



99 x 95.6 x 90.5mm

FEATURES

- Flexible card selection
- Compact PLC with built-in HMI
- 3.5" LCD with touch
- Windows based user friendly software for ladder programming and HMI configuration
- RTC with Time Switch function
- RS 485 based communication with MODBUS Protocol
- Expandable via IO Expansions

SPECIFICATIONS

LCD MODULE	Display Type	3.5" TFT LCD (256 color), Resistive Touch Screen
	Resolution	320 x 240 pixels
	Display Size (WxH)mm	70.08 x 52.56
	Backlight	LED backlight
	Brightness Adjustment	Yes (Via Internal MMI)
KEYS		System key x 1, Function keys x 5
INTERNAL MEMORY	BITMAP	4 MB
	FONT	4 MB
SLOT CONFIGURATION	Slot-1	For I/O Card
	Slot-2	For I/O Card
	Slot-3	For I/O Card
	Slot-4	For Logic Card
	PS Slot	For Power Supply Card
OPERATING TEMPERATURE		0° to 55° C
STORAGE TEMPERATURE		-30° to 80° C
HUMIDITY		95% RH
MOUNTING		Panel
DIMENSIONS (WxHxD)mm		99 x 95.6 x 90.5
PANEL CUTOUT (WxH)mm		92 x 92
WEIGHT (g)		250

INSTALLATION PROCEDURE

Fig. A

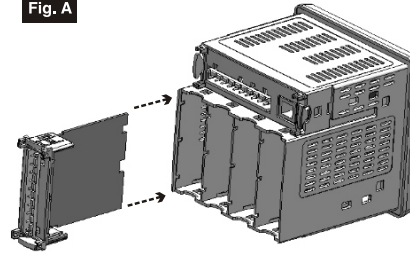


Fig. C

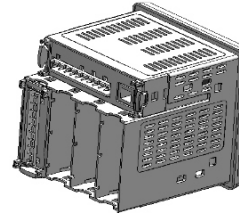


Fig. B

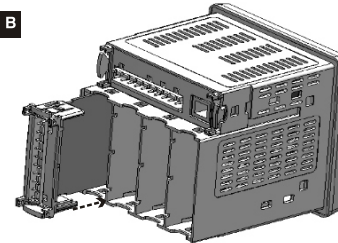
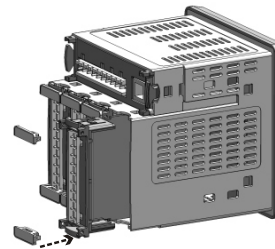


Fig. D



A. Card order as viewed from back, left to right

1. Slot 1 IO Card
2. Slot 2 IO Card
3. Slot 3 IO Card
4. Slot 4 Logic Card

B. Mount the slot card on the PLC slot by pressing the latch, refer fig. A

C. Slide the slot card in the PLC, refer fig. B

NOTE : The slot card will slide easily if it was mounted properly

D. Ensure that the latch is fitted properly inside the lock, refer fig. C side view

E. Place the lock plate to cover the Latch, refer fig. D

SAFETY PRECAUTIONS

This manual is meant for personnel involved in wiring, installation, operation and routine maintenance of the equipment.

All safety related conditions, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure operator and instrument safety. Any misuse may impair the protection provided by the equipment.

⚠ CAUTION : Read complete instructions prior to installation and operation of the unit.

⚠ CAUTION : Risk of electric shock.

INSTALLATION INSTRUCTIONS

⚠ CAUTION

1. This equipment, being built-in-type, normally becomes a part of the main control panel and the terminals do not remain accessible to the user after installation.
2. Conductors must not come in contact with the internal circuitry of the equipment else it may lead to a safety hazard that may endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between the power source and supply terminals to facilitate power 'ON' or 'OFF' function.
4. The equipment shall not be installed in environmental conditions other than those specified in this manual.
5. Since this equipment forms part of the main control panel, its output terminals get connected to the host equipment. Such equipment shall also comply to EMI / EMC and safety requirements like CE standard procedure.
7. Thermal dissipation of equipment is met through ventilation holes provided on housing of equipment. Obstruction of these ventilation holes may lead to a safety hazard.
8. The output terminals shall be loaded strictly as per the values / range specified by the manufacturer.

ELECTRICAL PRECAUTIONS DURING USE

Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the instrument.

To reduce noise :

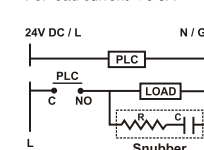
Use of MOV / Snubber circuit across load / contactors of the unit are recommended.

1. MOV Part no. : AP-MOV-03
2. Snubber Part no. : APRC-01

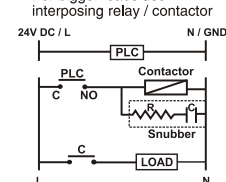
NOTE : Below mentioned diagram is applicable only for 230V relay outputs.

Typical Connections For Loads :

For load current < 0.5A



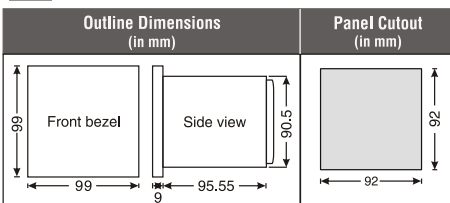
For bigger loads use interposing relay / contactor



NOTE : Use snubber as shown above to increase life of internal relay.

B) Use separate shielded wires for inputs.

MECHANICAL INSTALLATION



For installing the controller

1. Prepare the panel cutout with proper dimensions as shown above.
2. Remove the clamp from the PLC.
3. Fix the unit into the cutout. Insert the clamp from both sides and tighten the screws.

CAUTION

The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process by products.

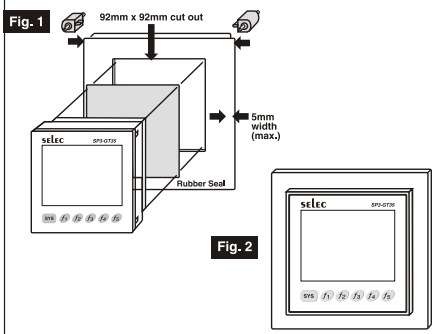
EMC Guidelines :

1. Use proper input power cables with shortest connections and twisted type.
2. Layout of connecting cables shall be away from any internal EMI source.

MAINTENANCE

1. To avoid blockage of ventilation holes, clean the equipment regularly using a soft cloth.
2. Do not use Isopropyl alcohol or any other organic Solvents for cleaning.

PANEL MOUNTING



1. Before you begin, note that the mounting panel cannot be thicker than 5 mm (0.197”).
2. Make a panel cut-out measuring 92mm x 92mm (3.622” x 3.622”).
3. Slide the controller into the cut-out, ensuring that the rubber seal is in place.
4. Push the 2 mounting brackets into their slots on the sides of the controller as shown in Fig. 1.
5. Tighten the bracket screws against the panel. Hold the bracket securely against the unit while tightening the screw.
6. When properly mounted, the controller is squarely situated in the panel cut out as shown in Fig. 2.

WIRING INSTRUCTIONS

CAUTION

1. To prevent risk of electric shock, power supply to the equipment must be kept OFF while wiring.
2. Terminals and electrically charged parts must not be touched when the power is ON.
3. Wiring shall be done strictly according to the terminal layout provided in the operating manual.
4. To eliminate electromagnetic interference use short wire with adequate ratings and twists of equal size.
5. The power supply connection cable must have a cross section of 1sq.mm or greater and insulation capacity of at least 1.5KV.

FUNCTIONAL DETAILS

FLEXYS GT35 is a PLC with built in HMI. The user can configure the product using SELPRO software.

SELPRO has two sections :

1. Ladder logic programming section
2. Selec Machine Interface, used for configuration of HMI.

This software is provided with the product. For details of the software and configuration method, please refer to its user manual with the product.

ORDERING INFORMATION

ORDER CODE	DESCRIPTION
FL-GT35-PS-230V	Power Supply Card
FL-GT35-LG-X-X-X	Logic Card
Supported IO cards	
FL-SC-DI10	10 Digital Inputs
FL-SC-RO08	8 Relay Outputs
FL-SC-TO08	8 Transistor Outputs
FL-SC-AI04-TC	4 Analog Inputs (TC - J, K, T, R, S, C, E, B, N, L, U, W, Platinel II and 0-60mV)
FL-SC-AI03-RTD	3 Analog Inputs (RTD – PT100)
FL-SC-AI05-V	5 Analog Inputs (0-10V)
FL-SC-AI05-I	5 Analog Inputs (0-20mA)
FL-SC-AO04-V/I	4 Analog Outputs (0-10V) / (0-20mA)

Expansion Modules on Master RS485 / Proprietary Port

DESCRIPTION	Modbus RTU protocol for IO 610	Proprietary protocol for IO 630
8 Digital Input	IO610-8DI	IO630-8DI
4 Relay Output	IO610-4RO	IO630-4RO
4 Transistor Output	IO610-4TO	IO630-4TO
2 Analog Input (Voltage / Current)	IO610-2AI-VI	IO630-2AI-VI
2 Analog Input (TC / RTD)	IO610-2AI-TCR	IO630-2AI-TCR
2 Analog Output (Voltage / Current)	IO610-2AO	IO630-2AO

ACCESSORIES

Accessories for Communication

- AC-USB-RS485-03 (USB to 6 pin RJ25 jack)
- AC-USB-RS485-02 (USB to 2 pin open wire)

Accessories for Expansion Module

- ACH-004 (6 pin to 6 pin RJ25 jack) for expansion only
- AC-IOEXP-02 (Port expansion adapter)

Window-Based Software for Ladder Programming

ACD-005

- Relay Module : 1) AR-04-5A-NONC (SPDT)
2) AR-04-5A-NO (SPST)
3) AR-S8-24V-1CO

? SERVICE DETAILS

This device contains no user serviceable parts and requires special equipment and specialized engineers for repair.

Please contact service center for repair on the following numbers :

Tel. No. : +91-7498077172 ; **Email :** service@selec.com

NO WARRANTY ON UNIT DAMAGED DUE TO WRONG POWER SUPPLY.

(Specifications are subject to change, since development is a continuous process)

Selec Controls Pvt. Ltd.

Factory Address :
EL-27/1, Electronic Zone, TTC Industrial Area, MIDC,
Mahape, Navi Mumbai - 400 710, INDIA.
Tel. No. : +91-22-4148 419/430 | Fax No. : +91-22-28471733
Toll free : 1800 227 353 (BSNL/MTNL Subscribers only)
Website : www.selec.com | Email : sales@selec.com

1. PRODUCT PROFILE



Figure 1.1 : Front view

2. DESCRIPTION

- FL-GT35-LG-X-X-X as shown in Figure 1.1 is used as a plug-in module in Flexys Rail and not as an independent module.
- RTC with time switch function
- RS485 based communication with modbus RTU protocol
- Proprietary based communication with proprietary protocol (Optional)

3. ELECTRICAL SPECIFICATIONS

Operating Temperature	0 to 55°C
Storage Temperature	-20 to 70°C
Humidity	95%
Weight (g)	40

FUNCTIONAL SPECIFICATIONS (CPU)

Programming Language	Windows based user friendly software for ladder logic programming [SELPRO]
Memory	Program Memory : 351 kB
	Data Memory : 20 kB
	Upload Memory : 96 kB
	EEPROM Memory : 4 kB
Scan Time	1 ms (Typical 400 µs)
Function Blocks	Timer On delay, Timer Off delay, Pulse Timer, Special Timer, Up/Down Counter, Time Switch, PID control etc.
RTC	Yes
Memory Retention	10 Years
Battery Life	10 Years

Internal Pinout description for 6 pin jack (port 1)

PIN	DESCRIPTION
1	RS485 Slave +ve
2	RS485 Master +ve
3	RS485 Master -ve
4	Proprietary Expansion +ve
5	Proprietary Expansion -ve
6	RS485 Slave -ve

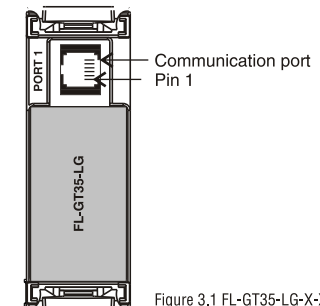
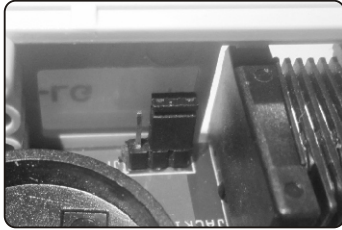


Figure 3.1 FL-GT35-LG-X-X-X Front View

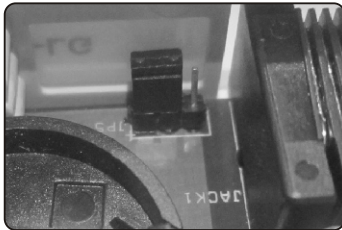
BOOTLOADER MODE :

i) Remove Card and change jumper position as shown below :



ii) Insert card and turn on unit, after few seconds you will see NO Ladder message on display at this moment you can download ladder.

iii) After ladder download change jumper position to Run Mode as shown below :



COMMUNICATION

Communication Port-Port 1	RS485 Slave
	RS485 Master for modbus RTU Expansion Module (Optional) (IO610 series, EXP-FLEX-2M)
	Proprietary Master for proprietary Expansion Module (Optional) (IO630 series)
Communication Protocol	Modbus RTU
	Proprietary Protocol
Baud Rate	2400, 4800, 9600, 19200, 38400, 57600, 115200 (user configurable via software) Default = 19200

RIOS (Remote Input/Output Stations)

Max. number of Slave	127
Communication Link	Port 1 – RJ25(6 Pin)
Standard Link Interface	Modbus RTU
Communication Network	RS485
Error detection	Yes

SOFTWARE DETAILS

- User needs to configure I/O cards in Programming software (SELPRO)
- For details of the software and configuration method, please refer to the software user manual.

4. FL-RL-LG-X-X-X ORDER CODE

FL – GT35 – LG – X – X – X

PLC Series	Product name	Card	Proprietary Expansion	Master RS485	RTC
Flexys	GT35	CPU card	0 : Absent	0 : Absent	0 : Absent
			1 : Present	1 : Present	1 : Present

5. SAFETY SUMMARY

- Conductors must not come in contact with the internal circuitry of the controller or else it may lead to a safety hazard that may cause electrical shock to operator.

DISCLAIMER LIABILITY

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OP619-V01

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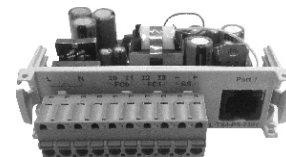


Figure 1.1 : FL-GT35-DI04-PS-230V

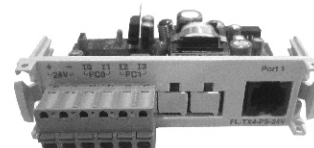


Figure 1.2 : FL-GT35-DI04-PS-24V

2. DESCRIPTION

- FL-GT35-DI04-PS-230V/
FL-GT35-DI04-PS-24V as shown in
Figure 1.1 and Figure 1.2 are used as a plug-in
module in Flexys GT35 and not as an
independent module.
- 4-Digital Inputs (can function as Fast Inputs)
- Sensor Supply in FL-GT35-DI04-PS-230V

3. ELECTRICAL SPECIFICATIONS

Parameter	FL-GT35-DI04-PS-230V	FL-GT35-DI04-PS-24V
Supply Voltage	230V AC (90 ~ 270V AC)	24V DC (±10% V DC)
Sensor Supply (SS)	10V (100 mA)	NA
Power Consumption	18 VA	8 W
Reverse polarity protection	NA	Yes
Voltage interruption	Up to 10 ms	
Operating Temperature	0 to 55°C	
Storage Temperature	-20 to 70°C	
Humidity	95%	
Connector	Spring type pluggable terminal block (5.08 mm pitch)	
Weight (g)	90	80

NOTE : FL-GT35-DI04-PS-230V card limitations 1) Maximum 1 FL-SC-RO08 cards
2) Maximum 1 FL-SC-AO04-X card
3) Not supported FL-SC-AO04-X if FL-SC-RO08 used and vice-versa.
4) Maximum 2 FL-SC-DI04-RO04 cards.

Where X = V/I

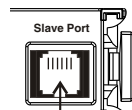
COMPLIANCE WITH STANDARD

EMC/EMI compliance	IEC61131-2, Clause 8
Safety compliance	IEC61131-2, Clause 11
Immunity Zone	Zone A
Power supply FL-GT35-DI04-PS-24V	PS2, Safety Extra Low Voltage Circuit

DIGITAL INPUTS		*1 = 90° Phase shift signals				
Number of Digital Input		4 (Including 4 Fast Inputs)				
Input Type		DC, PNP				
Operating Modes (user configurable)		Unidirectional / Bidirectional / Quadrature / Dual Unidirectional / None				
Channel	DI	MODE				
		UNI	BI	QUAD	DUAL UNI	None
FC0	I0	Rate Totalizer	Rate Totalizer	1st input*1	Rate Totalizer	Digital Input
	I1	Digital Input	Direction	2nd input*1	Totalizer	Digital Input
FC1	I2	Rate Totalizer	Rate Totalizer	1st input*1	Rate Totalizer	Digital Input
	I3	Digital Input	Direction	2nd input*1	Totalizer	Digital Input
Operating Range		6 ~ 30V DC (V+)				
Input current		8mA Max				
Action Level	ON → OFF	<2V DC				
	OFF → ON	≥6V DC				
Response Time		Digital Input mode : typical 1 ms (based on ladder scan time)				
		Fast Input mode : 100µsec				
Input Impedance		3.3 kΩ				
Debounce Time		0 ~ 255ms (Default = 10ms)				
Maximum Frequency (Fast inputs)		5 kHz				
Isolation		2.2 kV (CPU and Inputs)				
Protection against polarity inversion		Yes				
Existence of common points between channels		SS- / GND				
Effect of incorrect input terminal or withdrawing / inserting input module under power		Unstable responses or input / product damage				

4. INTERNAL PIN OUT DESCRIPTION FOR 6 PIN JACK (PORT 1)

	DESCRIPTION
1	RS485 Slave +ve
2	—
3	—
4	—
5	—
6	RS485 Slave -ve



PIN 1

5. TYPICAL WIRING DIAGRAM

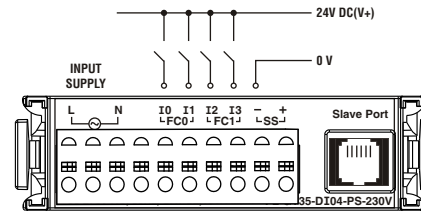


Figure 5.1 : Digital inputs via external 24V supply

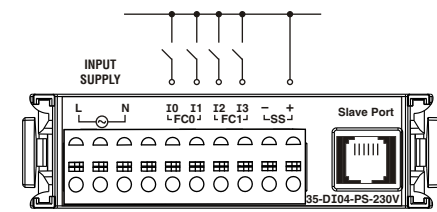


Figure 5.2 : Digital Inputs using internal 10V power supply

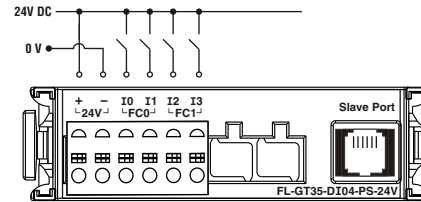


Figure 5.3 : FL-GT35-DI04-PS-24V wiring diagram

6. SAFETY SUMMARY

- To prevent risk of electric shock, power supply to the controller must be kept off while wiring.
- Wiring shall be done strictly according to the terminal layout provided in the operating manual.
- When operating FL-GT35-DI04-PS-24V, ensure that power at its terminal is +24V and GND (power range is 21.6V DC ~ 26.4V DC). When voltage is less than 18V DC, Controller will stop operating and all on board outputs will turn OFF.

7. ORDER CODE INFORMATION

ORDER CODE	DESCRIPTION
FL-GT35-DI04-PS-230V	230V AC Power Supply
FL-GT35-DI04-PS-24V	24V DC Power Supply

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