

Preface

Thank you for purchasing Digital's Pro-face GP-477R/577R Series of Graphic Control Panels (hereafter referred to as the "GP unit").

These GP units, with their expanded user functionality and improved overall performance, are an upgrade of Digital's GP70 series panels.

Please read this manual carefully as it explains, step by step, how to use the GP correctly and safely.

Also, in this manual's examples, the Mitsubishi MELSEC-AnA Series PLC is used whenever possible, connected in a one-to-one relationship with a GP.

The GP-477R and GP-577R Series refers to the following GP model numbers:

GP-477R Series GP477R-EG11 (Standard unit)

GP477R-EG41-24VP (CE-marked, cUL compliant)

GP-577R Series GP577R-TC11, GP577R-SC11 (Standard unit)

GP577R-TC41-24VP (CE-marked, cUL compliant)

* Here, "Standard unit" refers to units that have not received either CE or UL approval.

The GP477R-EG41-24VP and GP577R-TC41-24VP graphic panels are CE-marked products that comply with the following, relevant EMC directives.

EN55011 class A

EN50082-2 (GP477R-EG41-24VP)

EN50081-2 (GP577R-TC41-24VP)

<Note>

- 1) It is forbidden to copy the contents of this manual, in whole or in part, except for the user's personal use, without the express permission of the Digital Electronics Corporation of Japan.
- 2) The information provided in this manual is subject to change without notice.
- 3) This manual has been written with care and attention to detail; however, should you find any errors or omissions, please contact Digital Electronics and inform them of your findings.
- 4) Please be aware that we are not responsible for any damages resulting from the use of our products, regardless of article 3 above.

All Company/Manufacturer names used in this manual are the registered trademarks of those companies.

© Copyright 1998, Digital Electronics Corporation

UL/c-UL (CSA) Application Notes

The GP477R-EG41-24VP and the GP577R-TC41-24VP graphic panels are both cUL compliant (UL file No.E182139).

The GP complies with the following standard:

- UL508

Industrial Control Equipment

- UL1604

Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations

- CAN/CSA-C22.2, Nos.142, and 213-M1987

Standards regarding the safety of the information technology equipment including electrical office appliances

GP477R-EG41-24VP (UL file No.: 2780027-01)

GP577R-TC41-24VP (UL file No.: 2780027-02)

- This unit must be installed so that its front face faces the user.
- If natural air cooling is used, the GP must be installed into an upright panel. In addition, an open space of 100 mm or more is required in all directions behind the unit's rear face. Unless this requirement is satisfied, the temperature inside the GP's components may rise beyond the limit specified by the UL standards.

UL1604 Compliance Conditions and Operating Precautions

1. Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods, Article 501-4 (b) of the National Electrical Code, NFPA 70 or as specified in Section 18-152 of the Canadian Electrical Code for installations within Canada and in accordance with the authority having jurisdiction.
2. Suitable for use in Class I, Division 2, Groups A, B, C and D hazardous location, or nonhazardous locations only.
3. WARNING: Explosion hazard-substitution of components may impair suitability for Class I, Division 2.
4. WARNING: Explosion hazard-do not disconnect equipment unless power has been switched off or the area is known to be nonhazardous.
5. WARNING: Explosion hazard-when in hazardous locations, turn off power before replacing or wiring modules.

CE Marking Notes

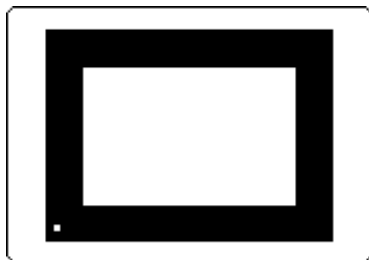
The GP477R-EG41-24VP and GP577R-TC41-24VP graphic panels are CE-marked products that conform to EMC directives. EN55011 class A, EN50082-2 (GP477R-EG41-24VP), and EN50081-2, and EN50082-2 (GP577R-TC41-24VP).

Package Contents

The GP's packing box contains the items listed below. Please check to confirm that all items shown below have been included.*1

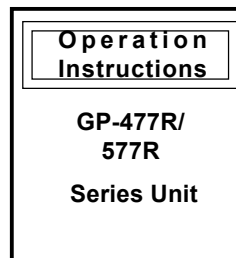
GP Unit

GP477R-EG11, GP477R-EG41-24VP
GP577R-TC11, GP577R-TC41-24VP
GP577R-SC11

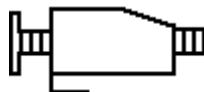


Operation

Instructions (1)



Installation fasteners (4/set)



This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local GP distributor immediately for prompt service.

*1 This manual (GP-477R/577R Series User's Manual) is sold separately.

Chapter 2

Specifications

1. General Specifications
2. Features and Performance
3. Interface Specifications
4. Names and Functions of GP Parts
5. Graphic Panel Dimensions

2.1 General Specifications

1. Electrical Specifications



Depending on the type of GP used, the electrical specifications can vary. Therefore, always confirm that the electrical specifications used are correct.

■ GP477R-EG11, 577R-TC11, 577R-SC11

	GP477R-EG11	GP577R-TC11	GP577R-SC11
Rated Power Supply	AC 85V~ 132V 50/60 Hz		
Power Consumption	50 VA or less		
Allowable Pause Duration	20ms or less		
Voltage Endurance	AC1500V—20mA 1minute (between the live wire and grounding terminals)		
Insulation Resistance	DC500V—above 10MΩ (between the live wire and grounding terminals)		

■ GP477R-EG41-24VP, 577R-TC41-24VP

	GP477R-EG41-24VP	GP577R-TC41-24VP
Rated Power Supply	DC24V±20%	
Power Consumption	50W or less (TYP 20W)	
Allowable Pause Duration	20ms or less	
Voltage Endurance	AC1000V—10mA 1minute (between the live wire and grounding terminals)	
Insulation Resistance	DC500V—above 10MΩ (between the live wire and grounding terminals)	

2. Environmental Specifications

	GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11
Ambient Operating Temperature	0 to 50 degrees Celsius	0 to 40 degrees Celsius	
Ambient Storage Temperature	-10 to 60 degrees Celsius		
Operating Humidity	20 to 85%RH (non-condensing)	30 to 85%RH (non-condensing)	
Vibration Resistance	10 to 25 Hz (X, Y, Z directions 30 minute each 2G)		
Noise Immunity (via noise simulator)	Noise voltage: 1200 Vp-p (1000 Vp-p for GP477R-EG41-24VP and GP577R-TC41-24VP)		
	Pulse length: 1 microsecond		
	Arise time (rise/fall): 1 nanosecond		
Operating Atmosphere	Must be free of corrosive gasses		
Grounding	100 Ω or less grounding resistance		
Rating *1	Equivalent to IP65f (JEM 1030) and NEMA #250 TYPE4X12		

3. Structural Specifications

	GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11
External Dimensions (mm)	274W x 216H x 56.5D mm (GP unit only)	317W x 243H x 85D mm (GP unit only)	
Weight	Under 2.5 kg (GP unit only)	Under 3.5 kg (GP unit only)	
Cooling Method	Natural air circulation		

***1** The front face of the GP unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the GP unit's level of resistance is equivalent to these standards, oils that should have no effect on the GP can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the GP's front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the GP and separate protection measures are suggested. Also, if non-approved oils are present, it may cause deformation or corrosion of the front panel's plastic cover. Therefore, prior to installing the GP be sure to confirm the type of conditions that will be present in the GP's operating environment. If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed. To maintain the original protection level, you need to replace the installation gasket regularly.

2.2 Features and Performance

1. Display Features

		GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11	
Display Medium		High Intensity EL Display	TFT type color LCD	STN type color LCD	
Display Color		Amber (monochrome)	64 colors (RGB-4 levels)	64 colors *1	
Backlight			CCFL (lifespan = 40,000 hours)	CCFL (lifespan = 25,000 hours)	
Resolution		640 x 400 pixels	640 x 480 pixels		
Display Area		192W x 120H	211.2W x 158.4H		
Attributes		Blink/Reverse Video			
Brightness		Two levels available via touch panel.	Four levels of adjustment available via touch panel.		
Contrast					8 levels available
Character Sets		Korean: (KSC5601 - 1992 codes) Hangul fonts (including Kanji)			
		Chinese: (GB2321-80 codes) simplified Chinese fonts			
		Taiwanese: (Big 5 codes) traditional Chinese fonts			
		ASCII: (Code Page850) Alphanumeric (incl. European fonts)			
		Japanese: ANK 158 type, Kanji:6962 (Standard JIS Type 1 & 2)			
No. of Char. Disp.	8x8 dots	80 Char./row, 50 rows	80 Char. per row, 60 rows		
	8x16 dots	80 Char./row, 25 rows	80 Char. per row, 30 rows		
	16x16 dots	40 Char./row, 25 rows	40 Char. Per row, 30 rows		
Character Size		Both height and width can be expanded 1, 2, 4, or 8 times. Chinese characters larger than 2 times size (32 x 32) can be displayed in a high quality font.			

*1 With the GP577R-SC11, when more than the standard 8 colors are used for display, flickering may occur.

2. Screen Memory

	GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11
Internal Memory	FLASH EPROM 2M bytes (approx. 640 screens assuming 3.2K bytes/screen)		
Backup Memory	SRAM 96K bytes Backup Memory uses lithium batteries. *1		

3. Touch Panel / Clock Accuracy

	GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11
Touch Panel	32 x 20 keys/ screen (1 or 2 point touch)	32 x 24 keys/ screen (1 or 2 point touch)	
Clock Accuracy	± 65 seconds/ month (at room temperature)		

**1 The battery life of the GP-477R/577R's lithium battery, when the battery is 40°C or less is over 10 years. At 50°C or less it is over 4.1 years, and at 60°C or less it is more than 1.5 years.*



- **The GP's internal clock has a slight error. At normal operating temperatures and conditions, with the GP operating from its lithium battery, the degree of error is 65 seconds per month. Variations in operating conditions and battery life can cause this error to vary from +90 to -380 seconds per month. For systems where this degree of error will be a problem, the user should be sure to monitor this error and make adjustments when required.**
- **To input the correct time into the System Data Area's time settings, use the GP's OFFLINE mode. (Date information can be entered as well)**

4. External Interfaces

	GP477R-EG11 GP477R-EG41-24VP	GP577R-TC11 GP577R-TC41-24VP	GP577R-SC11
Serial Interface	Asynchronous RS232C/RS422 (Supports various Data Length: 7 or 8 Stop Bit: 1 or 2 bits Parity: None, Odd or Data Transmission		
Auxiliary	Touch Switch Output System Alarm Buzzer Output: RUN Output: DC24V Remote Reset Input:		
Printer Output	Conforms to Centronix standards. Compatible for NECPC-PR201/PL, EPSON ESC/P24-J84(C), HP Laser Jet PCL4 Command Converters. Dedicated Windows (95,98, NT) printers cannot be used. Be sure when selecting a printer that the unit supports the HP LaserJet PCL, NEC PR Series, EPSON ESC/P24-J84 or equivalent protocol. Certain printers containing both Windows and DOS printer drivers may be used. Please contact your local GP distributor for details.		
Tool Connector	Synchronous TTL level nonprocedure command I/F <When developed> Used for downloading from the GP application soft. <When operated> Used as a bar code reader's interface		

7.2 Periodic Check Points

To keep your GP unit in its best condition, please inspect the following points periodically.

GP Operation Environment

- Is the operating temperature within the allowable range?
(0°C to 50°C for GP-477R**; 0°C to 40°C for GP-577R**)
- Is the operating humidity within the specified range?
(20% RH to 85% RH for GP-477R**; 30% RH to 85% RH for GP-577R**)
- Is the operating atmosphere free of any corrosive gasses?

Electrical Specifications

- Is the input voltage correct?
Units using AC 85 to 132V:
GP477R-EG11, GP577R-TC11, GP577R-SC11
Unit using DC 24V±20%:
GP477R-EG41-24VP, GP577R-TC41-24VP

Related Items

- Is are all cables connected properly? Are they loose?
- Are all mounting brackets holding the unit securely?
- Are there many scratches or traces of dirt on the installation gasket?