

# LON I/O components for decentralized automation in buildings, facilities and systems



# I/O Components with the LON FT5000 Smart Transceiver –

For automation in buildings, facilities and systems

To safely and cost-effectively operate infrastructures in small and large buildings today, it is essential that the most vital operational functions run automatically. In turn, this increases the demands placed on the building installation functions, systems monitoring, air conditioning, ventilation and lighting, for example. These generally call for a great deal of effort and expense when only implemented with conventional technology. That's why the field of building automation is increasingly turning to serial bus systems to transfer information between sensors and actuators, switches and higher-level control systems.

Bus systems such as LON offer various benefits:

- > Simplified planning and installation of building functions
- > High degree of flexibility in building use as freely programmable functions that can be adjusted and re-adjusted at any time, according to new requirements



## Compact and intelligent I/O components for decentralized applications

Due to their compact design for the DIN rail (45 mm cap size) and variety of models, even in IP65 housing, the LON I/O components from METZ CONNECT are ideal for use in decentralized applications. These I/O components can be used where they are really needed. This considerably reduces the amount of cabling compared to the central control cabinet design. In addition, the METZ CONNECT I/O components mixing ratio adapted to the respective application optimizes the number of unused inputs or outputs.



## Minimum amount of wiring and modularity of I/O components due to jumper connectors

The power supply and the bus connection are supplied and handed off at the top or front of the I/O components. By plugging in a bridge connector, up to 15 I/O components can be easily and quickly added and interconnected.







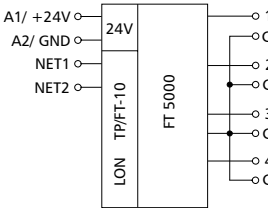
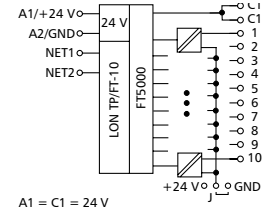
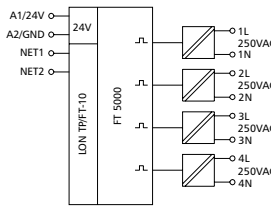
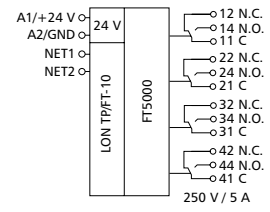
## High functionality due to special application software





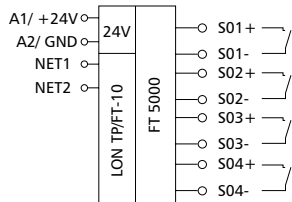
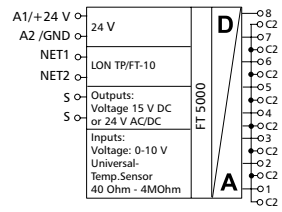
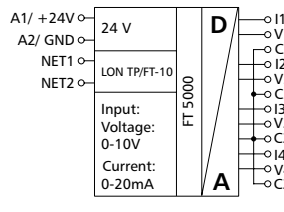
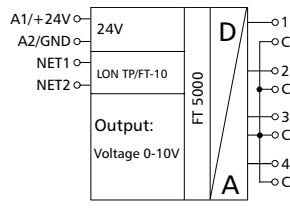
METZ CONNECT provides additional application software tailored to particular use for the individual devices. This allows the user to use proven functionalities cost-effectively and save on their own programming costs. The descriptions of the application software are available on the homepage [www.metz-connect.com/downloads-software](http://www.metz-connect.com/downloads-software).



## Simple and flexible system integration with FT5000 Smart Transceiver

There are obvious advantages of the new processor generation for the user: Due to the higher storage capacity and a larger number of network variables (254 SNVT), more free space is available for application software. Increasing the clock rate to 40 MHz increases overall performance and the license costs (credits) for LON technology use are completely eliminated. It is possible to integrate FT5000 LON devices into existing LON networks. Existing LON systems can be combined with the FT5000 and thus supplemented as well.

Module	 LF-DI4	 LF-DI10/LF-DI10-IP	 LF-DI230	 LF-DO4/LF-DO4-IP
P/N	1108501319	1108511319/1108511319IP	11086313	1108521321/1108521321IP
Description	<p>For detecting potential-free switch states, e.g. electrical limit switches on ventilation flaps or auxiliary contacts on contactors.</p> <p>For detecting potential-free switch states, e.g. electrical limit switches on ventilation flaps or auxiliary contacts on contactors. Depending on how jumper J is set, the inputs can be operated as contact and voltage inputs (jumper J-GND) or with actuation to GND (A2, jumper J - +24).</p>		<p>For detecting 230 VAC switch states, e.g. switches or buttons for light control.</p> <p>Input terminals 1L to 4L are connected to terminals 1N to 4N with 230 VAC switches or contacts.</p>	<p>For switching electrical components such as motors, contactors, bulbs, blinds, etc. For heavy inductive loads, we recommend also protecting the relay contacts with an RC element.</p>
Inputs	<ul style="list-style-type: none"> <li>&gt; 4 potential-free contact inputs</li> <li>&gt; Voltage input 30 V AC/DC</li> <li>&gt; Switching threshold 4.5 V DC</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Adjustable temperature range</li> <li>14 Bit resolution</li> <li>&gt; Input voltage 0–10 V DC</li> <li>&gt; Resolution 10 mV (0.0–100 %)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 4 digital voltage inputs 230 V</li> </ul>	
Outputs				<ul style="list-style-type: none"> <li>&gt; 4 changeover contacts</li> <li>&gt; Switching voltage max. 250 V AC</li> <li>&gt; Rated current               <ul style="list-style-type: none"> <li>LF-DO4: 5 A</li> <li>LF-DO4-IP: 10 A (80 A/20 ms)</li> </ul> </li> <li>&gt; Total current across all contacts               <ul style="list-style-type: none"> <li>LF-DO4: 12 A</li> <li>LF-DO4-IP: 25 A</li> </ul> </li> <li>&gt; Electrical service life               <ul style="list-style-type: none"> <li>LF-DO4: 9 x 104</li> <li>LF-DO4-IP: 9 x 104</li> </ul> </li> <li>&gt; Mechanical service life               <ul style="list-style-type: none"> <li>LF-DO4: 15 x 106</li> <li>LF-DO4-IP: 30 x 106</li> </ul> </li> </ul>
Schematic diagram				
Dimensions	35 x 70 x 65 mm	LF-DI10: 35 x 70 x 65 mm LF-DI10-IP: 159 x 41.5 x 120 mm	35 x 70 x 65 mm	LF-DO4: 35 x 70 x 65 mm LF-DO4-IP: 159 x 41.5 x 120 mm

Module				
	LF-SI4	LF-AI8	LF-CI4	LF-AOP4/LF-AO4-IP
	4 inputs – digital (S0)	8 inputs – universally programmable	4 inputs - analog (current and voltage input)	4 outputs – analog (0–10 V)
P/N	11085813	11085313	1108601332	11085413/11085413IP
Description	<p>For counting S0 meter pulses. The software contains the LONMARK Profile 2201-10 Utility Meter. Thus the LF-SI4 can be very well integrated into a LON energy controlling system. This component stores up to 500 records per channel via a real time clock (RTC) consisting of meter pulses and time stamp. Thus it can also be used as a data logger. In the event of a power failure, the records remain stored. The 4 inputs can optionally be connected to potential-free switches or contacts or S0 meter outputs.</p>	<p>For detecting resistances and voltages of e.g. passive and active temperature sensors, electrical ventilation and mixing valves, valve positions etc. the following temperature curves are stored in the device: PT100, PT500, PT1000, NI1000-TC5000, NI1000-TC6180, BAL-CO500, KTY81_110, KTY81_210, NTC1k8-T, NTC5k-T, NTC10k-T, NTC20k-T, LM235Z (-58 °F to 202 °F).</p>	<p>It is suitable for decentralised switching tasks, e.g. in the industrial and refrigeration sector.</p>	<p>Can be used as a manipulated variable transmitter, e.g. for electrical ventilation and mixing valves, valve positions, etc. With the LF-AOP4 it is possible to toggle between automatic and manual mode using the 4 potentiometers on the front panel.</p>
Inputs	<ul style="list-style-type: none"> <li>&gt; 4 S0 inputs to DIN EN 62053-31 Class AA</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Adjustable temperature range</li> <li>&gt; 14 Bit resolution</li> <li>&gt; Input voltage 0–10 V DC</li> <li>&gt; Resolution 10 mV (0.0–100 %)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 4 current inputs</li> <li>&gt; 4 voltage inputs</li> <li>&gt; Current input 0 to 20 mA DC or 4 to 20 mA DC</li> <li>&gt; Resolution 0.05 mA</li> <li>&gt; Error 1 %</li> <li>&gt; Voltage input 0 to 10 V DC max. 11 V DC</li> <li>&gt; Resolution 10 mV (0.0–100 %)</li> <li>&gt; Input resistance 10 kΩ</li> </ul>	
Outputs				<ul style="list-style-type: none"> <li>&gt; Output voltage 0–10 V DC</li> <li>&gt; Output current 5 mA at 10 V DC</li> <li>&gt; Resolution 10 mV/Digit</li> </ul>
Schematic diagram				
Dimensions	35 x 70 x 65 mm	50 x 70 x 65 mm	35 x 70 x 65 mm	LF-AOP4: 35 x 70 x 65 mm LF-AO4-IP: 159 x 41.5 x 120 mm



LF-AM2/4

LF-TI-IP

LF-DM4/4

LF-TP

2 inputs – analog  
2 outputs – analog  
2 outputs – digital

4 inputs – analog  
4 outputs – digital (Triac)

4 inputs – digital  
2 outputs – digital  
2 outputs – digital (relay)

6 inputs – digital  
2 outputs – digital  
2 x 2 outputs – digital (relay)

11085713

11086105IP

1108561326

11085913

It is suitable, for example, for controlling motorized ventilation flaps and activating an alarm at the set threshold. The individual analogue outputs in a LON installation are actuated as a percentage by SNVT network variables and supply a corresponding voltage of 0 to 10 volts. The outputs can also be set to preset voltages. The two digital outputs can be actuated individually or depending on an adjustable threshold.

For detecting temperatures or voltages and switching 4 thermal valve drives with TRIACS.

It is suitable, for example, for querying switching states and therefore switching motors or other actuators.

For switching multi-stage pumps, fans, boilers, blinds or similar. The digital inputs 1–6 are connected to two-pin C2 terminals by potential-free switches or contacts.

- > 2 voltage inputs 0–10 V DC
- > Voltage input max. 11 V DC
- > Resolution 10 mV (0.0–100 %)
- > Error 100 mV

- > 4 temperature inputs
- > Range 40 Ω to 4 MΩ
- > Adjustable temperature range
- > Resolution 10 mV
- > Error approx. ±100 mV ±32 °F
- > Voltage input 0–10 V DC
- > Resolution 10 mV (0.0–100 %)
- > Error approx. ±10 mV

- > 4 digital inputs
- > Switching threshold 4.5 V DC

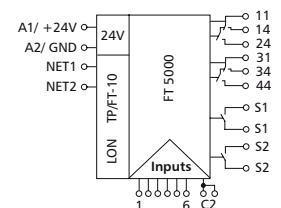
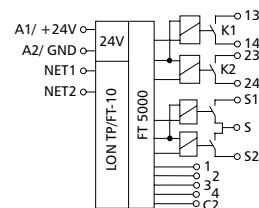
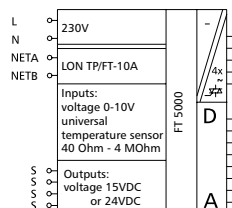
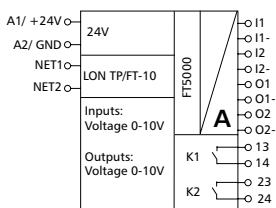
- > 6 digital inputs
- > Switching threshold 4.5 V DC

- > 2 analog inputs 0–10 V DC
- > Output current 5 mA at 10 V DC
- > Resolution 0.625 mV/Digit
- > Error 100 mV
- > 2 digital outputs
- > Output contacts
- 2 NO contacts (PhotoMOS relay)
- > Switching voltage max. 40 V AC/DC
- > Persistent current max. 100 mA

- > 4 digital outputs (Triac)
- > Switching voltage 20–250 V AC
- > Rated current 0.8 A
- > Fuse protection of the triacs 2 A each
- > Total current across all outputs max. 2.4 A

- > 2 output contacts (relay) NO contact
- > Switching voltage (relay) 250 V AC
- > Rated current (relay) 6 A
- > Mechanical service life: 30 x 10<sup>6</sup> switching cycles electric: 1 x 10<sup>5</sup>
- > 2 NO contacts (PhotoMOS relays)
- > Switching voltage (digital) 40 V AC/DC
- > Rated current (digital) 100 mA

- > 2 two-stage output contacts (relay)
- > Switching voltage max. 250 V AC
- > Persistent current max. 5 A (ohmic load)
- > Mechanical service life: 30 x 10<sup>6</sup> electrical: 1 x 10<sup>5</sup>
- Output contact (digital)
- 2 NO contacts (PhotoMOS relay)
- > Switching voltage (digital) 40 V AC/DC
- > Rated current (digital) 100 mA



35 x 70 x 65 mm

159 x 41.5 x 120 mm

35 x 70 x 65 mm

50 x 70 x 65 mm



LF-TO4

LF-DIO4/2 | LF-DIO4/2-IP

LF-FAM

NG4

4 outputs – digital (Triac)

4 inputs – digital  
2 outputs – digital (relay)

Fieldbus interface module

Power supply 24V DC/700mA

11086213

1108551326/1108551326IP

11087913

110561

For switching electrical components, e.g. relays, contactors, HVAC valves, etc. Particularly suitable for noiseless and clocked switching (PWM).

It is suitable, for example, for accommodating light switches and window contacts in a room and switching two striplights on and off or for controlling blinds. The control of 2 motorized fire dampers is also possible, as are many other applications.

Connection module for bus connection, supply voltage and adjustable bus termination. The LF-FAM interface module was developed as an ancillary wiring product for providing the supply voltage and a two-wire bus to the C|Logline LON bus modules. A bus terminating resistor of 52.3 Ω (R/2) for free network topology and 105 Ω (R) for line topology can be used for each jumper under the detachable cover.

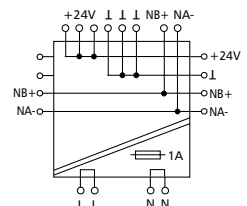
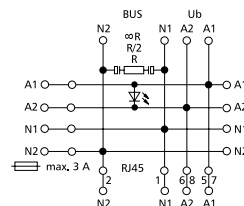
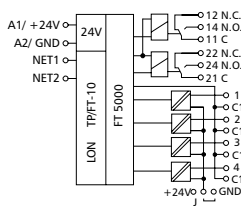
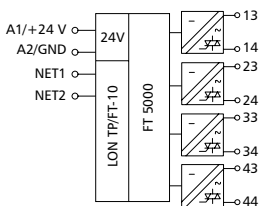
The NG4 power supply provides controlled DC voltages to supply the respective devices of the C|Logline product range. The device supplies controlled 24 V DC with an output of 16 Watt.

- > 4 digital voltage inputs
- > 30 V AC/DC
- > High signal detection >7 V AC/DC

- > 2 changeover contacts
- > Switching voltage: 250 V AC
- > Inrush peaks: 80 A/20 ms
- > Persistent current per relay
  - LF-DIO4/2: 16 A
  - LF-DIO4/2-IP: 10 A
- > Total current via all contacts
  - LF-DIO4/2: 25 A
  - LF-DIO4/2-IP: 20 A
- > Mechanical
  - service life: 30 x 10<sup>6</sup>
  - electrical: 1 x 10<sup>5</sup>

- > 4 digital triac outputs
- > Switching voltage 20–250 V AC
- > Rated current 0.8 A
- > Fuse protection (triacs) 2 A each
- > Total current across all outputs max. 2.4 A

- > Rated voltage
  - 110–240 V AC, 50/60 Hz
- > Internal fuse
- > T 1.0 A/250 V Solder-in fuse
- > Output power 16 W
- > Output voltage +24 V DC
- > Operating voltage display green LED
- > Output current (max.) 700 mA
- > Supply accuracy ±5 %
- > Network failure bridging 40 ms

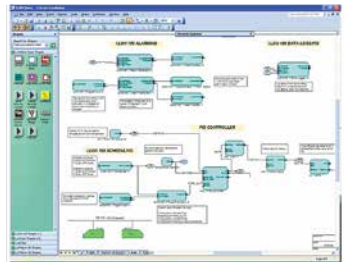
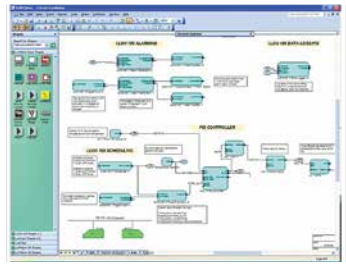


35 x 70 x 65 mm

LF-DIO4/2: 50 x 70 x 65 mm  
LF-DIO4/2-IP: 159 x 41.5 x 120 mm

35 x 70 x 65 mm

50 x 70 x 65 mm



Echelon U10 USB Network Interface

Echelon IzoT CT 4.1 Standard

Echelon IzoT CT 4.1 Professional

USB to LON TP/FT-10 Network Interface Model 75010R

Integration Software Model 38100-401

Integration Software with Visio Model 38000-401

110214

110208

110209

- > USB to LON WORKS (ANSI/CEA-709)
- > network interface
- > LON WORKS channel support for
- > free twisted pair topology (TP/FT-10)
- > Maximum possible power and network performance
- > Robust design, detachable connections

- > Operate LON devices with a simple graphical user interface
- > Supports IzoT, OpenLNS and LNS plug-ins
- > Supports LON devices with up to 4096 network variables
- > Import and export of AutoCAD drawings

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We realize ideas

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