

LT-3300L (Model No.: PFXLT3300LADK)

| Functional Specifications | | |
|---------------------------|---|--|
| Display Type | Monochrome LCD | |
| Display Size | 5.7" | |
| Resolution | 320 x 240 pixels (QVGA) | |
| Dot pitch | W0.36 x H0.36 mm [W0.01 x H0.01 in.] | |
| Effective Display Area | W115.2 x H86.4 mm [W4.54 x H3.40 in.] | |
| Display Colors | Monochrome (16 Levels) | |
| Backlight | White LED (User nonreplaceable parts. Factory replacement required.) | |
| Brightness Control | 8 Levels (Adjusted with the touch panel) | |
| Contrast Control | 8 Levels (Adjusted with the touch panel) | |
| Backlight Service Life | 50,000 hrs. or more (continuous operation at 25°C before backlight brightness decreases to 50%) | |
| Language Fonts | Japanese: 6,962 (JIS Standards 1 & 2) (including 607 non-kanji characters), ANK: 158 (Korean fonts, Simplified Chinese and Traditional Chinese fonts are downloadable.) | |
| Character Sizes | Standard font: 8 x 8, 8 x 16, 16 x 16 and 32 x 32 pixel fonts, Stroke font: 6 to 127 pixel fonts, Image font: 8 to 72 pixel fonts | |
| Font Sizes *1 | Standard font: Width can be expanded up to 8 times. Height can be expanded up to 8 times. | |
| Text | 8 x 8 dots | 40 char. x 30 rows |
| | 8 x 16 dots | 40 char. x 15 rows |
| | 16 x 16 dots | 20 char. x 15 rows |
| | 32 x 32 dots | 10 char. x 7 rows |
| Control Memory | Variable Area | SRAM 64 KB (uses lithium battery) |
| | Program Area | FLASH EPROM 132 KB |
| | Number of Step *2 | Equivalent to 15,000 steps |
| Application Memory *3 | FLASH EPROM 6 MB | |
| Data Backup | SRAM 128 KB (Lithium battery for backup memory) | |
| Clock Accuracy *4 | ±65 sec/month (deviation at room temperature and power is OFF) | |
| Touch Panel Type | Resistive Film (analog) | |
| Touch Panel Resolution | 1,024 x 1,024 | |
| Touch Panel Service Life | 1,000,000 times or more | |
| Interface | Serial (COM1) | RS-232C/422/485, Asynchronous Transmission, Data Length: 7 or 8 bit, Parity: none, Even or Odd, Stop Bit: 1 or 2 bit, Data Transmission Speed: 2,400 bps to 115.2 kbps, Connector: D-Sub9 (plug) |
| | Ethernet (LAN) | IEEE802.3i/IEEE802.3u, 10BASE-T/100BASE-TX, Connector: Modular jack (RJ-45) x 1 |
| | USB (Type-A) | Conforms to USB1.1 (TYPE-A) x 1, Power Supply Voltage: DC 5 V ±5 %, Output Current: 500 mA or less, Communication Distance: 5 m or less |
| | AUX/Expansion Unit *5 | Interface for external additional unit only (such as communication equipment) (external) |
| | EX Module Interface *5 | Interface for Pro-face's EX Modules. Up to three EX modules can be connected |
| | Control (DIO Sink Type) | 16-Point Input Sink Source, 16-Point Output Sink, Connector: 38pin |


*1: Other font sizes can be set up with the Editor software.

*2: Up to 60,000 steps can be converted in software. However, this reduces application memory capacity (for screen data) by 1 MB.

*3: Capacity available for user application.

*4: Depending on the operating temperature and age of unit, the clock can deviate from -380 to +90 sec/month. For systems where this level of deviation is a problem, the user should monitor and make adjustments when required.

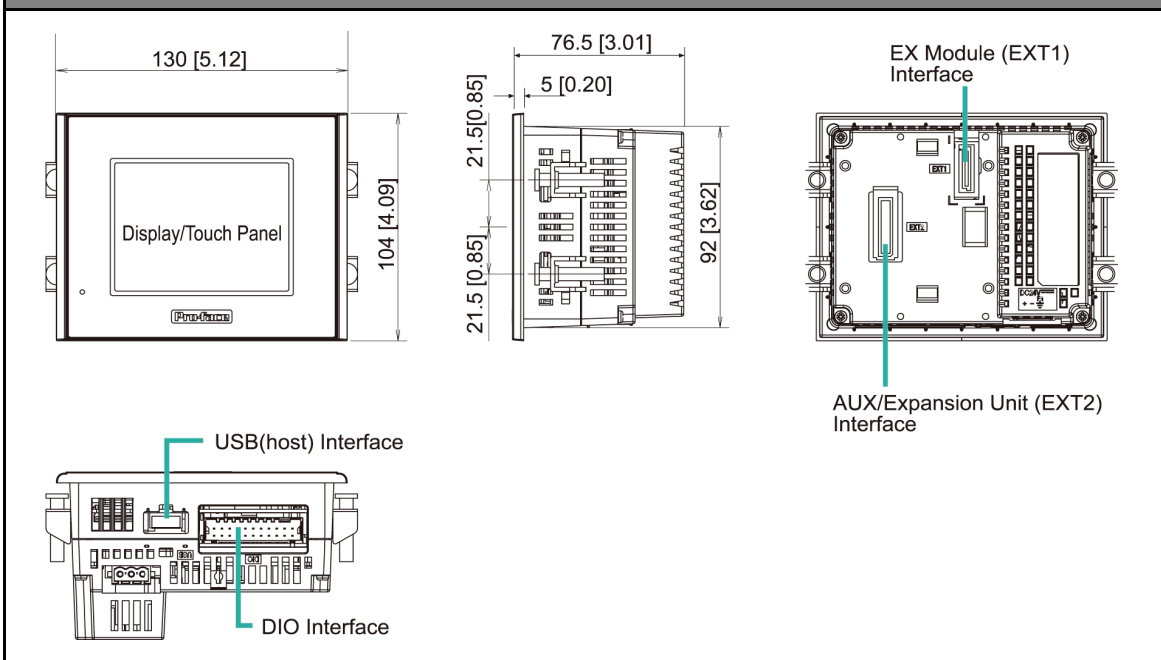
*5: EX Module and Communication Expansion Unit cannot be used at the same time.

| General Specifications | |
|-------------------------------------|--|
| Supported Standards and Regulations |  |
| Rated Input Voltage | DC 24 V |
| Input Voltage Limits | DC 19.2 to 28.8 V |
| Allowable Voltage Drop | 3 ms or less |
| Power Consumption | 27 W or less |
| In-Rush Current | 30 A or less |
| Voltage Endurance | AC 1,000 V, 20 mA for 1 min (between charging and FG terminals) |
| Insulation Resistance | DC 500 V, 10 MΩ or more (between charging and FG terminals) |
| Surrounding Air Temperature | 0 to 50 °C |
| Storage Temperature | -20 to +60 °C |
| Ambient Humidity | 10 to 90 % RH (Wet bulb temperature: 39 °C or less - no condensation.) |
| Storage Humidity | |
| Dust | 0.1 mg/m ³ or less (non-conductive levels) |
| Pollution Degree | For use in Pollution Degree 2 environment |
| Atmosphere | Free of corrosive gases |
| Air Pressure (altitude range) | 800 to 1,114 hPa (2,000 m above sea level or less) |
| Vibration Resistance | IEC/EN61131-2 compliant, 5 to 9 Hz Single amplitude 3.5 mm [0.14 in.], 9 to 150 Hz Fixed acceleration: 9.8 m/s ² , X, Y, Z directions for 10 cycles (100 min) |
| Concussion Resistance | IEC/EN61131-2 compliant, 147 m/s ² , X, Y, Z directions for 3 times |
| Noise Immunity | Noise Voltage: 1,000 Vp-p, Pulse Duration: 1 μs, Rise Time: 1 ns, (via noise simulator) |
| Electrostatic Discharge Immunity | Contact Discharge Method: 6kV (IEC/EN61000-4-2 Level 3) |
| Grounding | Functional grounding: Grounding resistance of 100Ω, 2mm ² or thicker wire, or your country's applicable standard. (Same for FG and SG terminals) |
| Structure *6 | Equivalent to IP65f NEMA #250 TYPE 4X/13 (on the front panel when properly installed in an enclosure) |
| Installation Configuration | Embedded panel |
| Cooling Method | Natural air circulation |
| Weight Approx. | 1 kg [2.2 lb] or less (display unit only) |
| External Dimensions | W167.5 x H135 x D78 mm [W6.59 x H5.31 x D2.87 in.] |
| Panel Cut Dimensions *7 | W156 x H123.5 mm [W6.14 x H4.86 in.], Panel thickness area: 1.6 to 5 mm [0.06 to 0.2 in.] |

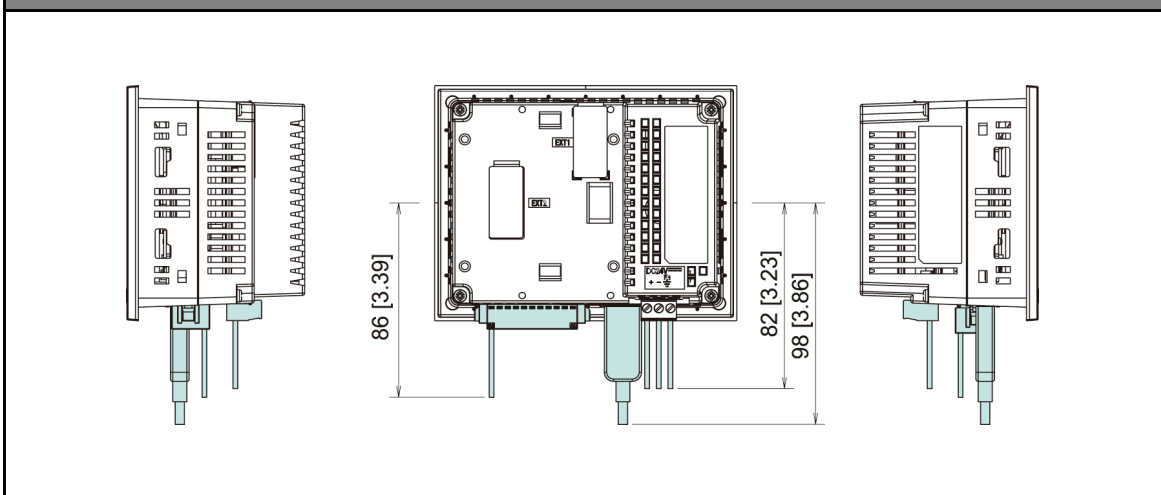
*6 The front face of the GP unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the GP unit's level of resistance is equivalent to these standards, oils that should have no effect on the GP can possibly harm the unit. 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 unit, 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, be sure to replace the installation gasket regularly.

*7 Regarding dimensional tolerance, everything +1/-0 mm [+0.04/-0 in.] and R in angle are below R3 [R0.12 in.].

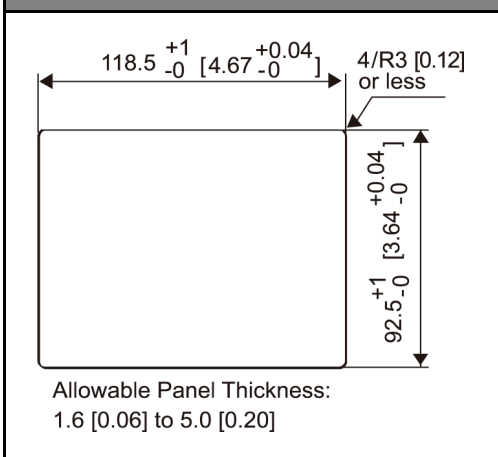
External Dimensions / Interfaces *1



Cable Attached Dimensions *2



Panel Cut-Out



*1 The maximum thickness when two EX modules are connected: 96.8mm [3.81in.].

*2 Depending on type of connection cable used the dimensions shown above will change. The dimensions given here are representative values and are intended for reference only.

| Input Specifications | |
|-----------------------|--|
| Rated Voltage | DC24V |
| Maximum Allowable | DC28.8V |
| Input Method | Sink / Source Input |
| Rated Current | 6.5mA (DC24V) (IN0, IN2, IN4, IN6) 4.1mA (DC24V) (Other inputs) |
| Input Resistance | Approx. 3.7kΩ (IN0, IN2, IN4, IN6) Approx. 5.9kΩ (Other inputs) |
| Input Points | 16 |
| Common Lines | 1 |
| Common Design | 16 points / 1 common line |
| Operation | ON Voltage DC19V or more |
| Range | OFF Voltage DC5V or less |
| Input Delay | OFF to ON 0.5 to 20ms *1 |
| Time | ON to OFF 0.5 to 20ms *1 |
| Input Signal Display | No LED indicators |
| Isolation Method | Photocoupler Isolation |
| External Connection | 38-pin connector (used with Output section) |
| External Power Supply | For Signal: DC24V |

| Output Specifications | | | |
|----------------------------|--|---|--|
| | OUT0 to OUT3 | | OUT4 to OUT15 |
| Rated Voltage | DC24V | | |
| Allowable Voltage | DC20.4V to 28.8V | | |
| Output Method | Sink Output | | |
| Maximum Load Voltage | 200mA / 1 Point 1.6A / 1 common | | |
| Minimum Load Current | 1mA | 1mA (Pulse/PWM Output Unavailable) | |
| Output Voltage Drop | DC0.5V or less | | |
| Output Delay Time | OFF to ON | 5 μs or less (with output DC24V, 200mA) | 0.5ms or less (with output DC24V, 200mA) |
| | ON to OFF | 5 μs or less (with output DC24V, 200mA) | 0.5ms or less (with output DC24V, 200mA) |
| Voltage Leakage (When OFF) | 0.1mA or less | | |
| Clamp Voltage | 39V ± 1 | | |
| Type of Output | Transistor Output | | |
| Common Lines | 2 | | |
| Common Design | 8 points / 1 common line x 2 | | |
| External Connection | 38-pin connector (used with input section) | | |
| Output Protection Type | Output is unprotected | | |
| Internal Fuse | 3.5A, 125V Chip fuse x 2 (not replaceable) | | |
| Surge Control Circuit | Zener diode | | |
| Output Points | 16 | | |
| Output Signal Display | No LED indicators | | |
| Isolation Method | Photocoupler Isolation | | |
| External Power Supply | For Signal: DC24V | | |

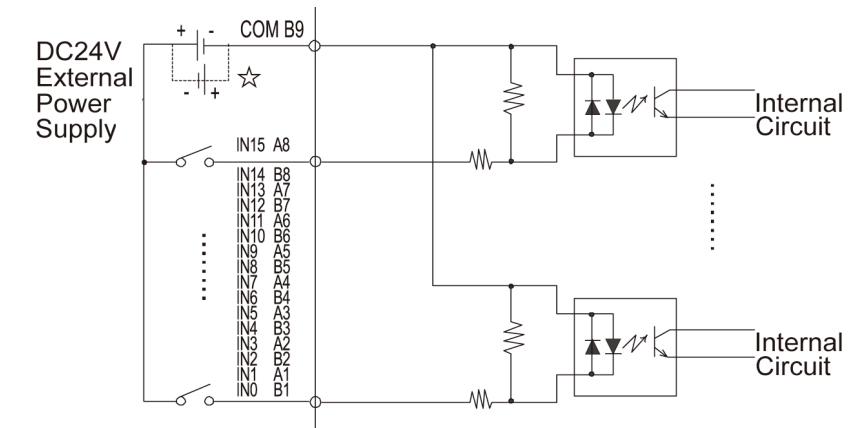
| Pulse/PWM Output Specifications | | |
|---------------------------------|---|--|
| | Pulse | PWM |
| Output Points | 4 points | |
| Output Method | PLS0 to PLS3 (OUT0 to OUT3) User Defined | PWM0 to PWM3 (OUT0 to OUT3) User Defined |
| Load Voltage | DC24V | |
| Minimum Load Current | 1mA | |
| Minimum Load Current | Max.65kHz (set through software) Varies depending on the number of CH of High-speed counter, pulse output | |
| Pulse Acceleration | Available | Not Available |
| ON Duty | 50% ± 10% (at 65kHz) *2 | 19 to 81% (at 65kHz) *3 |

- *1: Digital filter can be set intervals of 0.5ms.
 *2: The ON duty error (10%) reduces as the output frequency setting is lower.
 *3: ON duty (effective range) increases as the output frequency setting is lower.

| High-speed Counter / Pulse Catch Input Specifications | | | |
|---|--|---|-----------------------------------|
| | High-speed Counter (with Synchronize Output) | | Pulse Catch |
| Input | DC24V Open Collector | | DC24V Open Collector |
| | Single phase (4 points) | Double phase (1 or 2 points) | |
| Input Points | CT0 (IN0), CT1 (IN2), CT2 (IN4), CT3 (IN6), User Defined | Use CT0 (IN0), CT1 (IN2) in pairs. CT0: Phase A, CT1: Phase B, CT2 (IN4), CT3 (IN6) in pairs. CT2: Phase A, CT3: Phase B User Defined | IN0, IN2, IN4, IN6, User Defined |
| Synchronize Output | CT0 (OUT0) CT1 (OUT1) CT2 (OUT2) CT3 (OUT3) | CT0 CT1 (OUT1) CT2 CT3 (OUT2) | - |
| Minimum Pulse Width (Pulse Input) | | | Input signal ON width 5µs or more |
| Count Speed (Rise, Fall Time) | t = 1µs or less (100Kpps) | | - |
| Phase | 1 Phase | 90 degree phase differential 2-phase signal / 1-phase +directional signal | - |
| High Speed Count | 100Kpps | 50Kpps | - |
| Count Edge Designation | Available | Not Available | - |
| Count Register | 32-bit UP / DOWN Counter | | - |
| Counter Mode Change | Set through software | | - |
| Upper/Lower Limit | Not Available | | - |
| Preload/Prestrobe | Available | | - |
| Marker Input (Clear Counter Value) | - | IN3, IN7 | - |

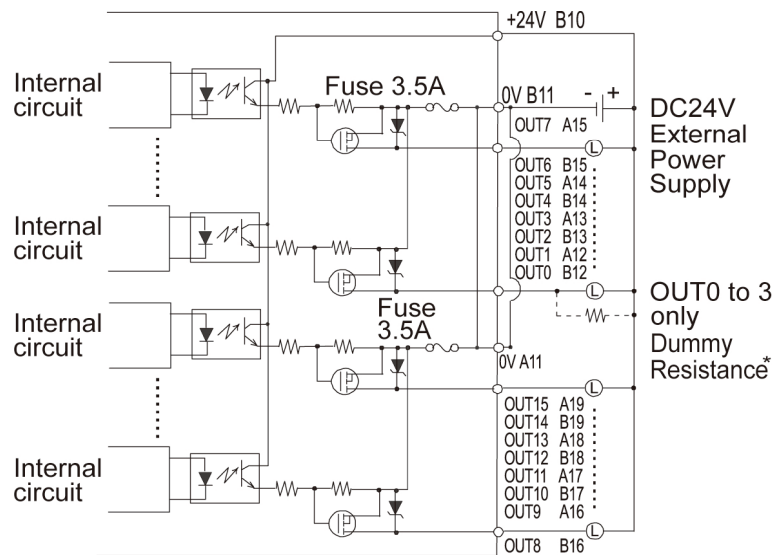
| Pin Connection | Pin No. | Signal Name | Pin No. | Signal Name |
|------------------|---------|-------------------|---------|-------------------|
| (Cable side) | A1 | IN1 | B1 | IN0 (CT0) |
| | A2 | IN3 | B2 | IN2 (CT1) |
| | A3 | IN5 | B3 | IN4 (CT2) |
| | A4 | IN7 | B4 | IN6 (CT3) |
| | A5 | IN9 | B5 | IN8 |
| | A6 | IN11 | B6 | IN10 |
| | A7 | IN13 | B7 | IN12 |
| | A8 | IN15 | B8 | IN14 |
| | A9 | NC | B9 | COM |
| | A10 | NC | B10 | +24V |
| | A11 | 0V | B11 | 0V |
| | A12 | OUT1 (PLS1, PWM1) | B12 | OUT0 (PLS0, PWM0) |
| | A13 | OUT3 (PLS3, PWM3) | B13 | OUT2 (PLS2, PWM2) |
| | A14 | OUT5 | B14 | OUT4 |
| | A15 | OUT7 | B15 | OUT6 |
| | A16 | OUT9 | B16 | OUT8 |
| | A17 | OUT11 | B17 | OUT10 |
| | A18 | OUT13 | B18 | OUT12 |
| | A19 | OUT15 | B19 | OUT14 |

Input Circuit



☆ Dotted area indicates the cable diagram with sink output type devices.

Output Circuit



*For faster response with light load use an external dummy resistance.

Pro-face's LT3000 Series website <http://www.pro-face.com/product/hmi/lt3000.html>