

Pro-face

LT3000 Series

Operator Interface Plus Control



Simplify Your Machine Controls

Control + Operation + Display

LT3000 Series

Standalone Machine Controller
Feature Highlights

Application Examples

Reduce Component Count

LT3000 – Specifications

Specifications and Drivers
Expansion I/O Options
Instructions and System Structure

Enterprise-Wide Solutions

All-in-one HMI and Logic Development
Real-time Reporting
HMIs for Every Application

CELEBRATING

35+ Years
of Industrial
Automation
Solutions

LT3000

Simplify Your Machine Controls

What if you could...

- Reduce system cost?
- Reduce machine complexity?
- Reduce on-site field maintenance?

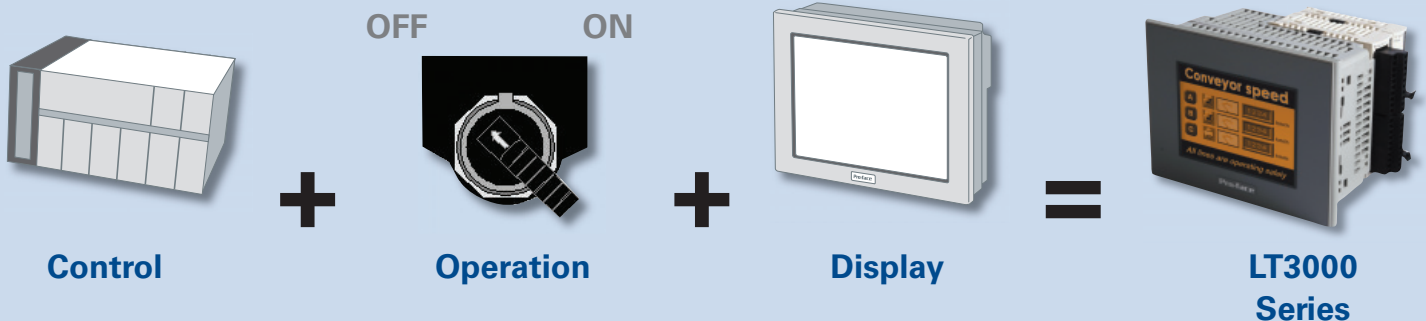
And gain...

- Increased flexibility
- Increased reliability
- Increased durability
- Overall Equipment Efficiency (OEE)



LT3300
Operator Interface
Plus Control

ALL IN ONE!



The best use of your controls budget

LT3000 - Operator Interface Plus Control

Standalone Machine Controller

- Unique package combines HMI, PLC and I/O functions
- One software application for HMI and control



Feature Highlights

HMI Functionality

- Touch screen
- Security
- Recipes
- Alarms
- Operation log
- Time scheduling
- Multi-language
- Dual color display (LT3201)

Control Functionality

- Ladder logic and instruction list programming
- On-screen ladder monitor
- Built-in Discrete I/O
 - High Speed counter (encoder input)
 - Pulse output/PWM
- Plus Expansion I/O
 - Analog/Discrete
 - Temperature input
- CANopen Distributed I/O

Connectivity

USB

- Project transfer
- Logging
- Printing
- Bar code

Serial port (LT330x only) RS-232/422/485

- Bar code
- Temperature control
- Inverters/Drives/Pumps
- Sending/Receiving ASCII

Ethernet (LT3300 only)

(Requires Pro-Server EX)

- Data management
- Remote monitoring
- Logging
- Productivity/Quality/OEE Reporting
- Enterprise Integration via:
 - SAP, Access™, Excel®, SCADA, SMTP e-mail, SQL, MES, and ERP

LT3000 Series



LT3300S

- 5.7" STN color display
- Ports:
 - (1) USB
 - (1) Ethernet
 - (1) Serial



LT3300L

- 5.7" Black and white display
- Ports:
 - (1) USB
 - (1) Ethernet
 - (1) Serial



LT3301L

- 5.7" Black and white display
- Ports:
 - (1) USB
 - (1) Serial



LT3201A

- 3.8" Amber/red display
- Ports:
 - (1) USB

Optimize Productivity!

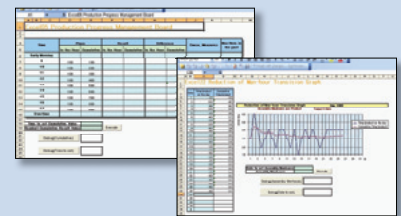


LT3300



Data management software

Pro-Server EX



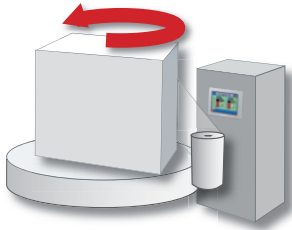
Data Management Software

Reports and database connectivity via Ethernet

Maximize machine efficiencies

Keep it Simple With LT3000

Example 1



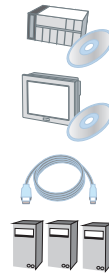
Stretch Wrapping Machine



Cost Control...

- HMI
- HMI/Logic software
- 3 Drives

5 Components

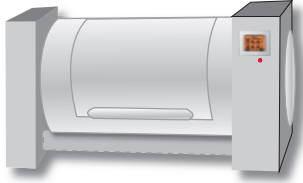


...Costly Control

- PLC
- PLC software
- HMI
- HMI software
- PLC to HMI cable
- 3 Drives

8 Components

Example 2



Commercial Washing Machine

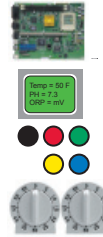


Touch Control...

Off the shelf, graphical display includes:

- Control
- On-screen buttons and lamps
- Built-in timers

**Readily available product
1 Component**



...Custom Controller

- Custom controller
- Text display
- 3 buttons
- 2 lamps
- 2 timers

**Custom controller
9 Components**

Calculate Your Savings

Item	New LT3000 Machine Solution	Current Machine
1. PLC	\$	\$ 600
2. PLC programming software	\$	\$ 600
3. Annual PLC software maintenance contract	\$	\$ 1500
4. PLC to HMI cable	\$	\$ 100
5. HMI display hardware	\$ 600	\$ 1000
6. HMI programming software	\$ <small>First Time Buyer</small> - 0 -	\$ 500
7. Annual HMI software maintenance contract	\$	\$ 1000
8. Larger power supply	\$	\$ 100
9. Larger enclosure	\$	\$ 300
10. Cost to maintain 2 databases	\$	\$ 500
11. Impact to reliability of having PLC and HMI separated by a cable	\$	\$ 500
Totals	\$ 600	\$ 6700

YOU SAVE

\$ 6100

The LT3000 eliminates:

- PLC
- PLC software
- PLC to HMI cable
- Text displays
- Push buttons
- Lamps
- Timers/counters
- I/O modules
- ASCII module for bar-code input
- Encoder input module
- Pulse output module
- Custom controllers
- Manual data collection

Simplify Now

LT3000 - Operator Interface Plus Control

5.7"



LT3300

Certifications



Class I, Division 2 Hazardous Locations

Display

- STN color LCD (4,096 colors)
Monochrome B/W (16 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

Environmental

- Operating temp. 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity:
10-90% noncondensing
- External Dimensions:
W167.4mm [6.59in] x H135.0mm
[5.31in] x D77.6mm [3.06in]

Ports & Interfaces



I/O Architectures

Built-in DIO: 16 in/16 out ¹
Expansion I/O up to 3 EXM modules
CANopen to Pro-face or third-party slaves (Requires optional communication module)

Model Numbers

LT3300-S1-D24K LT3300-L1-D24K
LT3300-S1-D24C LT3300-L1-D24C

5.7"



LT3301

Certifications



Class I, Division 2 Hazardous Locations

Display

- Monochrome B/W LCD
(16 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

Environmental

- Operating temp. 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity:
10-90% noncondensing
- External Dimensions:
W167.4mm [6.59in] x H135.0mm
[5.31in] x D77.6mm [3.06in]

Ports & Interfaces



I/O Architectures

Built-in DIO: 16 in/16 out ¹
Expansion I/O up to 3 EXM modules
CANopen to Pro-face or third-party slaves (Requires optional communication module)

Model Numbers

LT3301-L1-D24K
LT3301-L1-D24C

3.8"



LT3201

Certifications



Class I, Division 2 Hazardous Locations

Display

- Monochrome amber LCD
(8 shades)
- 320 x 240 pixels
- Analog touch screen (no grid)

Environmental

- Operating temp. 0 ° to 50 °C
- Ratings: NEMA, 4x/13, IP65f
- Humidity:
10-90% noncondensing
- External Dimensions:
W130mm [5.12in] x H104mm
[4.09 in] x D76.5mm [3.01in]

Ports & Interfaces



I/O Architectures

Built-in DIO: 12 in/6 out ¹
Expansion I/O up to 2 EXM modules
CANopen to Pro-face or third-party slaves (Requires optional communication module)

Model Numbers

LT3201-A1-D24K
LT3201-A1-D24C

Choose from
13 EXM I/O modules:

Discrete input modules

8-Point 	8-point input module EXM-DDI8DT
16-Point 	16-point input module EXM-DDI16DT

Discrete output modules

8-Point 	8-point relay output module EXM-DRA8RT
16-Point 	16-point relay output module EXM-DRA16RT
8-Point 	8-point sink output module EXM-DDO8UT
16-Point 	16-point sink output module EXM-DDO16UK
8-Point 	8-point output source module EXM-DDO8TT
16-Point 	16-point output source module EXM-DDO16TK

Mixed discrete I/O modules

4-Point/ 4-Point 	4-point input / 4-point output module EXM-DMM8DRT
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Analog I/O modules

2-Channel 	2-channel analog input module EXM-AM12HT
2-Channel Temp. or 1-Channel Output 	2-channel temperature input / 1-channel analog output module EXM-ALM3LT
2-Channel/ 1-Channel 	2-channel analog input / 1-channel analog output module EXM-AMM3HT
1-Channel 	1-channel analog output module EXM-AMO1HT

Digital Electronics Corporation	Memory Link
Omron Corporation	Temperature Controller CompoWay/F
Yokogawa Electric Corporation	Personal Computer Link SIO
RKC Instrument Inc.	Temperature Controller
	Temperature Controller
Shinko Technos Co. Ltd.	Indicating Controller SIO
Yamatake Corporation	Digital Controller SIO
Generic ASCII	Built-in Scripting

Available Drivers
(LT3300 and LT3301 only)

Contact your local
Pro-face representative
for information on
devices not listed here

¹DIO can be configured as standard input/outputs or used for PWM, PLC, HSC or pulse-catch.

LT3000 Specifications

Functional Specifications				
Models		LT3300S-S1-D24	LT3300-L1-D24 LT3301-L1-D24	LT3201-A1-D24
Display	Type	STN color LCD	Monochrome LCD	Monochrome LCD
	Colors	Color (4,096)	B&W (16 shades)	Amber/Red (8 shades)
	Backlight	LED		
	Resolution	320 x 240 pixels		
	Effective Display Area	117.2mm [4.61in.] x 88.4mm [3.48in.]		W78.8mm [3.10in.] x H59.6mm [2.35in.]
Memory	Application	FLASH EPROM 6MB Data Backup *1		
	Data Backup	SRAM 128 KB *2		
Touch Panel	Type	Analog Resistive Film		
Control Memory	Variable Area	64KB SRAM (uses lithium battery) *2		
	Program Area	132KB FLASH EPROM (enough for 15,000 program steps) *3		
Interfaces	Aux Interface /scalable unit EX Module Interface	Interface for external additional unit only (Such as communication equipment)		
		Interface up to three Pro-face EX modules (Any mix)	Interface up to two Pro-face EX modules (Any mix)	
	USB	USB port 1.1, Host I/F, USB TYPE-A connector		
	DIO	input: 16 discrete points / output: 16 discrete points	input: 12 discrete points / output: 6 discrete points	
	Serial	COM1: RS232C/RS422/RS485 Asynchronous Transmission / Data length: 7 bit/8bit. Parity: none, Odd or Even stop bit: 1bit/2bit Data transmission speed: 2400bps to 115.2Kbps Connector: DSUB-9pin plug		
	Ethernet	IEEE802.3u, 10 Base-T/100 Base-TX (No Ethernet for LT3301-L1)		

General Specifications				
Electrical	Conforming to Standards	UL508, CSA-22.2 No.142-M1987, CSA-22.2 No.213-M1987, CE Marking, EN5011, EN61000-6-2 ANSI/ISA-12.12.01-2007		
	Rated Voltage	24V DC (19.2V DC to 28.8V DC)		
	Allowable Voltage Drop	3mV (max.)		
	Power Consumption	27W (max.)		18W or less
	Voltage Endurance	AC1000V 20mA for 1min. (between charging and FG terminals)		
Environmental	Insulation resistance	DC500V 10MΩ (min.) (between charging and FG terminals)		
	Operating/Storage Temp.	-0°C (32°F) to 50°C (122°F)*4 / -20°C (-4°F) to 60°C (140°F)		
	Humidity	10%RH to 90%RH (wet bulb temperature: 39°C max. - no condensation)		
	Altitude Operation	800 hPa to 1,1114 hPa (2000 meters above sea level or lower)		
	Vibration Resistance	IEC61131-2 compliant 5 to 9Hz single-amplitude 3.5mm 9 to 150Hz constant-accelerated velocity 9.8m/s², X, Y, Z directions for 10 times (100 min.)		
	Noise Immunity	Noise voltage: 100Vp-p, Pulse duration, 1s, Arise time: 1ns *5		
	Electrostatic Discharge Immunity	6kV (complies with EN 61000-4-2 Level 3)		
Structural	Grounding	Grounding resistance of 100 2mm, or thicker wire, or your country's applicable standard, (Same for FG and SG terminals)		
	Ratings	Equivalent to IP65f, NEMA #250 Type 4x1/3 (front surface when panel is embedded) Feature size: All-in-one installation configuration: Panel embedding *6		
	Weight	1.0kg (2.2lb) or less (main body only)		
	Cooling Method	Natural or air circulation		

Input / Output Specifications				
Models		LT3300S-S1-D24 / LT3300-L1-D24 / LT3301-L1-D24	LT3201-A1-D24	
Input	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	Appr.3.7k (IN0, IN2, IN4, IN6), Appr.5.9k (Other inputs)		Appr. 3.7k (IN0, IN2, IN4, IN6), Appr. 4.7k, (Other inputs)
	Insulation Method	Photocoupler Isolation		
Output	External Connection	38-Pin connector (used with Output section)		22-pin connector
	External Power Supply	For signal: DC24V		
	Rated Voltage	DC24V (Allowable Voltage DC20.4V to DC28.8V)		
	Output Method	-K = Sink output, -C = Source output		
	Maximum Load Current	0.2A/point, 1.6A / common		0.2A / point, 1.2A / common
	Output Voltage Drop	DC 0.5V or less		
	Output Delay Time	OFF to ON	5μs or less (with output DC 24V, 200mA)	
	ON to OFF	LT3301L: 0.5ms or less (with output DC 24V, 200mA)		
Type of Output	Transistor Output			
Internal Fuse	3.5A, 125V Chip fuse x 2 (not replaceable)		2.5A, 125V Chip fuse x 2	
Surge Control Circuit	Zener diode			
Isolation Method	Photo Coupler			
External Connection	38-pin connector (also used for input)		22-pin connector	
External Power Supply	For signal: DC24V			

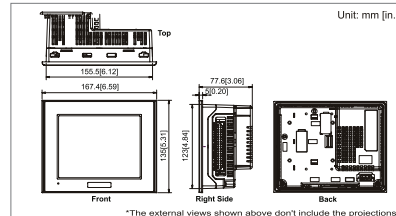
*1 It is user active capacity. *2 Service life of lithium batteries is 10 years or more at a battery ambient temperature of 40°C or less, 4.1 years or more at 50°C or less, and 1.5 years at 60°C or less. The backup period is about 100 days after the initial charge (fully charged), and about 6 days up to the end of battery life.
*3 Using Pro-face's calculation method. *4 Extended use in environments where surrounding air temperature is 40°C or higher may degrade the display quality and result in decreased contrast. *5 According to noise simulator. *6 We have confirmed compatibility under applicable conditions, but this does not guarantee compatibility in all environments. *7 Input/output No. is different by a combination for exclusive specifications. *8 Input/output No. is different by a combination for exclusive specifications. *9 Purchase when installing GP-Pro-EX in two or more PCs. A separate license is required for each PC. *10 Only for units with Ethernet. *11 Only for connecting devices with terminal resistance value of 100.

High-speed Counter / Pulse Catch Input Specifications			
Input *7	Counter		Pulse Catch
	24V DC Open collector		
	Single phase (4 points)	Double phase (1 or 2 points)	24V DC Open collector
Configurable Inputs	CT0 (IN0), CT01 (IN2), CT2 (IN4), CT3 (IN6) (according to user setting)	Use CT0 (IN0) and CT01 (IN2) in pairs, CT0: Phase A, CT1: phase B, Use CT2 (IN4), CT3 (IN6) in pairs, CT2: Phase A, CT3: phase B (according to user setting)	(IN0), (IN2), (IN4), (IN6) (according to user setting)
Minimum pulse width (pulse input)			Input signals on width 5µs or more
Count speed (startup and fall time)			
Phase Differential	1 phase	90° phase difference, 2 phase signal, 1 phase + direction signal	
Maximum Counting Freq	100 Kpps	50 Kpps	
Counting	Available	Not available	
Count Register	32-bit UP/DOWN counter		
Counter /mode Changeover	Set up using the software		
Setting upper limit/	Not available		
Preload /changeover	Available		

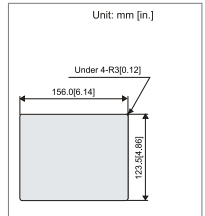
Pulse / PWM Output Specifications		
	Pulse Output	PWM Output
Outputs *8	4 points	
Specified Possible Outputs	PLSO to PLS3 (OUT0 to OUT3) depending on user setting	PWM to PWM3 (OUT0 to OUT3) depending on user setting
Voltage Load	24V DC (min. 1mA)	
Maximum Varies	Possible to use up to 65 kHz per point (set up using the Output Freq software) depending on high-speed counter and pulse output CH number	
Pulse Acceleration	Available	Not available
ON Duty	50% ± 10% (when 65 kHz)	19% to 8% (at 65 kHz)

Optional Items		
	Product Name	Model No.
Software	GP-PRO EX V**	EX-ED-V** (V21 or higher)
	GP-PRO EX Editor License *9	EX-ED-LICENSE-V**
	Pro-Server EX Developer (LT3300 only) *10	EX-SDV-V** (V1.22 or higher)
Cable	USB Transfer Cable (2m) (Recommended)	CA3-USBCB-01
	USB Cable (5m)	FP-US00
	USB Front Cable (1m)	CA5-USBEXT-01
	USB Serial (RS-232C) Conversion Cable (0.5m)	CA6-USB232-01
	RS-232C Cable (5m)	CA3-CBL232/5M-01
	RS-422C Cable (5m)	CA3-CBL422/5M-01
	RS-422C Cable (5m) *11	CA3-CBL422-01
Adapter	RS-422C Isolation Unit	CA3-ISD232-01
	COM Port Conversion Adapter	CA3-ADPCOM-01
	Terminal Block Conversion Adapter	CA3-ADPTRM-01
	3.8" Screen Protection Sheets for LT3201	CA6-DFS4-01
	6" Screen Protection Sheets for LT33xx	CA3-DFS6-01

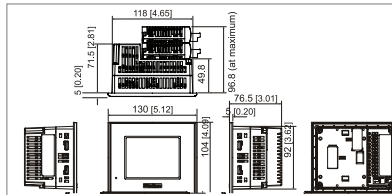
LT-3300 Series External Dimension



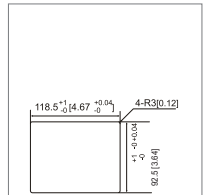
Panel Cut Dimensions



LT-3201 External Dimension



Panel Cut Dimensions



Mount horizontal or vertical as required.

Powerful Ladder Logic Instructions

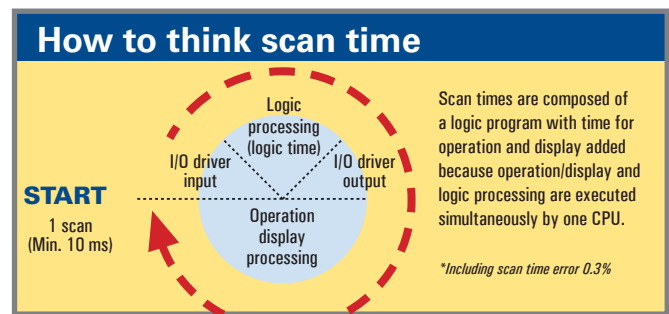
Category	Instruction Name	Instruction Notation	Ladder Symbol	
Basic Instruction	Bit Basic	Normally Open	NO	
		Normally Closed	NC	
		Out	OUT	
		Negative Out	OUTN	
		Set	SET	
		Reset	RST	
	Pulse Basic	Positive Transition	PT	
		Negative Transition	NT	
	Program Control	Jump	JMP <P>	
		Jump to Subroutine	JSR <P>	
		Return	RET	
		Repeat number of times (For)	FOR	
		Repeat number of times (NEXT)	NEXT	
		Inverse	INV	
		Exit	EXIT	
		Power Bar Control	PBC	
		Power Bar Reset	PBR	
		Logic Wait Instruction	LWA	
Timer Instruction	On Delay Timer	TON		
	Off Delay Timer	TOF		
	Pulse Timer	TP		
	Accumulate On Delay Timer	TONA		
	Accumulate Off Delay Timer	TOFA		
	Counter Instruction	Up Counter	CTU <P>	
Down Counter		CTD <P>		
Up/Down Counter		CTUD <P>		
R/W Instruction	Time Read/Write	Time Read	JRD <P>	
		Time Set	JSET <P>	
	Date Read/Write	Date Read	NRD <P>	
		Date Set	NSET <P>	
Operation Instruction	Arithmetic Operation	Add	ADD <P>	
		Subtract	SUB <P>	
		Multiplication	MUL <P>	

Category	Instruction Name	Instruction Notation	Ladder Symbol	
Operation Instruction	Arithmetic Operation	Division	DIV <P>	
		Modulation	MOD <P>	
		Increment	INC <P>	
		Decrement	DEC <P>	
		Time Addition	JADD <P>	
		Time Subtraction	JSUB <P>	
	Logical Operation	Logical AND	AND <P>	
		Logical OR	OR <P>	
		Logical XOR	XOR <P>	
		Logical NOT	NOT <P>	
		Move (Copy)	MOV <P>	
	Transfer	Block Move (Block Copy)	BLMV <P>	
		Fill Move	FLMV <P>	
		Exchange	XCH <P>	
	Shift	Shift Left	SHL <P>	
		Shift Right	SHR <P>	
		Arithmetic Shift Left	SAL <P>	
		Arithmetic Shift Right	SAR <P>	
	Rotation	Rotate Left	ROL <P>	
		Rotate Right	ROR <P>	
		Rotate Left with Carry Over	RCL <P>	
		Rotate Right with Carry Over	RCR <P>	
		Sum	SUM <P>	
	Function Instruction	Calculate Function	Average	AVE <P>
Square Root			SQRT <P>	
Bit Conut			BCNT <P>	
Trigonometric Function		PID	PID <P>	
		Sine	SIN <P>	

Category	Instruction Name	Instruction Notation	Ladder Symbol	
Function Instruction	Trigonometric Function	Cosine	COS <P>	
		Tangent	TAN <P>	
		Arc Sine	ASIN <P>	
		Arc Cosine	ACOS <P>	
		Arc Tangent	ATAN <P>	
		Cotangent	COT <P>	
	The other Function	Exponential	EXP <P>	
		Logarithm	LN <P>	
		Log Base 10	LG10 <P>	
		Equal	EQ <P>	
		Greater Than	GT <P>	
		Greater Than Or Equal To	GE <P>	
Compare Instruction	Arithmetic Compare	Less Than	LT <P>	
		Less Than Or Equal To	LE <P>	
		Not Equal	NE <P>	
		Time Compare Equal	JEQ <P>	
		Time Compare Greater Than	JGT <P>	
		Time Compare Less Than	JLT <P>	
	Time Compare	Time Compare Greater Than Or Equal To	JGE <P>	
		Time Compare Less Than Or Equal To	JLE <P>	
		Time Compare Not Equal	JNE <P>	

Category	Instruction Name	Instruction Notation	Ladder Symbol	
Compare Instruction	Date Compare	Date Compare Equal	NEQ <P>	
		Date Compare Greater Than	NGT <P>	
		Date Compare Greater Than Or Equal To	NGE <P>	
		Date Compare Less Than	NLT <P>	
		Date Compare Less Than Or Equal To	NLE <P>	
		Date Compare Not Equal	NNE <P>	
	Data Convert	BCD Convert	BCD <P>	
		BIN Convert	BIN <P>	
		Encode	ENCO <P>	
		Decode	DECO <P>	
		Convert to Radian	RAD <P>	
		Degree Convert	DEG <P>	
Convert Instruction	Data Convert	Scale	SCL <P>	
		Convert Integer to Float	I2F <P>	
		Convert Integer to Real	I2R <P>	
		Convert Float to Integer	F2I <P>	
		Convert Float to Real	F2R <P>	
		Convert Real to Integer	R2I <P>	
	Type Convert	Convert Real to Float	R2F <P>	
		Convert Seconds	H2S <P>	
		Convert Seconds to Time	S2H <P>	

*Instructions with <P> correspond to positive transition instructions (differential transition). By adding P to the end of each instruction notation (LMP, etc.), you can use the instruction as a positive transition instruction (e.g., JMPP, JSRP, etc.).



EX Module Specifications

Input module

	EXM-DDI8DT	EXM-DDI16DT
Input Specifications		
Input Points	8points (sink/source type-dual use)	16points (sink/source type-dual use)
External Connection	10-Pin terminal connector	
Rated Voltage	DC24V	
Rated Input Current	7.3mA/DC24V	
Input Impedance	3.3k Ω	
Isolation Method	Between input terminals and internal circuit: photocoupler isolated	Between input terminals: not isolated
Input Delay Time	OFF-ON:4ms ON-OFF:4ms	
Status LED	LED is lighting when input is ON	
Power Consumption	0.17W or less	0.27W or less
Mass	85g (0.19lb)	100g (0.2lb)

Output module

	EXM-DRA8RT	EXM-DRA16RT	EXM-DDO8UT	EXM-DDO8TT	EXM-DDO16UK	EXM-DDO16TK
Output Specifications						
Output Points	8-point relay (a-connect)	16-point relay (a-connect)	8-point transistor (Sink)	8-point transistor (Source)	16-point transistor (Sink)	16-point transistor (Source)
Rated Output Voltage	DC24V					
External Connection	11-pin terminal connector	10-pin terminal connector	10-pin terminal connector		MIL connector	
Common Design	4points/1common		8points/1common		16points/1common	
Maximum Load Voltage	1 point	2A or less		0.3A or less	0.1A or less	
	1 common	7A or less	8A or less	3A or less	1A or less	
Maximum Load Voltage	0.1mA DC0.1V (reference value)					
Electrical Life	100,000 operations or more (rated resistive load 1,800 operations/h)					
Mechanical Life	20 million operations or more (no load 18,000operations/h)					
Isolation Method	-		Between output terminals and internal circuit: photocoupler isolated		Between output terminals: not isolated	
Output Delay Time	ON	6ms or less		300 μ s or less		
	OFF	10ms or less		300 μ s or less		
Voltage Leakage (When OFF)	-		-		0.1mA or less	
Status LED	LED is lighting when output is ON					
Power Consumption	1.16W or less	2.10W or less	0.55W or less		1.03W or less	
Mass	110g (0.24lb)	145g (0.32lb)	85g (0.19lb)		70g (0.15lb)	

Input/output mixed module

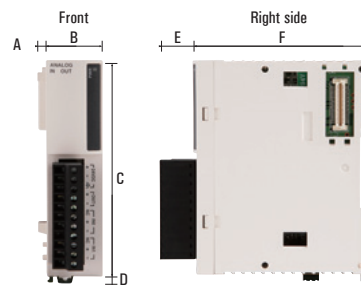
	EXM-DMM8DRT	
Input Specifications		
Input Points	4points (sink/source type-dual use)	
Rated Input Voltage	DC24V	
Rated Input Current	7.3mA/DC24V	
Input Impedance	3.3k Ω	
Isolation Method	Between input terminals and internal circuit: photocoupler isolated Between input terminals: not isolated	
Input Delay Time	OFF-ON:4ms ON-OFF:4ms	
Output Specifications		
Output Points	4-point relay (a-connect)	
Common Design	4points/1common	
Maximum Load Current	Per Channel	2A or less
	Per Common	7A or less
Min. Open/Close Load	0.1mA/DC 0.1V	
Electrical Life	100,000 operations or more (rated resistive load 1,800 operations/h)	
Mechanical Life	20 million operations or more (no load 18,000operations/h)	
Output Delay Time	ON	6ms or less
	OFF	10ms or less
Common Specifications		
External Connection	11-pin terminal connector	
Status LED	LED is lighting when input is ON	
Power Consumption	0.65W or less	
Mass	95g (0.21lb)	

Analog module

	EXM-AMI2HT	EXM-AMM3HT	EXM-ALM3LT	EXM-AMO1HT
Input Specifications				
Input Points	2points			-
External Connection	11-pin terminal connector			
Input Type	Single-ended(Voltage Input),Differential(Current Input)		Thermocouple, temperature Probes *1	
Resolution	12bit			
Input Value of LSB	2.5mV(voltage input), 4 μ A(current input)		0.15 \circ C(Temperature Probes) *1	
			Type K:0.325 \circ C(Thermocouple)	
			Type J:0.300 \circ C(Thermocouple)	
			Type T:0.100 \circ C(Thermocouple)	
Input Impedance	1M Ω min.(voltage input), 10 Ω (current input)		1M Ω or min.	
Isolation Method	Photocoupler Isolation between input and internal circuit			
Sampling Time	20ms or less			
Maximum Error	\pm 1% of full scale			
Output Specification				
Output Points	-			
Rated Output Voltage Range	Voltage(0 to 10V), current(4 to 20mA)			
Resolution	12bits			
Output Value of LSB	2.5mV(voltage output), 4 μ A(current output)			
Output Impedance	2k Ω or less (voltage output), 300 Ω or less (current output)			
Isolation Method	Photocoupler Isolation between output and internal circuit			
Total Output System Transfer Time	-		50ms + 1scan time	130ms + 1scan time
Maximum Error	-			
Common Specifications				
External Connection	11-pin terminal connector			
Power Consumption	0.34W or less			
Mass	85g (0.19lb)			

External view and sizes of various parts

	A	B	C	D	E	F
EXM-DDI16DT						
EXM-DDI8DT						
EXM-DRA8RT						
EXM-DRA16RT						
EXM-DDO8UT						
EXM-DDO8TT	3.8 [0.15]	23.5 [0.93]	90 [3.54]	4.5 *2 [0.18]	14.6 [0.57]	70 [2.76]
EXM-DMM8DRT						
EXM-AMI2HT						
EXM-ALM3LT						
EXM-AMM3HT						
EXM-AMO1HT						
EXM-DDO16UK		17.6 [0.69]			11.3 [0.44]	
EXM-DDO16TK						

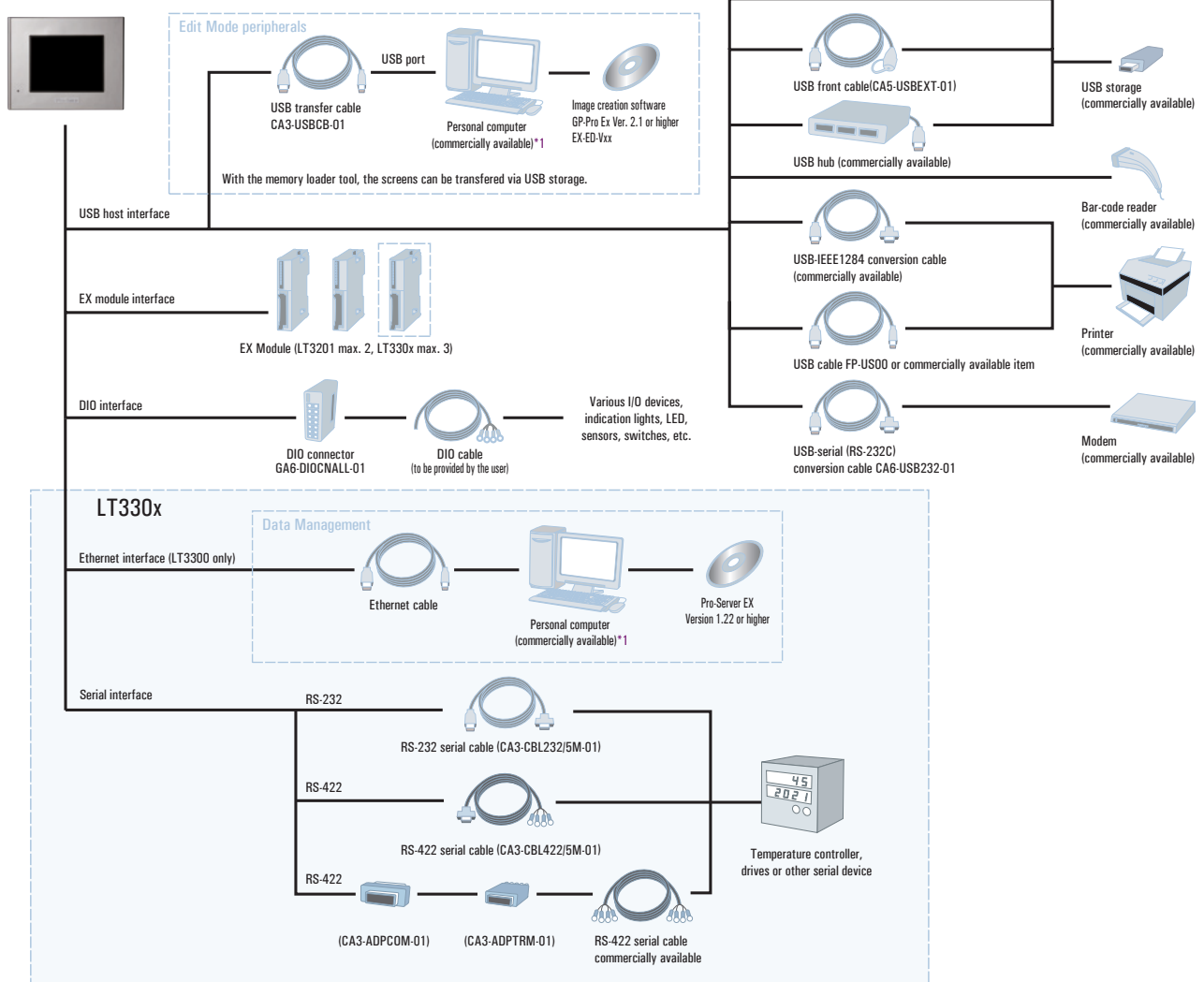


*1 Pt100

Unit: mm [in.]

LT3000 System Structure

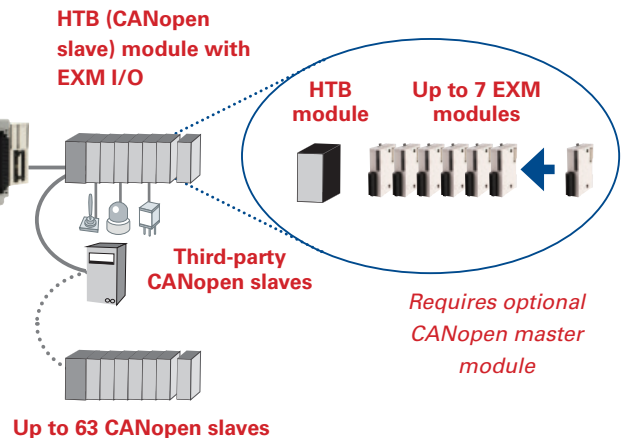
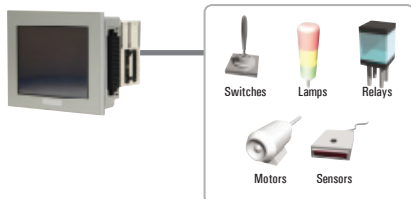
LT3000 System Structure



*1 Certain types and models of PCs cannot be used.

LT3000 I/O Options

Use built-in and expansion I/O
or
CANopen I/O



HMI Enterprise-Wide Software Solutions

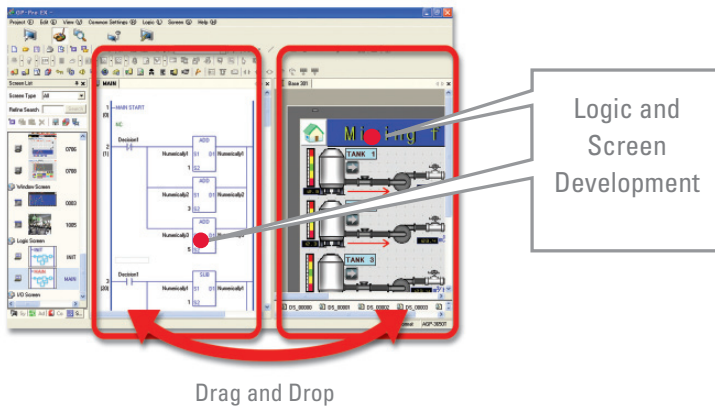


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- PS3000 with WinGP - Windows®-based on-demand HMI

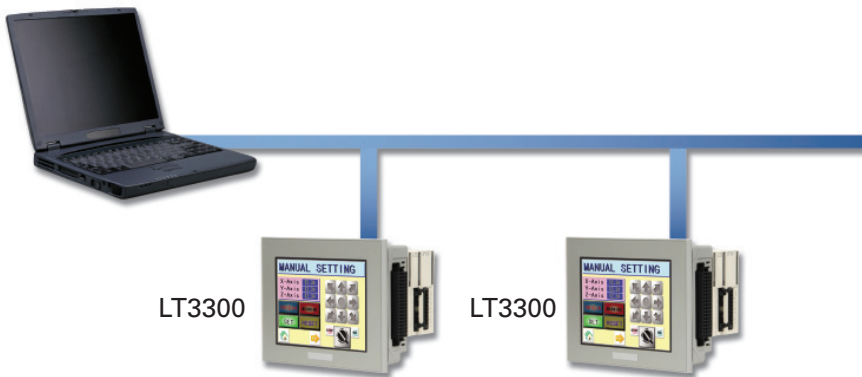


Data management software
Pro-Server EX

Information where you want it, when you want it

Real time reporting

- Productivity Reports
- Machine Efficiency (OEE)
- Product Quality
- Process Yield
- Maintenance Reports



Step 1:

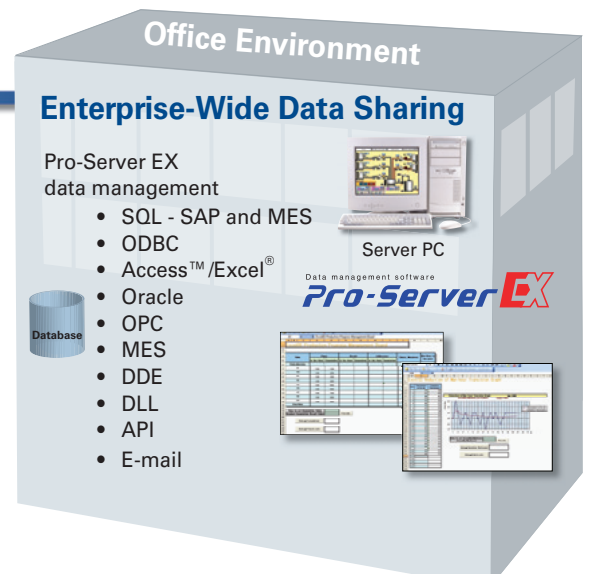
Fill in the blank, menu-driven configuration

Step 2:

Collect machine/process information effortlessly

Step 3:

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