

EMC Filter



FEATURES

- | Global wide input voltage:85~305VAC
- | Ensure the power supply module to meet the requirement of CISPR22/EN55022 Class B
- | Operating Temperature range: -40°C ~ +85°C
- | Compact size, application of PCB mounting, Chassis mounting with Screw Terminals, DIN-Rail mounting

RoHS

This model applies to analog circuit which is noise-sensitive. Put SFC-LX1D on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 ±2KV (2Ω internal resistance)/±4KV (12Ω internal resistance). Put SFC-LX1D2 on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 ±4KV (2Ω internal resistance)/±6KV (12Ω internal resistance) and EMI requirement of CISPR22 /EN 55022 Class B.

EMC filter used with the SCHMID-M AC/DC module, AC/DC module's max. Input voltage must not more than EMC filter's max. Voltage, AC/DC module's max. Input current must less than EMC filter's nominal current.

Selection Guide

| Model | Input Voltage Range (VAC) | Nominal Current (A)(max) |
|-----------|---------------------------|--------------------------|
| SFC-LX1D | 85~305 | 1.5 |
| SFC-LX1D2 | 85~305 | 1.5 |

Note: series with suffix "A2S" are chassis mounting, with suffix "A4S" are DIN-Rail mounting, for example SFC-LX1DA4S.

General Specifications

| Item | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------|---|------|------|------|------|
| Operating Temperature | | -40 | -- | 85 | °C |
| Storage Temperature | | -55 | -- | 125 | |
| Casing Temperature Rise | 220VAC @0.5A | -- | -- | 5 | |
| | 220VAC @1.0A | -- | -- | 20 | |
| | 220VAC @1.5A | -- | -- | 30 | |
| Test Voltage (L/PE, N/PE) | Tested for 1 minute and leakage current: 5 mA | -- | 2000 | -- | VAC |

General Specifications

| | | | |
|--------------------|--|--------------------|----------------------|
| Casing Material | Black flame-retardant heat-proof epoxy resin (UL94-V0) | | |
| Package Dimensions | SFC-LX1D | Horizontal package | 33.70x22.20x18.00 mm |
| | | A2S wiring package | 76.00x31.50x26.80 mm |
| | | A4S rail package | 76.00x31.50x31.40 mm |

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SFC-LX1D & SFC-LX1D2 Series

| | | | |
|--------|-----------|--|----------------------|
| | SFC-LX1D2 | Horizontal package | 53.80x28.80x19.00 mm |
| | | A2 Swiring package | 76.00x31.50x27.80 mm |
| | | A4S rail package | 76.00x31.50x32.40 mm |
| Weight | SFC-LX1D | Horizontal package/A2S wiring package/ A4S rail package | 20g/40g/60g(Typ) |
| | SFC-LX1D2 | | 50g/70g/90g(Typ) |

Frequency Attenuation Specifications

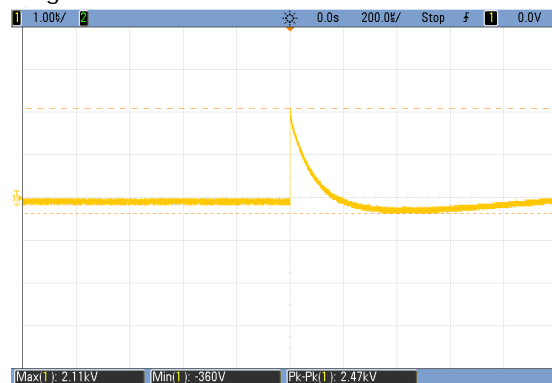
| Item | Test Conditions | Min. | Typ. | Max. | Unit | |
|--|-----------------|-----------|------|------|------|----|
| The attenuation coefficient of frequency | 150KHz—1GHz | SFC-LX1D | -- | 20 | -- | dB |
| | | SFC-LX1D2 | -- | 30 | -- | |

Devise Standard

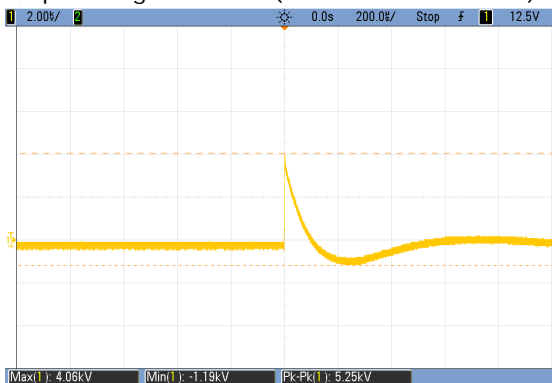
Put SFC-LX1D on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 standard $\pm 2KV$ (2Ω internal resistance)/ $\pm 4KV$ (12Ω internal resistance). Put SFC-LX1D2 on to the input of AC/DC module can ensure the module meet Surge level of IEC/EN61000-4-5 standard $\pm 4KV$ (2Ω internal resistance)/ $\pm 6KV$ (12Ω internal resistance) and EMI requirement of CISPR22 /EN 55022 Class B.

EMC Specifications

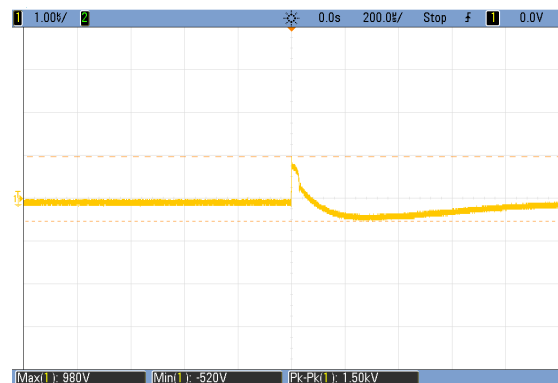
①SFC-LX1D Surge Test Result



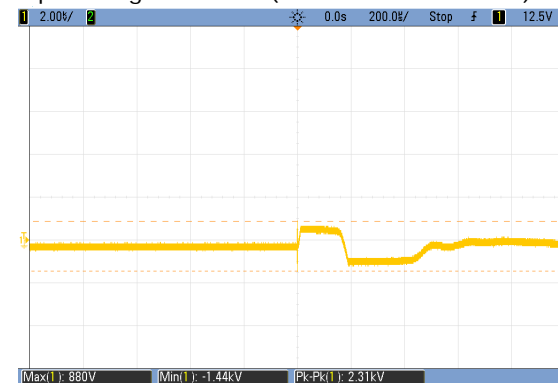
Input voltage waveform (Differential mode 2.11KV)



Input voltage waveform (Common mode 4.06KV)



Output voltage waveform (Differential mode 0.98KV)



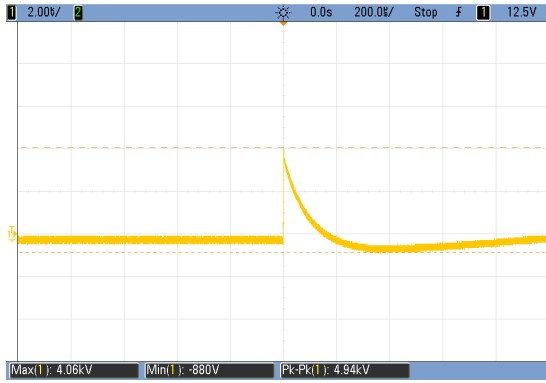
Output voltage waveform(Common mode 0.88 KV)

Note: Above result was tested on SFC-LX1D open.

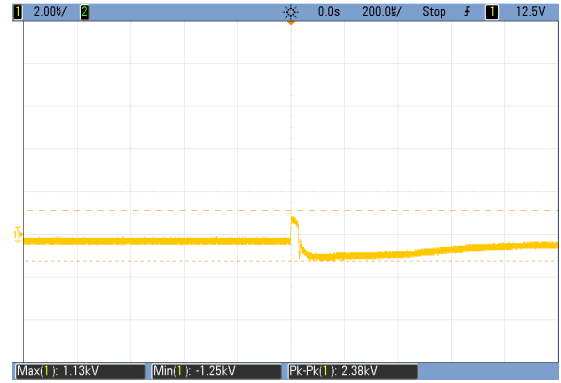
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SFC-LX1D & SFC-LX1D2 Series

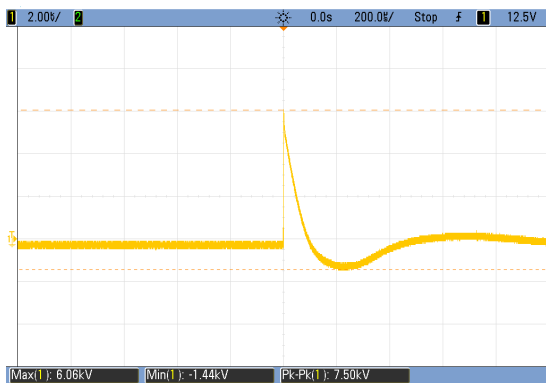
②SFC-LX1D2 Surge Test Result



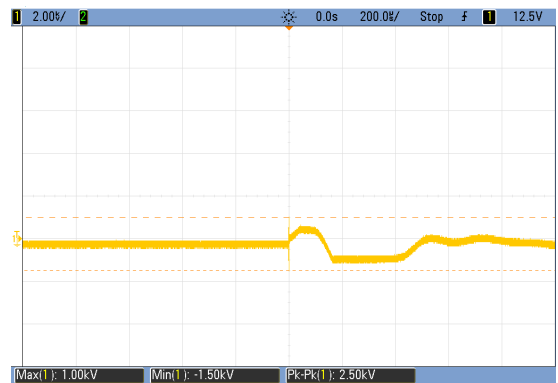
Input voltage waveform (Differential mode 4.06KV)



Output voltage waveform (Differential mode 0.90KV)



Input voltage waveform (Common mode 6.06KV)

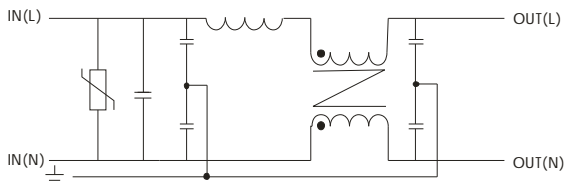


Output voltage waveform(Common mode 1.00KV)

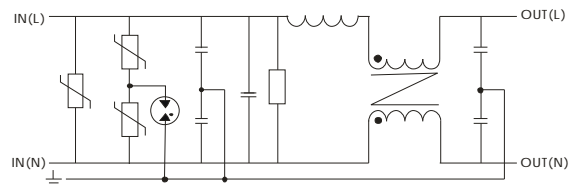
Note: Above result was tested on SFC-LX1D2 open.

Design Reference

1. Inside schematic

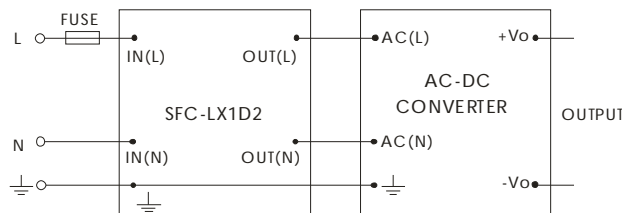


(Figure 1)SFC-LX1D



(Figure 2)SFC-LX1D2

2. Typical application



FUSE: Due to the difference of the power module input current, the fuse of the recommended values, please refer to the Technical Manual for the power module.

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SFC-LX1D & SFC-LX1D2 Series

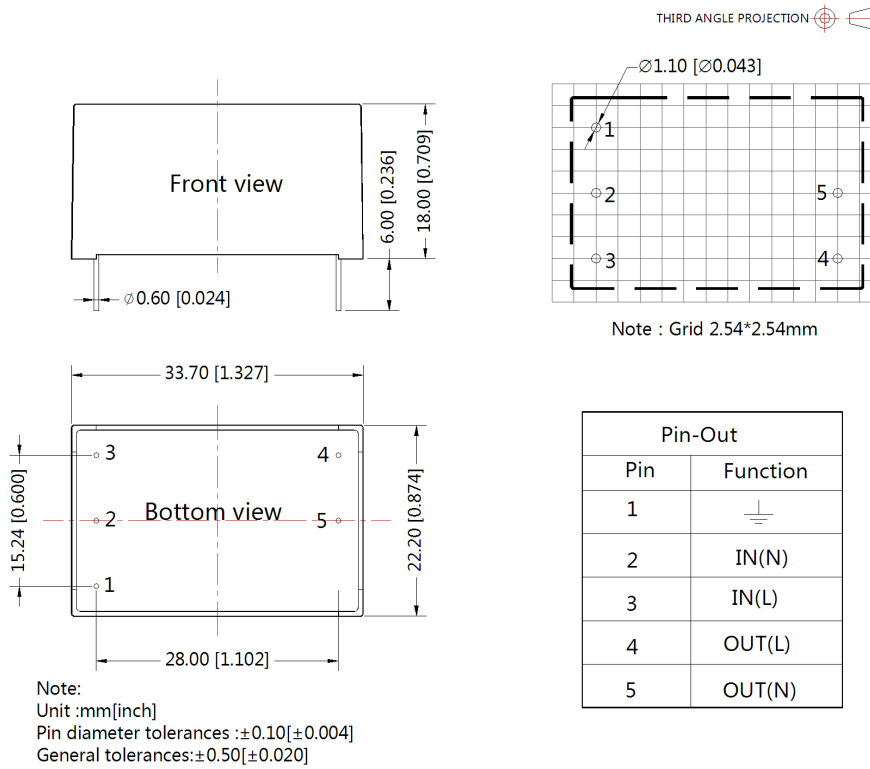
3. Supporting the power module product model

| Model | EMI (Without External Circuit) | EMI (With EMC filter) | EFT (Without External Circuit) | EFT (With EMC filter) | Surge (Without External Circuit) | Surge (With SFC- LX1D) | Surge (With SFC- LX1D2) |
|--|---|--------------------------------|--------------------------------------|-----------------------------|--|------------------------------|----------------------------------|
| SLB(03-25)- 10BXX(LT) Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV/±2KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| SLD(01-02)- 10BXX Series | CISPR22/ EN55022 CLASS B | -- | -- | IEC/EN61000-4-4 ±2KV | -- | IEC/EN61000-4-5 ±1KV/±2KV | -- |
| SLD03-10BXX Series | CISPR22/ EN55022 CLASS A | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±2KV | -- | IEC/EN61000-4-5 ±1KV/±2KV | -- |
| SLD05-20BXX Series | CISPR22/ EN55022 CLASS A | CISPR22/ EN55022 CLASS B | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV/±2KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| SLD05-23BXX Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| SLD10-20BXX Series | CISPR22/ EN55022 CLASS A | CISPR22/ EN55022 CLASS B | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| SLD10-23BXX Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| SLD12-20BXX Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±4KV | -- | IEC/EN61000-4-5 ±2KV | -- | IEC/EN61000- 4-5 ±4KV/±6KV |
| SLD20-10BXX Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±4KV | -- | IEC/EN61000-4-5 ±2KV | -- | IEC/EN61000- 4-5 ±4KV/±6KV |
| SLH Series | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±2KV | IEC/EN61000-4-4 ±4KV | IEC/EN61000-4-5 ±1KV/±2KV | IEC/EN61000-4-5 ±2KV/±4KV | -- |
| Dedicated Power Converter For Power System SLH(ER2) Series | CISPR22/ EN55022 CLASS A | CISPR22/ EN55022 CLASS B | IEC/EN61000-4-4 ±4KV | -- | IEC/EN61000-4-5 ±2KV/±4KV | -- | IEC/EN61000- 4-5 ±4KV/±6KV |
| SLM30- 00J0512-03E | CISPR22/ EN55022 CLASS B | -- | IEC/EN61000-4-4 ±4KV | -- | IEC/EN61000-4-5 ±2KV/±4KV | -- | IEC/EN61000- 4-5 ±4KV/±6KV |

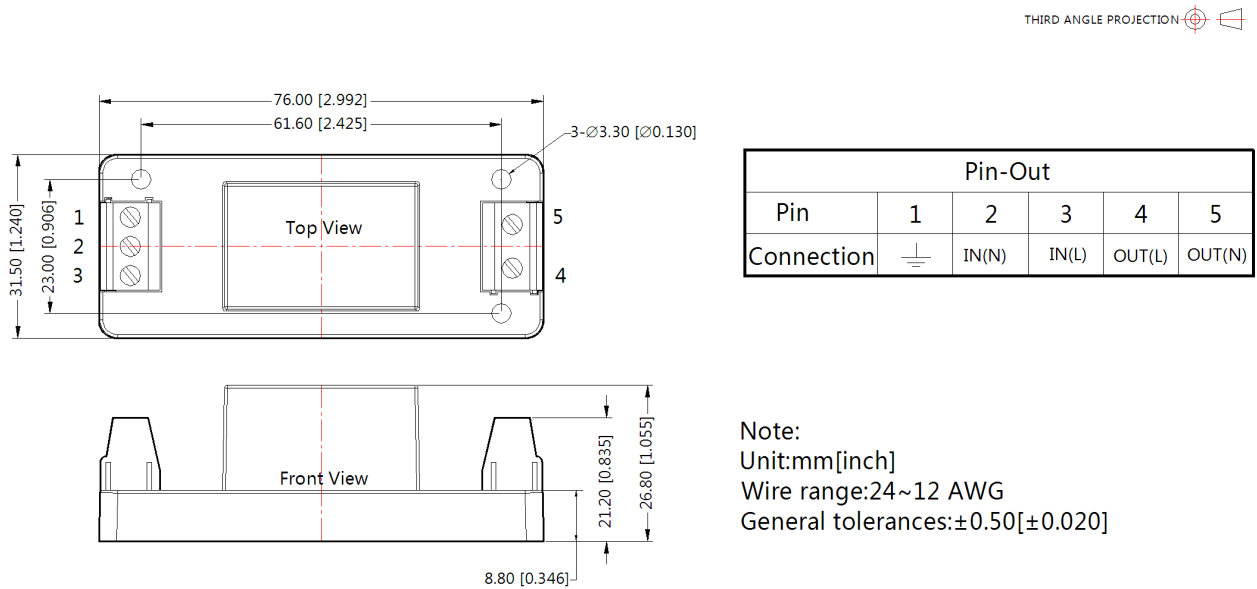
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SFC-LX1D & SFC-LX1D2 Series

SFC-LX1D Dimensions and Recommended Layout




SFC-LX1DA2S Dimensions

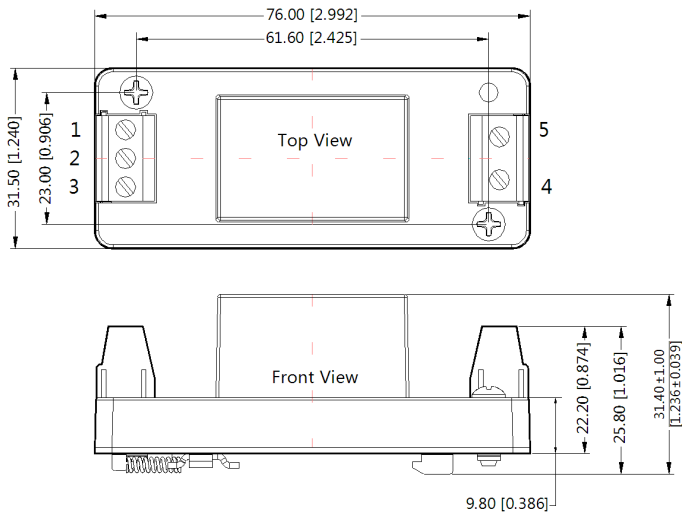



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SFC-LX1D & SFC-LX1D2 Series

SFC-LX1DA4S Dimensions

THIRD ANGLE PROJECTION 

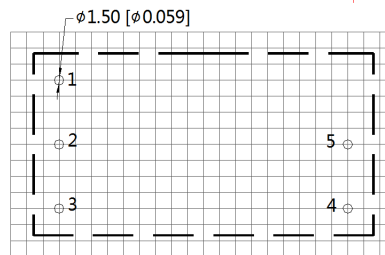
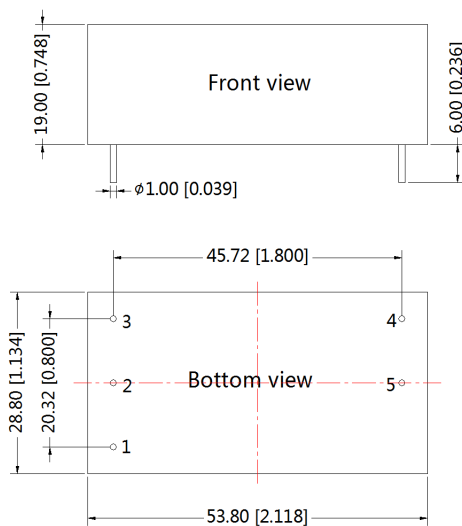


| Pin-Out | | | | | |
|----------|---|-------|-------|--------|--------|
| Pin | 1 | 2 | 3 | 4 | 5 |
| Function |  | IN(N) | IN(L) | OUT(L) | OUT(N) |


Note:
 Unit:mm[inch]
 Wire range:24~12 AWG
 General tolerances:±0.50[±0.020]

SFC-LX1D2 Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Note : Grid 2.54*2.54mm


| Pin-Out | |
|---------|---|
| Pin | Function |
| 1 |  |
| 2 | IN(N) |
| 3 | IN(L) |
| 4 | OUT(L) |
| 5 | OUT(N) |

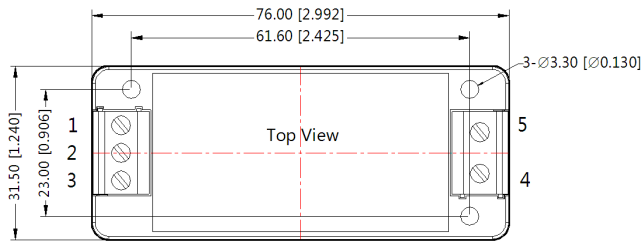
Note:
 Unit :mm[inch]
 Pin diameter tolerances :±0.10[±0.004]
 General tolerances:±0.50[±0.020]


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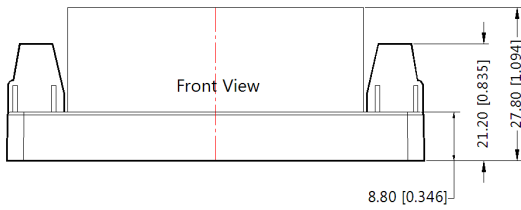
SFC-LX1D & SFC-LX1D2 Series

SFC-LX1D2A2S Dimensions

THIRD ANGLE PROJECTION 




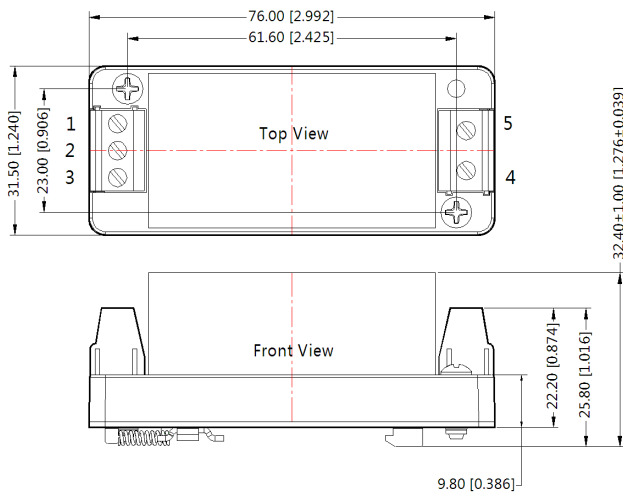
| Pin-Out | | | | | |
|----------|---|-------|-------|--------|--------|
| Pin | 1 | 2 | 3 | 4 | 5 |
| Function |  | IN(N) | IN(L) | OUT(L) | OUT(N) |




Note:
 Unit:mm[inch]
 Wire range:24~12 AWG
 General tolerances:±0.50[±0.020]

SFC-LX1D2A4S Dimensions

THIRD ANGLE PROJECTION 



| Pin-Out | | | | | |
|----------|---|-------|-------|--------|--------|
| Pin | 1 | 2 | 3 | 4 | 5 |
| Function |  | IN(N) | IN(L) | OUT(L) | OUT(N) |

Note:
 Unit:mm[inch]
 Wire range:24~12 AWG
 General tolerances:±0.50[±0.020]

EMC Filter

SFC-LX1D & SFC-LX1D2 Series

Note:

1. Unless otherwise specified, data in this data sheet should be tested under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%;
2. All index testing methods in this datasheet are based on our Company's corporate standards;
3. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
4. We can provide product customization service;
5. Specifications of this product are subject to changes without prior notice.