Pro-face®

The birth of a new standard display that revolutionizes operator interfaces

Introducing the ST3000 Series - a new approach to operator interfaces

Graphic Operator Interfaces

ST3000 SERIES

Flexible system responsiveness of programmable Operator Interfaces give you the power and flexibility you need

10.4-inch

10.4-inch model with slim frame makes assemblies much more streamlined!

VGA 640 × 480

ST-3501T AC Model
Model AST3501-T1-AF
Display Device TFT Color LCD
Display Colors 256 Colors (No Blink) / 64 Colors (3-speed Blink)

ST-3501T DC Model
Model AST3501-T1-D24
Display Device TFT Color LCD
Display Colors 256 Colors (No Blink) / 64 Colors (3-speed Blink)

ST-3501C AC Model
Model AST3501-C1-AF
Display Device Color LCD
Display Colors 16 Colors

ST-3501C DC Model
Model AST3501-C1-D24
Display Device Color LCD
Display Colors 16 Colors

USB Host | CF Card | SIO 2ch RS-232C/422

7.5-inch

7.5-inch VGA display enables assemblies to be more compact

VGA 640 × 480

Spring. 2007

ST-3401T DC Model
Model AST3401-T1-D24
Display Device TFT Color LCD
Display Colors 256 Colors (No Blink) / 64 Colors (3-speed Blink)

USB Host | CF Card | SIO 2ch RS-232C/422

5.7-inch

Popular 5.7-inch size shows more performance than specifications

QVGA 320 × 240

ST-3301S DC Model
Model AST3301-S1-D24
Display Device STN Color LCD
Display Colors 256 Colors (No Blink) / 64 Colors (3-speed Blink)

ST-3301B DC Model
Model AST3301-B1-D24
Display Device Monochrome Blue Mode LCD
Display Colors Blue and White (8 Shades)

USB Host | SIO 2ch RS-232C/422

3.8-inch

Compact 3.8-inch QVGA display delivers excellent display clarity

QVGA 320 × 240

ST-3201A DC Model
Model AST3201-A1-D24
Display Device Monochrome Amber/Red LCD
Display Colors Black and White (8 Shades)

ST-3211A DC Model
Model AST3211-A1-D24
Display Device Monochrome Amber/Red LCD
Display Colors Black and White (8 Shades)

USB Host | SIO 2ch ST-3201A:RS-232C/422 ST-3211A:RS-232C/485

USB Host

CF Card

SIO 2ch

COM1
RS-232C

COM2
RS-422 Except for ST-3211A
RS-485* ST-3211A only
* MPI 187.5kbps

Model types

AST3 ☐ ☐ 1 — ☐ 1 —

Screen size	I/O type	Display device
5 10.4 inch	0:SIO type	A Monochrome amber/red LCD
4 7.5 inch	1:MPI type	B Monochrome Blue mode LCD
3 5.7 inch		C color LCD
2 3.8 inch		S STN color LCD
		T TFT color LCD

User-friendly Operation

GP-Pro EX simplifies the engineer's goal - combining design with functionality. Now you can easily create ideal user interfaces.

Stroke Font
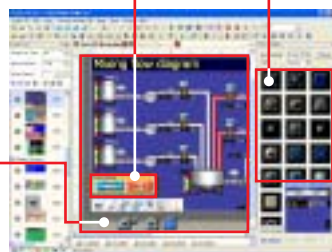Beautiful stroke fonts provide greater layout flexibility. They can be bolded, outlined and smoothly enlarged / reduced in single-dot increments.
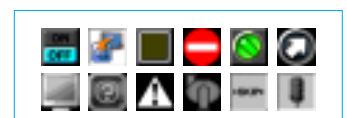
Analog Touch Panel
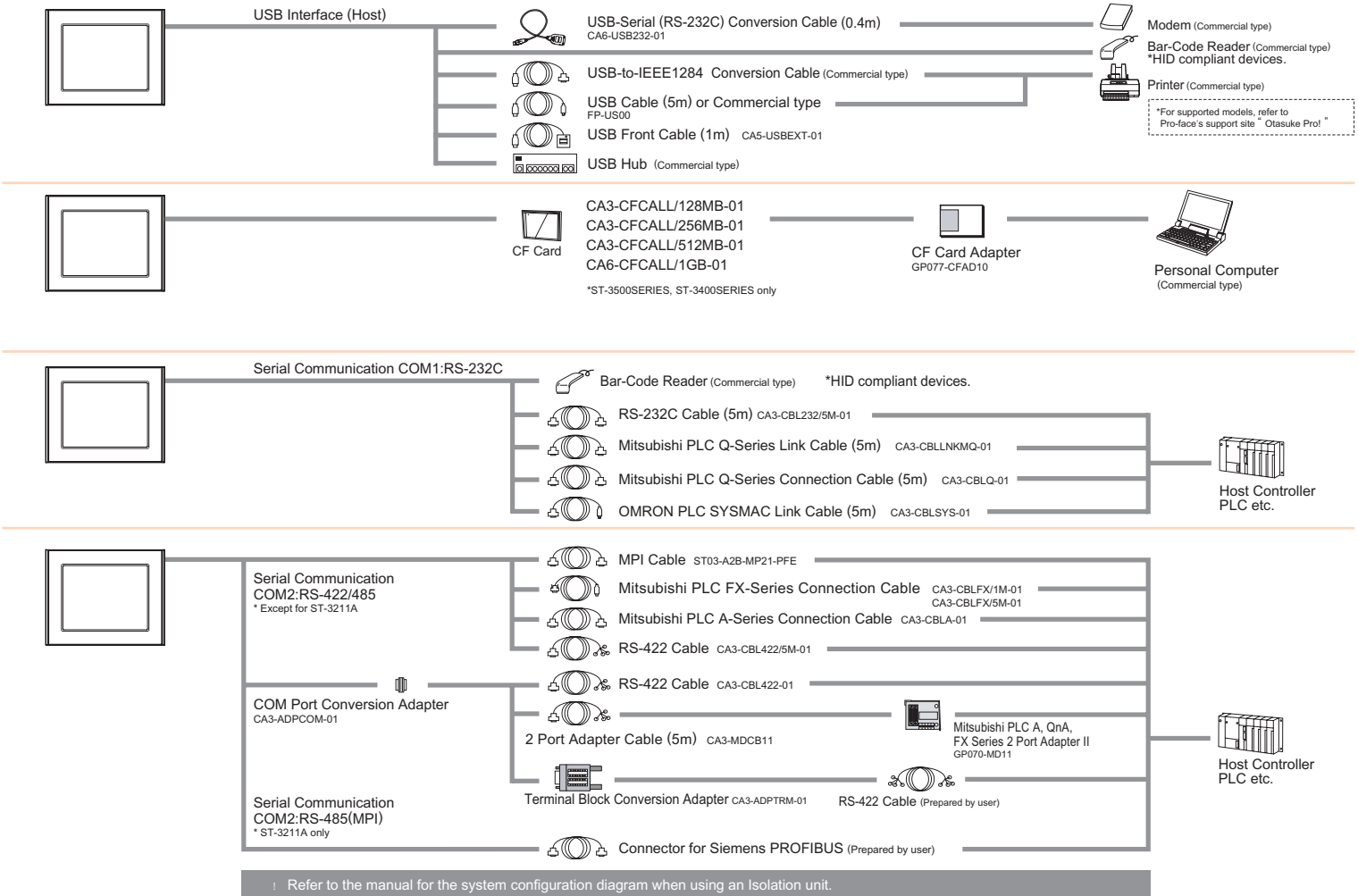The screen has no grid. Parts can be placed wherever desired

Parts Toolbox
Parts toolbox improves visualization of the arrangement of parts on the screen.

drag & drop

A wide variety of parts are prepared.
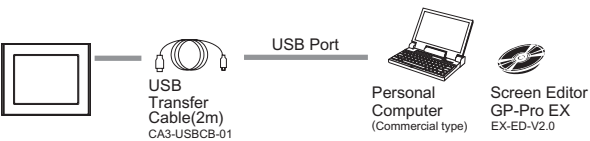A wide variery of images can be created.

System Structure

USB Interface (Host)

USB-Serial (RS-232C) Conversion Cable (0.4m) CA6-USB232-01 — Modem (Commercial type)

Bar-Code Reader (Commercial type) *HID compliant devices.

USB-to-IEEE1284 Conversion Cable (Commercial type)

Printer (Commercial type)

USB Cable (5m) or Commercial type FP-US00

*For supported models, refer to Pro-face's support site ˝ Otasuke Pro! ˝

USB Front Cable (1m) CA5-USBEXT-01

USB Hub (Commercial type)

CF Card — CA3-CFCALL/128MB-01 / CA3-CFCALL/256MB-01 / CA3-CFCALL/512MB-01 / CA6-CFCALL/1GB-01

*ST-3500SERIES, ST-3400SERIES only

CF Card Adapter GP077-CFAD10 — Personal Computer (Commercial type)

Serial Communication COM1:RS-232C

Bar-Code Reader (Commercial type)   *HID compliant devices.

RS-232C Cable (5m) CA3-CBL232/5M-01

Mitsubishi PLC Q-Series Link Cable (5m) CA3-CBLLNKMQ-01

Mitsubishi PLC Q-Series Connection Cable (5m) CA3-CBLQ-01

OMRON PLC SYSMAC Link Cable (5m) CA3-CBLSYS-01

Host Controller PLC etc.

Serial Communication COM2:RS-422/485 * Except for ST-3211A

MPI Cable ST03-A2B-MP21-PFE

Mitsubishi PLC FX-Series Connection Cable CA3-CBLFX/1M-01 / CA3-CBLFX/5M-01

Mitsubishi PLC A-Series Connection Cable CA3-CBLA-01

RS-422 Cable CA3-CBL422/5M-01

RS-422 Cable CA3-CBL422-01

COM Port Conversion Adapter CA3-ADPCOM-01

2 Port Adapter Cable (5m) CA3-MDCB11

Mitsubishi PLC A, QnA, FX Series 2 Port Adapter II GP070-MD11

Host Controller PLC etc.

Serial Communication COM2:RS-485(MPI) * ST-3211A only

Terminal Block Conversion Adapter CA3-ADPTRM-01   RS-422 Cable (Prepared by user)

Connector for Siemens PROFIBUS (Prepared by user)

Refer to the manual for the system configuration diagram when using an Isolation unit.

Option List

Power supply
AF AC100-240V Applicable
D24 DC24V Applicable

Product Name		Model No.	Applicable series (ST)	Description
Panel Cutout Adapter		CA4-ATM10-01	10.4 inch	Panel cutout adapter for mounting 10.4 inch in cutout of GP-2500/GP-2600.
		CA4-ATM5-01	5.7 inch	Panel cutout adapter for mounting 5.7 inch in cutout of GP-37W2B.
Protection Sheet		CA5-DFS10-01	10.4 inch	Disposable, dirt-resistant sheet for the ST unit's screen. (5 sheets/set) (Hard type)
		CA3-DFS6-01	5.7 inch	
		CA6-DFS4-01	3.8 inch	
Repair Items*1	Installation Gasket	CA5-WPG10-01	10.4 inch	Provides dust and moisture resistance when ST is installed into a solid panel.
		CA3-WPG6-01	5.7 inch	
		ST400-WP01	3.8 inch	
	Connector Cover	CA3-BUSCVR-01	5.7 inch/ 10.4 inch	Protects the ST unit's rear face connector. (Large size and small size each 1)
	USB Cable Clamp (1 port)	CA5-USBATM-01	5.7 inch	USB Cable clamp for 1 port products to prevent disconnection. (Set of 5 cable clamps)
	USB Cable Clamp (2 ports)	CA5-USBATL-01	3.8 inch/ 10.4 inch	USB Cable clamp for 2 port products to prevent disconnection. (Set of 5 cable clamps) *2
	DC Power Supply Connector for Medium-sized Units	CA5-DCCNM-01	3.8 inch/ 5.7 inch	Connector for attaching power supply to medium-sized units. (Set of 5 connectors)
	DC Power Supply Connector for Large-sized Units	CA5-DCCNL-01	10.4 inch *3	
	Installation Fastener	CA3-ATFALL-01		Used to install the ST into a solid panel. 1 set for 4 fasteners

*1 ST bundles maintenance items. You only need to purchase new items in case of breakage or loss.
*2 3.8 inch must use the 2 port USB Cable Clamp (CA5-USBATL-01).
*3 DC type only.

Edit Mode Peripherals

USB Port

USB Transfer Cable(2m) CA3-USBCB-01

Personal Computer (Commercial type)

Screen Editor GP-Pro EX EX-ED-V2.0

With memory loader tool, the screens can be transferred via CF card and USB memory.
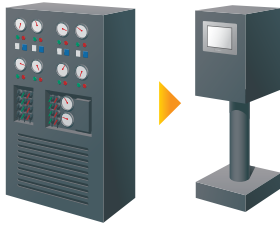
Operating Environment

PC	PC Models on which Window® runs normally.
OS	Windows® 2000(Service Pack 3 or later), Windows® XP(Home Edition/Professional Edition). *Administrator permission is necessary when you install this product.
CPU	Pentium®III 800MHz or more(Pentium®4 1.3GHz or above is recommended.)
Resolution	SVGA 800x600 or above is recommended. A display of 256 or more colors is required.
Memory	512MB or more (1GB or more is recommended)
Hard Disk Space	400MB or more *enough free space to Install GP-Pro EX
Languages — Software Menu	English, Japanese (German, Italian, Frebch, Spanish, Chinese, Taiwanese, Korean)* *Language Pack is required for these languages. For more details, contact your Pro-face sales representative.
Languages — Languages that the Hardware can Display	European languages, Japanese, Korean, Simplified and Traditional Chinese, Thai, Cyrillis Alphabet. *To input languages other than English and Japanese for the 'Languages that the ST can Display', you need to add eache language's FEP and fonts.
Each Language's FEP	Windows® 2000(Service Pack 3 or later), Windows® XP(Home Edition/Professional Edition)supported FEP
Others	.NET Framework Ver.1.1(Service Pack1) *.NET Framework Ver.1.1(Service Pack1)installed automatically is on a PC without it.
	Microsoft® Internet Explorer Ver.6.0 or later
	Adobe® Reader® Ver.6.0.2 or later
	Mouse, CD-ROM Drive(necessary only at the time of installation)and printer supported by the above OS
	internet connection is required for the online update feature and the online user registration.

NOTE:When using a screen from PC, USB port for downloading screen is necessary.

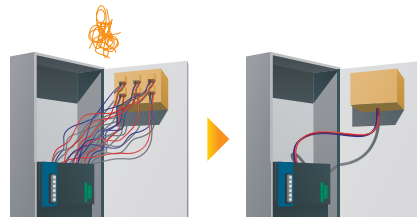# Based on the concept that the display makes taskes so much easier.

Streamlined and compact

For even greater streamlining!

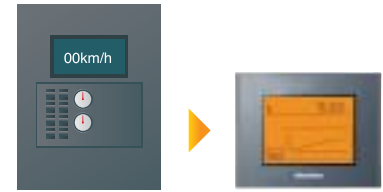All switches, lamps and meters, etc., can be rendered on the touch screen for space savings.

Even the wiring is more streamlined

Easy Maintenance！

Single-cable connections enable simple wiring regardless of the number of switches or lamps added.

Easy-to-understand display

00km/h

Easily seen at a glance!

Machinery status intuitvely visible and easy to understand with graphic objects.

Full complement of functions in the ST3000 Series
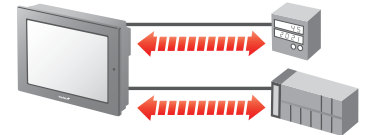
＜ Accommodates USB data storage ＞

・ You can easily transport data with commercially available USB storage media.
・ The optional USB cable (for the front-mounted USB port) offers greater data portability.

＜ SIO 2ch serial ports provided as standard ＞

・ ST3000 can communicate simultaneously with devices such as PLC, Temperature and Process Controllers.
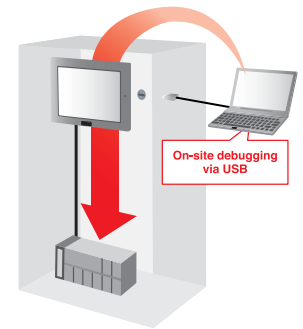・ COM1:RS-232C COM2:RS-422/485

＜ Device Monitor ＞

・ The PLC device data clearly appears on the screen.
・ With its enhanced support for various protocols, the ST3000 Series securely a variety of device.

＜ Pass-through ＞

・ Via USB cable the debug becomes supremely user-friendly.

On-site debugging via USB

Supported PLC models

YASKAWA Electrics Corporation
・MP Series SIO（Extension）・MP Series Ethernet（Extension）
YOKOGAWA Electrics Corporation
・Personal Computer Link SIO ・Personal Computer Link Ethernet
MITSUBISHI Electrics Corporation
・Q Series with CPU direct connection ・QnA Series with CPU direct connection
・QUTE Series with CPU direct connection

More Flexible Application of Data Assets

Text Tables

Easily switch between various languages on the same screen. Simply use copy & paste functions to place data into the text table after translation in CSV or Excel format. The number of lines in the text table is up to 10,000.

File Converter

Your screen data resources created with GP-PRO/PBⅢ can be converted for use in GP-Pro EX.

PC Simulation

If you change values of a device on another window,you can carry out that change to simulate on your computer screen.

Resolution Converter

Project data can be automatically converted according to the resolution each ST provides.Therefore, converting process for adjusting to a different screen size is dramatically reduced.

Main Specifications

FUNCTIONAL SPECIFICATIONS	10.4-inch				5.7-inch		3.8-inch	
	AST3501-T1-AF	AST3501-T1-D24	AST3501-C1-AF	AST3501-C1-D24	AST3301-S1-D24	AST3301-B1-D24	AST3201-A1-D24	AST3211-A1-D24
International Safety Standards	ᴿᵁ ᴿᵁ CE		ᴿᵁ ᴿᵁ CE		ᵁᴸ CE		ᵁᴸ CE	
Display Type	TFT Color LCD		Color LCD		STN color LCD	Monochrome blue mode LCD	Monochrome LCD	
Display Colors	256 colors (no blink) / 64 colors (3-speed blink)		16 colors		256 colors (no blink) / 64 colors (3-speed blink)	8-shade display	8-shade monochrome	
Display Resolution	640× 480 dots						320× 240 dots	
Brightness Control	8 gradations (adjustable via touch panel)				8 gradations (adjustable via touch panel)		16 gradations (adjustable via touch panel)	
Contrast Adjustment					8 gradations (adjustable via touch panel)		8 gradations (adjustable via touch panel)	
Text Composition — Language Fonts	Japanese: 6962 (JIS standards 1 & 2 including 607 non-kanji characters) ANK: 158 (Korean fonts, Simplified Chinese and Taiwanese traditional Chinese fonts are downloadable)							
Text Composition — Character Sizes	Standard font: 8 x 8, 8 x 16, 16 x 16 and 32 x 32 dot fonts, Stroke font: 6 to 127 dot fonts							
Text Composition — Font Sizes	Standard font: Width can be expanded up to 8 times. Height can be expanded up to 8 times *1							
Text — 8 x 8 dots	80 char. × 60 rows						40 char. × 30 rows	
Text — 8 x 16 dots	80 char. × 30 rows						40 char. × 15 rows	
Text — 16 x 16 dots	40 char. × 30 rows						20 char. × 15 rows	
Text — 32 x 32 dots	20 char. × 15 rows						10 char. × 7 rows	
Memory — Application	6 MB FLASH EPROM *2							
Memory — Data Backup	320 KB SRAM							
Touch Panel — Type	Resistive film (analog)							
Touch Panel — Resolution	1024× 1024							
Interface — Serial Interface (COM1)	Asynchronous Transmission: RS-232C, Data Length: 7 or 8 bits, Parity: None, Odd or Even, Stop Bit: 1 or 2 Bits, Data Transmission Speed: 2400 bps to 115.2 kbps, Connector: D-Sub 9-pin plug							
Interface — Serial Interface (COM2)	Asynchronous Transmission: RS-422/485 (ST-3211A only as for RS-485), Data Length: 7 or 8 bits, Stop Bit: 1 or 2 bits, Parity: none, Odd or Even, Data Transmission Speed: 2400 b ps to 115.2kbps,(MPI: 187.5kbps *3), Connector: D-Sub 9pin plug							
Interface — USB Interface	USB Interface USB1.1, USB TYPE A connector x 1							
Interface — CF Card Interface	CF card slot (TYPE-) × 1							

GENERAL SPECIFICATIONS	10.4-inch				5.7-inch		3.8-inch	
	AST3501-T1-AF	AST3501-T1-D24	AST3501-C1-AF	AST3501-C1-D24	AST3301-S1-D24	AST3301-B1-D24	AST3201-A1-D24	AST3211-A1-D24
Rated Voltage	AC100V to AC240V	DC24V	AC100V to AC240V	DC24V	DC24V			
Rated Voltage Range	AC85V to AC265V	DC19.2V to DC28.8V	AC85V to AC265V	DC19.2V to DC28.8V	DC19.2V to DC28.8V			
Power Consumption	AC100V 0.90A or less TYP0.48A / AC240V 0.45A or less TYP0.26A	45W or less	AC100V 0.90A or less TYP0.48A / AC240V 0.45 A or less TYP0.26A	45W or less	18W or less		13W or less	
Insulation Resistance	10M or higher at DC500V (between charging and FG terminals)							
Operating Temperature	0 to +50 *4							
Storage Temperature	-20 to +60							
Vibration Resistance	IEC61131-2 (JIS B 3502) compliant 5 Hz to 9 Hz single amplitude 3.5 mm 9 Hz to 150 Hz fixed acceleration 9.8 m/s2 X, Y, Z directions for 10 times (100 min.)							
Noise Immunity (Via noise simulator)	Noise Voltage: 1500 Vp-p / Pulse Duration: 1 μ s / Rise Time: 1 ns	Noise Voltage: 1000 Vp-p / Pulse Duration: 1 μ s / Rise Time: 1 ns	Noise Voltage: 1500 Vp-p / Pulse Duration: 1 μ s / Rise Time: 1 ns	Noise Voltage: 1000 Vp-p / Pulse Duration: 1 μ s / Rise Time: 1 ns	Noise Voltage: 1000 Vp-p Pulse Duration: 1 μ s Rise Time: 1 ns			
Grounding	Functional Grounding: D-type grounding (SG-FG common)							
Protection Ratings	Equivalent to IP65f NEMA #250 TYPE 4X/13 *5 (For front panel of installed unit)						During the NEMA acquisition	
Weight	2.5 kg (5.5 lb.) or less				1.0 kg (2.2 lb.) or less		0.4 kg (1lb.) or less	

*1 Font sizes can be set up via software in addition to the sizes given above. *2 Indicates the available user area. *3 SIEMENS SIMATIC S7-200/300/400 series (MPI port only).
Please contact your Pro-face sales representative for supported models and other details. *4 Operating temperature refers to temperature inside mounting enclosure.
*5 The degree of protection provided by these products is equivalent to IP65f, however their performance cannot be guaranteed for every environment. Be sure to confirm your work environment requirements prior to installation.

External Dimensions, Parts Names & Panel Cut-out Dimensions

ST-3501T/ST-3501C

10.4-inch

External Dimensions & Parts Names

Panel Cut-out

Units : mm[in.]

Units : mm[in.]

ST-3301S/ST-3301B

5.7-inch

External Dimensions & Parts Names

Panel Cut-out

Units : mm[in.]

Units : mm[in.]

ST-3201A/ST-3211A

3.8-inch

External Dimensions & Parts Names

Panel Cut-out

Units : mm[in.]

Units : mm[in.]

A	Power Input Terminal Block (AC model), Power Plug Connector (DC model)	D	USB Interface (Host)
B	Power Plug Connector	E	Serial Interface (COM1)
C	Status LED	F	Serial Interface (COM2)
G	CF Card Cover (CF Card Interface, Dip Switches)		
H	CF Card Access LED		

Smooth system integration of Pro-face products is assured with a total support network.

WORLDWIDE SUPPORT

Pro-face regional offices and partners offer technical support and repair services around the world.
Contact your local Pro-face office for more information about support services available.

European Head Office, The Netherlands

Seoul, South Korea

Global Head Office, Osaka

North/South American Head Office, U.S.A.

Shanghai, P.R. China

South East Asia Pacific, Thailand

Taipei, Taiwan

SUPPORT CENTER
- Pro-face Company
- Pro-face Branch Office
- Distributor or
  Sales Representative

Melbourne, Australia

Our Environmental Policy and Compliance with the RoHS Directive

Pro-face has taken significant steps to meet increasingly stringent requirements for environmental preservation and has sought to comply with the RoHS Directive by adopting measures to eliminate specified harmful substances from existing products and products to be manufactured and sold beginning in 2006. For details, please refer to our web site or contact our sales office in your country.

ACCESS!!

www.pro-face.com

Worldwide Contacts:
http://www.pro-face.com/worldwide/

Conformity with International Safety Standards

Pro-face products and component parts bearing the CE Mark and the UL or c-UL Listing and Recognized Component Marks are your guarantees of compliance with safety standards accepted in countries and regions worldwide.

⚠ Caution: Before operating any of these products, be sure to read all related manuals thoroughly.

- For printing purposes, the colors in this catalog may differ from those of the actual unit.
- Actual user screens may differ from the screens shown here.
- LCD screens may exhibit minute grid-points (light and dark) on the Display Panel surface. Also, "Contouring" - where some parts of the screen are brighter than others, producing a wavelike pattern - may occasionally occur. Both are normal for an LCD display and are not defects.

- All product names used in this catalog are the registered trademarks or trademarks of their respective companies.
- All information contained in this catalog is subject to change without notice.

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