multilanguage / Unicode Support

All the languages are supported in the FlexiPanels®. The user can now display messages, alarms in any regional / local language. All Windows® fonts can also be used for text in an application.

Communication Ports

FlexiPanels® have upto two serial communication ports. Both the ports can be used for programming of FlexiPanels®, printing screens (alphanumeric data), connecting to third party serial devices (barcode readers, temp scanners etc.) or to connect to a PLC or drive. Dual port feature is supported for FlexiPanels® models having 2 serial ports. User can configure these serial ports to connect 2 different devices supporting different protocols, such as PLC / Drives / DCS / SCADA etc.

Ethernet Port

FlexiPanels® support optional Ethernet port (Modbus TCP/IP). It can be used to connect to a PLC and monitor machine / process status from remote location. The Ethernet port can also be used for remote Program upload / download in FlexiPanels®.

Configuration Software

FlexiSoft® is a compact, Windows® based software to configure the FlexiPanels® units. User friendly configuration tools and easy approach, helps user create applications quickly and easily.
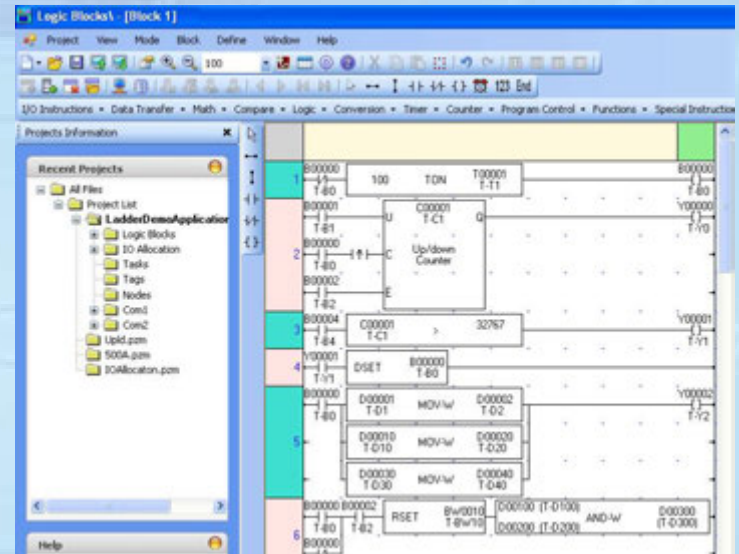
To get started with FlexiPanels®, user needs:
1. FlexiPanels® unit   2. FlexiSoft® Software
3. USB Programming cable (Part no. PC-USBAB-00)

OS requirements for FlexiSoft® are:

Windows Version   : Microsoft Windows® 2000 or above

Operations :-

Supported Task in FlexiPanels® are :

Type / Task	Power up	Global	Screen			Key/button		
			Before showing	While showing	After hiding	Press	While Pressed	Release
Go to screen	✓	✗	✓	✗	✓	✓	✗	✓
Go to next screen	✗	✗	✓	✗	✓	✓	✗	✓
Go to previous screen	✗	✗	✓	✗	✓	✓	✗	✓
Write value to tag	✓	✓	✓	✓	✓	✓	✓	✓
Add constant to tag	✓	✓	✓	✓	✓	✓	✓	✓
Subtract constant from tag	✓	✓	✓	✓	✓	✓	✓	✓
Add tag B to Tag A	✓	✓	✓	✓	✓	✓	✓	✓
Subtract tag B from Tag A	✓	✓	✓	✓	✓	✓	✓	✓
Turn bit ON	✓	✓	✓	✓	✓	✓	✗	✓
Turn bit OFF	✓	✓	✓	✓	✓	✓	✗	✓
Toggle bit	✓	✓	✓	✓	✓	✓	✗	✓
Copy Tag B to Tag A	✓	✓	✓	✓	✓	✓	✓	✓
Swap Tag A and tag B	✓	✓	✓	✓	✓	✓	✗	✓
Print Data	✗	✗	✗	✗	✗	✓	✗	✓
Set RTC	✗	✗	✗	✗	✗	✓	✗	✓
Copy tag to STR	✓	✓	✓	✗	✓	✓	✗	✓
Copy tag To LED	✓	✓	✓	✓	✓	✗	✗	✗
Delay	✗	✗	✗	✓	✗	✗	✗	✗
Wait	✗	✗	✗	✓	✗	✗	✗	✗
Copy HMI block to HMI/PLC block	✓	✓	✓	✓	✓	✓	✓	✓
Copy HMI/PLC block to HMI block	✓	✓	✓	✓	✓	✓	✓	✓
Copy RTC to PLC block	✗	✓	✗	✗	✗	✓	✗	✓
GoTo Popup screen*	✗	✗	✗	✗	✗	✗	✗	✗
Keys Specific Tasks	✗	✗	✗	✗	✗	✓	✓	✓
USB Data Log Upload	✗	✗	✗	✗	✗	✗	✗	✗

* Available only in Touch Screen Models.

Supported Printers :-

FlexiPanels® support following Dot matrix serial printers:
➢ EPSON
➢ SAMSUNG
➢ TVS

Protocols Supported for :-

Driver	FP4030MT	FP4035	FP5043	FP4057	FP5070	FP5121
ABB	✓	✓	✓	✓	✓	✓
Allen Bradley DF1	✓	✓	✓	✓	✓	✓
Aromat FP Series	✓	✓	✓	✓	✓	✓
Baldor	✓	✓	✓	✓	✓	✓
Danfoss Drive	✓	✓	✓	✓	✓	✓
Delta	✓	✓	✓	✓	✓	✓
Fatek	✓	✓	✓	✓	✓	✓
FlexiLogics***	✓	✓	✓	✓	✓	✓
GE Fanuc	✓	✓	✓	✓	✓	✓
GE SNP-X	✓	✓	✓	✓	✓	✓
Idec	✓	✓	✓	✓	✓	✓
LG Master K series	✓	✓	✓	✓	✓	✓
LG Master-K 300S	✓	✓	✓	✓	✓	✓
Mitsubishi FX	✓	✓	✓	✓	✓	✓
Mitsubishi Q series (Serial)	✓	✓	✓	✓	✓	✓
Modbus master	✓	✓	✓	✓	✓	✓
Modbus slave	✓	✓	✓	✓	✓	✓
Omron Host Link	✘	✓	✓	✓	✓	✓
Omron Yaskawa Drive	✘	✓	✓	✓	✓	✓
Serial Monitor	✓	✓	✓	✓	✓	✓
Siemens-S7-200	✘	✓	✓	✓	✓	✓
Siemens-S7-300	✘	✓	✓	✓	✓	✓
Toshiba Inverters	✓	✓	✓	✓	✓	✓
Toshiba T1	✓	✓	✓	✓	✓	✓
Toshiba T2 Link port	✓	✓	✓	✓	✓	✓
Twido	✓	✓	✓	✓	✓	✓
Unitelway	✓	✓	✓	✓	✓	✓
Universal Serial (ASCII)	✓	✓	✓	✓	✓	✓

***Supported with native programming environment.

Specifications :-

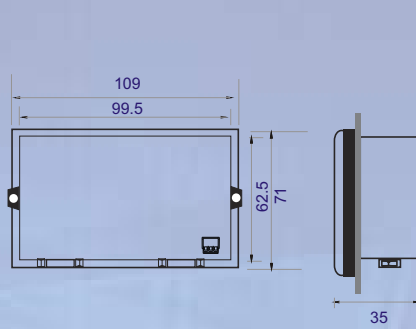|		
Power	:	+ 24V DC ±15%
		FP4030MT - 3 W Max
		FP4035 - 3 W Max
		FP5043 - 5 W Max
		FP4057 - 7 W Max
		FP5070 - 9 W Max
		FP5121 - 16 W Max
Bezel	:	IP66 rated Touch Screen
Operating Temperature	:	0° to 50°C
Storage Temperature	:	-20° to 80°C
Humidity	:	10% to 85% (Non condensing)
Communication Ports	:	One / Two serial ports** (RS232 / RS422 / Rs485 levels supported)
USB Device Port	:	As programming and monitoring port
USB Host port	:	Supports USB Memory drive

Ethernet Port	:	For connecting to a PLC, programming of FlexiPanels®, a third party device, Drive or remote Monitoring (10 / 100 MBPS).
Type of LCD	:	Multicolor backlight / TFT Color TouchScreen
Supported Colors	:	32K for Color TFT LCD
Isolation	:	Isolation between communication and power ports is 500 V DC for 1 Min.
Immunity to ESD	:	as per IEC61000-4-2
Immunity to Fast Transients	:	as per IEC61000-4-4
Immunity to Radiated electromagnetic field	:	as per IEC61000-4-3
Immunity to Conducted disturbances	:	as per IEC61000-4-6
Surge	:	as per IEC61000-4-5
Radiated emission	:	as per EN55011

Model Comparison :-

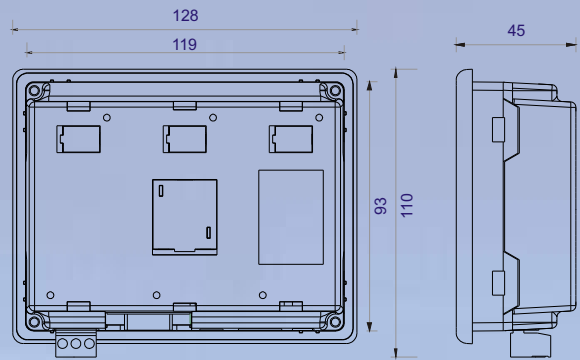| Product	Model	Display	LCD Life at 25°C	Keys / TS	Memory	PLC Steps	Screen Memory	Logging Memory	Serial Ports **	USB	Ethernet Port	RTC	Power Consumption	Weight	Bezel Dimensions (mm)	Panel Cutout (mm)
FP4030MT	FP4030MT-Rev0#	128x64 3" Multicolor Backlight	30000 hrs	No / Yes	Up-to 1.5 MB	5 k	Up-to 1 MB	NA	2**	Device	No	Yes	3W	156 gms.	109 W x 71 H x 35 D (Drawing A)	99.5 W x 62.5 H
	FP4030MT-Rev1	128x64 3" Multicolor Backlight	30000 hrs	No / Yes	Up-to 1 MB	24 k	Up-to 312 KB	NA	2**	Device	No	Yes	3W	156 gms.	109 W x 71 H x 35 D (Drawing A)	99.5 W x 62.5 H
FP4035	FP4035T	320x240 QVGA 3.5" Color TFT	50000 hrs	6 / Yes	Up-to 8 MB	160 k	Up-to 6 MB	Up-to 2 MB##	1	Device and Host	No	Yes	3 W	275 gms.	128 W x 110 H x 45 D (Drawing B)	119 W x 93 H
	FP4035TN	320x240 QVGA 3.5" Color TFT	50000 hrs	6 / Yes	Up-to 8 MB	160 k	Up-to 6 MB	Up-to 2 MB##	1	Device and Host	Yes	Yes	3 W	275 gms.	128 W x 110 H x 45 D (Drawing B)	119 W x 93 H
FP5043	FP5043T	480x272 WQVGA 4.3" Color TFT	30000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2**	Device and Host	No	Yes	5W	320 gms.	128 W x 110 H x 45 D (Drawing B)	119 W x 93 H
	FP5043TN	480x272 WQVGA 4.3" Color TFT	30000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2**	Device and Host	Yes	Yes	5W	320 gms.	128 W x 110 H x 45 D (Drawing B)	119 W x 93 H
FP4057	FP4057T	320x240 QVGA 5.7" Color TFT	60000 hrs	6 / Yes	Up-to 8 MB	160 k	Up-to 6 MB	Up-to 2 MB##	2	Device and Host	No	Yes	7 W	690 gms.	195 W x 150 H x 50 D (Drawing C)	184.3 W x 131.3 H
	FP4057TN	320x240 QVGA 5.7" Color TFT	60000 hrs	6 / Yes	Up-to 8 MB	160 k	Up-to 6 MB	Up-to 2 MB##	2	Device and Host	Yes	Yes	7 W	690 gms.	195 W x 150 H x 50 D (Drawing C)	184.3 W x 131.3 H
FP5070	FP5070T	800x480 WVGA 7" Color TFT	30000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2	Device and Host	No	Yes	9W	610 gms.	195 W x 150 H x 50 D (Drawing C)	184.3 W x 131.3 H
	FP5070TN	800x480 WVGA 7" Color TFT	30000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2	Device and Host	Yes	Yes	9W	610 gms.	195 W x 150 H x 50 D (Drawing C)	184.3 W x 131.3 H
FP5121	FP5121T	800x600 SVGA 12.1" Color TFT	70000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2	Device and Host	No	Yes	16W	1.680 Kg	312 W x 246 H x 48 D (Drawing D)	293.5 W x 226.2 H
	FP5121TN	800x600 SVGA 12.1" Color TFT	70000 hrs	No / Yes	Up-to 128 MB	160 k	Up-to 45 MB	Up-to 20 MB	2	Device and Host	Yes	Yes	16W	1.680 Kg	312 W x 246 H x 48 D (Drawing D)	293.5 W x 226.2 H

** One "D" type port that supports RS232 and RS485 levels on different pins. "Y" type cable can be used for separate RS232 and RS485 levels simultaneously.
# It is recommended to use FP4030MT-Rev0 model when following configurable communication baudrate parameters are needed - 1) 7 Data Bits, 2) 2 Stop Bits.   ## Data logging memory is a part of the screen memory.
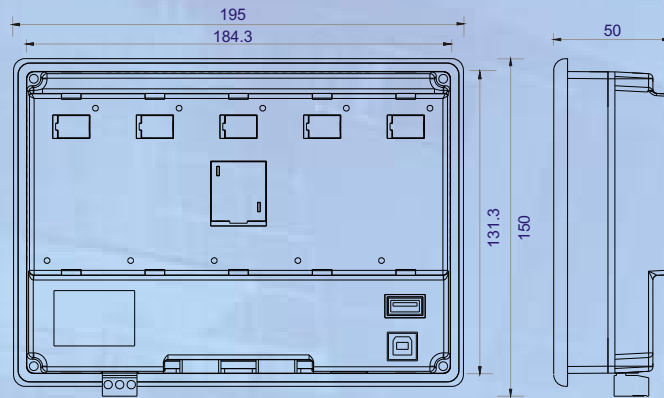
Drawing A

109
99.5
62.5
71
35

Drawing B
Height including power connector

128
119
45
93
110

Drawing C
Height including power connector

195
184.3
50
131.3
150

Drawing D

312
293.5
238
200
226.2
246
48

Mounting Clamp

All dimensions are in mm.