

### EX I/O Expansion Modules - Quick Disconnect Analog and Discrete I/O Modules



Input/Output Mixed Modules

#### EX Modules

Models: Compatible with LT3000 Models



LISTED

Up To 16 Inputs  
Input/Output/Analog

Multiple Combinations  
Mix and Match  
GP-Pro EX Compatible

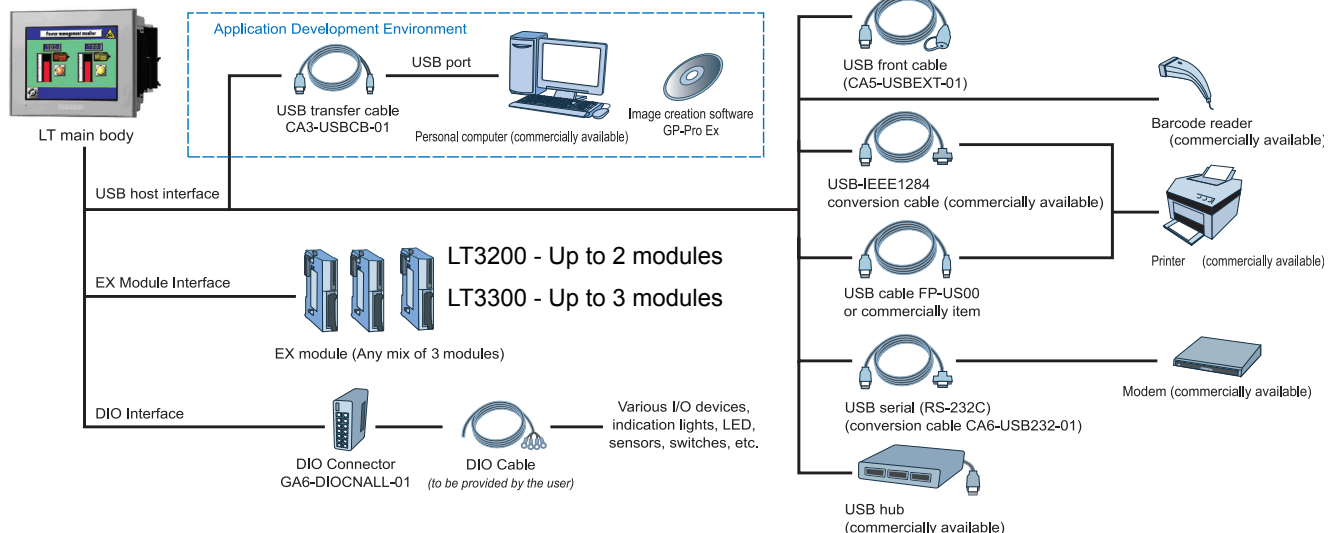
#### Features:

- Compatible with LT3000 models
- Mix and match any combination to meet your application requirements
- Multiple combinations for on/off, start/stop, pump and flow control
- Multi-channel thermocouple, RTD, 4-20mA DC current, DC voltage modules
- Compatible with GP-PRO EX Software version 2.0 or higher

| Order Number | Description                                                               |
|--------------|---------------------------------------------------------------------------|
| EXM-DDI8DT   | 8-point sink/source shared I/O Unit, DC24V input signal can be connected  |
| EXM-DDI16DT  | 16-point sink/source shared I/O Unit, DC24V input signal can be connected |
| EXM-DRA8RT   | 8-point relay output with 2 commons I/O Unit                              |
| EXM-DRA16RT  | 16-point relay output with 2 commons I/O Unit                             |
| EXM-DDO8UT   | 8-point transistor output sink I/O Unit                                   |
| EXM-DDO16UK  | 16-point transistor output sink I/O Unit                                  |
| EXM-DDO8TT   | 8-point transistor output source I/O Unit                                 |
| EXM-DDO16TK  | 16-point transistor output source type I/O unit                           |
| EXM-DMM8DRT  | 4-point input sink-source, 4-point relay output with single common        |
| EXM-AMI2HT   | 2-point analog input type                                                 |
| EXM-ALM3LT   | 2-point thermocouple input / 1-point analog type                          |
| EXM-AMM3HT   | 2-point analog input / 1-point analog output type                         |
| EXM-AMO1HT   | 1-point analog output type                                                |



### System Configuration Chart



## 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 $\Omega$                                                       |                                       |
| 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                                                          |                            |                           | 300μs or less                                                                                               |                            |                              |
|                            | OFF      | 10ms or less                                                         |                            |                           | 300μs 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 $\Omega$                                                                                             |
| 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<br>2A or less                                                                                 |
|                       | Per Common<br>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<br>6ms or less                                                                                         |
|                       | OFF<br>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), 4μA(current input)                  | 0.15°C(Temperature Probes) *1                               |                                     | -                 |
|                                   |                                                           | Type K:0.325°C(Thermocouple)                                |                                     |                   |
|                                   |                                                           | Type J:0.300°C(Thermocouple)                                |                                     |                   |
|                                   |                                                           | Type T:0.100°C(Thermocouple)                                |                                     |                   |
| Input Impedance                   | 1MΩ min.(voltage input), 10Ω(current input)               |                                                             | 1MΩ or min.                         | -                 |
| Isolation Method                  | Photocoupler Isolation between input and internal circuit |                                                             |                                     | -                 |
| Sampling Time                     | 20ms or less                                              |                                                             |                                     | -                 |
| Maximum Error                     | ± 1% of full scale                                        |                                                             |                                     | -                 |
|                                   | Output Specification                                      |                                                             |                                     |                   |
| Output Points                     | -                                                         | 1point                                                      |                                     |                   |
| Rated Output Voltage Range        | -                                                         | Voltage(0 to 10V), current(4 to 20mA)                       |                                     |                   |
| Resolution                        | -                                                         | 12bits                                                      |                                     |                   |
| Output Value of LSB               | -                                                         | 2.5mV(voltage output), 4μA(current output)                  |                                     |                   |
| Output Impedance                  | -                                                         | 2kΩ or less (voltage output), 300Ω or less (current output) |                                     |                   |
| Isolation Method                  | -                                                         | Photocoupler Isolation between output and internal circuit  |                                     |                   |
| Total Output System Transfer Time | -                                                         | 50ms + 1scan time                                           | 130ms + 1scan time                  | 50ms + 1scan time |
| Maximum Error                     | -                                                         | ± 1% of full scale                                          |                                     |                   |
|                                   | 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<br>[0.15] | 23.5<br>[0.93] | 90<br>[3.54] | 4.5 *2<br>[0.18] | 14.6<br>[0.57] | 70<br>[2.76] |
| EXM-DMM8DRT |               |                |              |                  |                |              |
| EXM-AMI2HT  |               |                |              |                  |                |              |
| EXM-ALM3LT  |               |                |              |                  |                |              |
| EXM-AMM3HT  |               |                |              |                  |                |              |
| EXM-AMO1HT  |               |                |              |                  |                |              |
| EXM-DDO16UK |               | 17.6<br>[0.69] |              |                  | 11.3<br>[0.44] |              |
| EXM-DDO16TK |               |                |              |                  |                |              |

\*1 Pt100

\*2 The length of the pulled out hook is 8.5mm [0.33in.]

Unit: mm (in.)

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