



Systems and components for industrial enclosures







06-17	FILTER FANS AND ROOF UNITS Air filtering solutions for enclosures.
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Most of our products are available in the industrial engineering software:



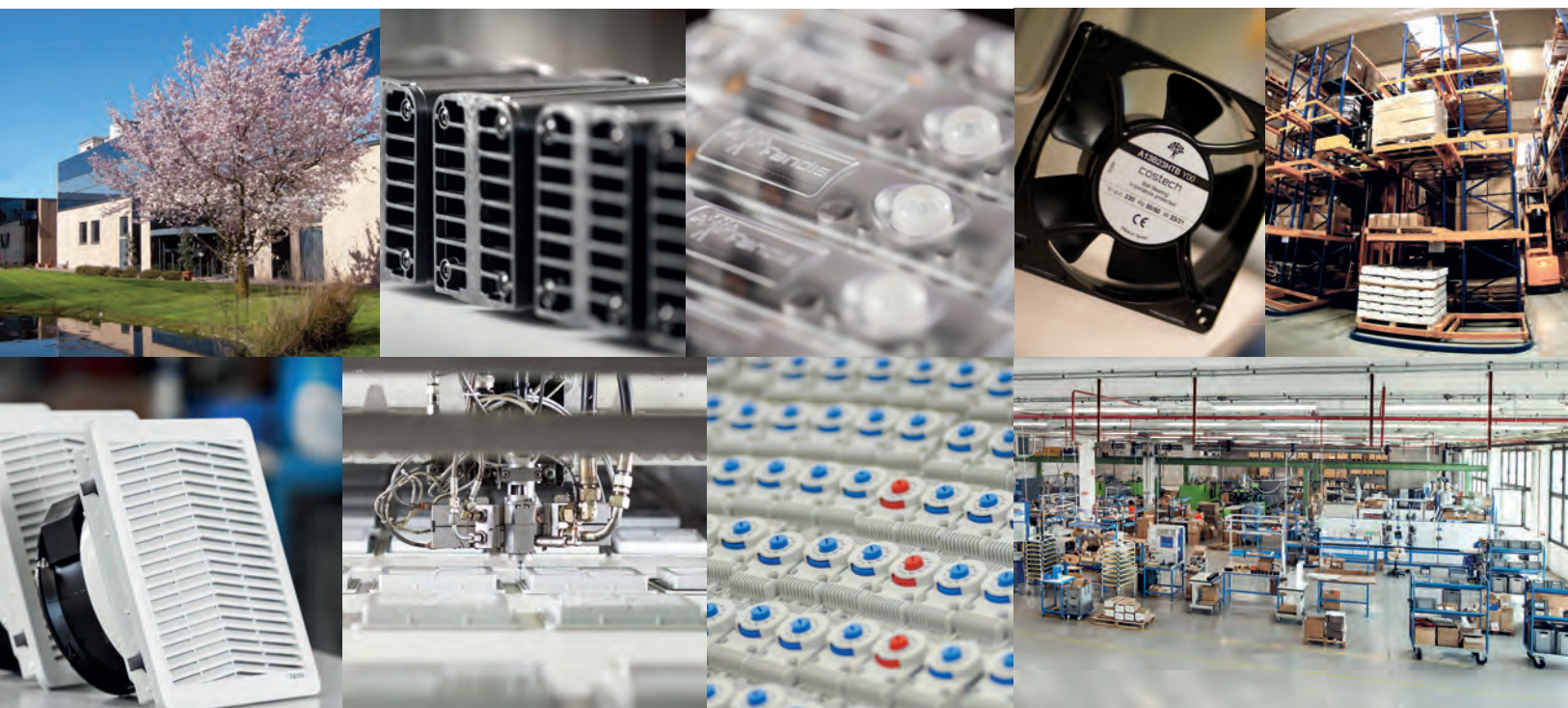


Fandis North America is the U.S. subsidiary of Italian-based Fandis S.p.A. With more 30 years' experience, Fandis S.p.A. is one of the most respected European manufacturers of thermal management systems for electrical control panels and low voltage energy control and distribution.

Located in Atlanta, Georgia, **Fandis North America**, provides sales, support and U.S. based inventory. To support the North American market, Fandis NA utilizes a network of manufacturers' representatives and distributors.

Keys to Fandis' success:

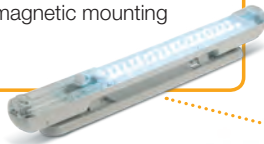
- Wide range of thermal management products for industrial controls / enclosure market
 - Filter fans, filters, heaters, LED enclosure lighting, thermostats and hygrometers
- 19,000 sf production area
- Lean manufacturing processes
- In-house manufacturing,
 - Thermoplastic injection molding
 - Deposition of expanded polyurethane seals
- Quality inspection from procurement through production



Fandis solutions for enclosures

LED LAMPS

115/230Va.c., multi-voltage or 12/24/48Vd.c.
ON/OFF switch or infrared sensor, screw or magnetic mounting



PLASTIC ROOF EXHAUST UNITS

IP24/44/54/55.
Also in metal version



PRESSURE COMPENSATION DEVICE

IP55



FLASHING DEVICES

Optional version with limit switch or interlock switch



FILTER FANS

5 sizes with/without fan
Available in Type12, Type 3R and EMC versions



NO-NC THERMOSTATS

Setting range: 14 ... 176°F.



COMPACT FANS

a.c./d.c. axial or centrifugal fans, also in IP55, all metal and HTR version. Accessories



HYGROSTATS

Setting range: 10-90%RH



TWIN THERMOSTATS

Setting range: 14 ... 176°F.



ANTI-CONDENSATION HEATERS

Version with cable, terminal block or ventilated. Available in plastic (touch safe) or metal version. 5-350W



Air flow management

Frequently, the causes behind malfunctions or faults in electrical and electronic equipment housed in control panels or fitted as an integral part of a machine, are due to heat problems. In reality, the life span of components depends on the temperature and level of humidity inside the electrical cabinet.

The normal recommended average operating temperature inside a cabinet is 95°F with relative humidity of no more than 60%.

Fandis offers a wide range of solutions for efficiently disposing of dissipated heat from electrical components suitable for different applications.



NATURAL CONVECTION

The use of exhaust filters creates an air flow to remove the heat in a natural manner. This solution can be considered for dissipating low level of heat in dusty environments.



FORCED CONVECTION

Forced ventilation is an inexpensive and efficient solution for preventing the formation of air pockets inside electrical cabinets. The best configuration is a filter fan and exhaust filter working in combination.

The filter fan positioned at the bottom of the cabinet, takes in and filters air from the outside (standard air flow) while the exhaust filter at the top expels hot air. The pressure generated by the ventilation prevents unfiltered air from entering through holes or openings.



An inverted air flow version - reverse flow - is also available (filter fan at top and exhaust filter at bottom).

The system can be controlled by a thermostat that turns the fan on when high temperatures are detected.



Hot air can also be expelled from the roof of the cabinet if, for instance, the sides of the cabinet are covered by obstacles, walls or by the sides of other cabinets. In a perfect configuration, an exhaust filter is positioned at the bottom of the cabinet. The lower pressure generated by the roof unit sucks in air from the outside through the exhaust filter to enhance internal air flow and the dissipation of heat.



The use of a swivelling fan is an alternative solution for a better air circulation inside the electrical cabinet. This fan distributes heat to reduce the temperature, cools local hot spots and disperses cold air emitted by cooling units.

FILTER FANS

Filter fans are a practical solution for removing heat from the cabinet. They channel filtered ambient air into the enclosure, expelling warm internal air through an exhaust filter or roof unit to reduce temperatures and protect electronic components from overheating.

Fandis offers a variety of options to meet different cooling and ventilation requirements.

■ FF SERIES



TIME-SAVING INSTALLATION

Quick tool-less mounting system with clips for 0.039in to 0.146in thick plates

■ QUICK CONNECTION

Cage clamp free-tool wiring system

■ IP55 AND TYPE 3R

Ideal for indoor or outdoor use in harsh industrial environments

■ EMC-COMPATIBLE

Metal shielding for electromagnetic protection (available on request)

SLIDE OPENING

Easy replacement of the filter media without the need of tools

■ COLORS

Custom RAL colors subject to minimum order



Details that make the difference



Cage clamp system



Sliding mechanism



Improved water resistance



Fandis Type 3R filter fans are specifically designed to meet the outdoor location needs and provide a degree of protection for the enclosure and the internal electrical control components from falling dirt, dust, rain, sleet and from damage caused by the formation of ice.

The application rated 3R design includes durable plastic construction that allows direct sunlight or water exposure without the risk of premature aging.

The FF series of filter fans is suitable to preserve the integrity of components inside an electrical cabinet for outdoor use, and ensure greater resistance to degradation due to environmental factors.

The main **benefits of the FF Type 3R filter fans** are:



waterproof



UV-resistant



IP54 and IP55 protection



quick tool-less mounting system with clips for 0.039 to 0.146in thick plates



plastics construction against atmospheric deterioration

Model numbering system for FF SERIES

description	FF 15 P A 230 U N R 5 3 C 1 -S00	description
FAMILY FF		CUSTOM SERIES S** = custom version
DIMENSION CODE		VERSION
08 - 4.19 x 4.19 12 - 5.91 x 5.91		EMC C = EMC shielded
13 - 8.03 x 8.03 15 - 9.84 x 9.84		TYPE RATING
20 - 12.8 x 12.8		() = Type 12 or Type1 3 = Type 3R
FAN SIZE		FILTER MAT
P = small M = medium G = large		() = G3 A = G2
GE = large with plastic adaptor () = standard		5 = G4 O = without
VOLTAGE A = a.c. voltage D = d.c. voltage		AIR FLOW DIRECTION
RATED VOLTAGE		() = standard flow R = reverse flow
115 = 115 Va.c. 230 = 230 Va.c. 400T = 400 Va.c. 3~		FAN SUPPLIER
12 = 12 Vd.c. 24 = 24 Vd.c. 48 = 48 Vd.c.		N = NMB E = Ecofit F = Fandis
COLOR		
R = grey RAL 7032 U = grey RAL 7035 N = black RAL 9005		



FF series exhaust filters

- Free-tool clip mounting system
- Plate thickness: FF08 from 0.039 to 0.079in; FF12, FF13 from 0.051 to 0.126in; FF15, FF20 from 0.051 to 0.146in (up to 0.157in with cut-out max tolerance)
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1, 3R and EMC



Model	Dimensions in	Cut-Out in	Weight lb
FF08U	4.19x4.19x0.91	3.6x3.6	0.22
FF12U	5.91x5.91x1.15	4.88x4.88	0.44
FF13U	8.03x8.03x1.16	6.97x6.97	0.79
FF15U	9.84x9.84x1.33	8.78x8.78	1.26
FF20U	12.8x12.8x1.34	11.45x11.45	2.16

FF series IP55 exhaust filters

- IP55 protection degree



Model	Dimensions in	Cut-Out in	Weight lb
FF12U5	5.91x5.91x1.15	4.88x4.88	0.44
FF13U5	8.03x8.03x1.16	6.97x6.97	0.79
FF15U5	9.84x9.84x1.33	8.78x8.78	1.28
FF20U5	12.8x12.8x1.34	11.45x11.45	2.18

FF series EMC exhaust filters

- Electromagnetic shielding



Model	Dimensions in	Cut-Out in	Weight lb
FF08UC	4.19x4.19x0.91	3.6x3.6	0.22
FF12UC	5.91x5.91x1.15	4.88x4.88	0.46
FF13UC	8.03x8.03x1.16	6.97x6.97	0.82
FF15UC	9.84x9.84x1.33	8.78x8.78	1.32
FF20UC	12.8x12.8x1.34	11.45x11.45	2.27



FF series Type 3R exhaust filters

- Ideal for outdoor applications
- Plastics construction against atmospheric deterioration
- UV resistant
- IP55 protection degree; IP54 for FF08 series



Model	Dimensions in	Cut-Out in	Weight lb
FF08N3	4.19x4.19x 0.91	3.60x 3.60	0.30
FF12N53	5.91x5.91x1.15	4.88x4.88	0.64
FF13N53	8.03x8.03x1.16	6.97x6.97	1.04
FF15N53	9.84x9.84x1.33	8.78x8.78	1.96
FF20N53	12.8x12.8x1.34	11.45x11.45	2.56



FF series filter fans

- Free-tool clip mounting system
- Plate thickness: FF08 from 0.039 to 0.079in; FF12, FF13 from 0.051 to 0.126in; FF15, FF20 from 0.051 to 0.146in (up to 0.157in with cut-out max tolerance)
- Quick electrical connection by screwless terminal block
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1, 3R and EMC
- Frequency: 50/60 Hz
- Other voltages available on request



Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range
	in	in	V	W	CFM	inH ₂ O	°F
FF08A115UN	4.19x4.19x2.62	3.6x3.6	115 V a.c.	7.0	8.8	0.13	14 ÷ 131
FF08A115UNR	4.19x4.19x2.62	3.6x3.6	115 V a.c.	7.5	12.4	0.26	14 ÷ 131
FF08D12UN	4.19x4.19x2.11	3.6x3.6	12 V d.c.	2.0	9.4	0.11	14 ÷ 131
FF08D12UNR	4.19x4.19x2.11	3.6x3.6	12 V d.c.	2.2	13.5	0.18	14 ÷ 131
FF08D24UN	4.19x4.19x2.11	3.6x3.6	24 V d.c.	2.0	9.4	0.11	14 ÷ 131
FF08D24UNR	4.19x4.19x2.11	3.6x3.6	24 V d.c.	2.2	13.5	0.18	14 ÷ 131
FF08GA115UF	4.19x4.19x3.13	3.64x3.64	115 V a.c.	10	15.3	0.22	14 ÷ 131
FF08GA115UNR	4.19x4.19x2.51	3.64x3.64	115 V a.c.	9.0	11.8	0.24	14 ÷ 131
FF08GD24UN	4.19x4.19x3.04	3.64x3.64	24 V d.c.	15	29.4	0.64	14 ÷ 131
FF08GD24UNR	4.19x4.19x3.04	3.64x3.64	24 V d.c.	17	35.3	0.8	14 ÷ 131
FF12A115UF	5.91x5.91x2.88	4.88x4.88	115 V a.c.	15	29.4	0.25	14 ÷ 131
FF12A115UFR	5.91x5.91x2.88	4.88x4.88	115 V a.c.	15	30.6	0.33	14 ÷ 131
FF12A115UN	5.91x5.91x2.88	4.88x4.88	115 V a.c.	17	46.5	0.35	14 ÷ 131
FF12A115UNR	5.91x5.91x2.88	4.88x4.88	115 V a.c.	17	41.2	0.46	14 ÷ 131
FF12D24UN	5.91x5.91x2.87	4.88x4.88	24 V d.c.	7.4	27.6	0.22	14 ÷ 131
FF12D24UNR	5.91x5.91x2.87	4.88x4.88	24 V d.c.	7.4	37.6	0.32	14 ÷ 131
FF12D48UN	5.91x5.91x2.87	4.88x4.88	48 V d.c.	8.6	27.6	0.22	14 ÷ 131
FF12D48UNR	5.91x5.91x2.87	4.88x4.88	48 V d.c.	8.6	37.6	0.32	14 ÷ 131
FF13PA115UF	8.03x8.03x3.76	6.97x6.97	115 V a.c.	18	64.7	0.24	14 ÷ 131
FF13PA115UFR	8.03x8.03x3.76	6.97x6.97	115 V a.c.	18	64.7	0.32	14 ÷ 131
FF13PA115UN	8.03x8.03x3.76	6.97x6.97	115 V a.c.	15	76.5	0.4	14 ÷ 131
FF13PA115UNR	8.03x8.03x3.76	6.97x6.97	115 V a.c.	18	79.4	0.48	14 ÷ 131
FF13PD24UN	8.03x8.03x3.75	6.97x6.97	24 V d.c.	8.2	58.8	0.24	14 ÷ 131
FF13PD24UNR	8.03x8.03x3.75	6.97x6.97	24 V d.c.	8.5	66.5	0.33	14 ÷ 131
FF15A115UF	9.84x9.84x4.89	8.78x8.78	115 V a.c.	31	158.8	0.62	14 ÷ 131
FF15A115UFR	9.84x9.84x4.89	8.78x8.78	115 V a.c.	31	170.6	0.84	14 ÷ 131
FF15A115UN2	9.84x9.84x4.42	8.78x8.78	115 V a.c.	41	158.8	0.78	14 ÷ 131
FF15A115UNR2	9.84x9.84x4.42	8.78x8.78	115 V a.c.	41	166.5	1.01	14 ÷ 131
FF15D24UF	9.84x9.84x4.94	8.78x8.78	24 V d.c.	31	161.8	0.6	14 ÷ 131
FF15D24UFR	9.84x9.84x4.94	8.78x8.78	24 V d.c.	31	173.5	0.82	14 ÷ 131
FF15D24UN	9.84x9.84x4.94	8.78x8.78	24 V d.c.	17	144.1	0.4	14 ÷ 131
FF15D24UNR	9.84x9.84x4.94	8.78x8.78	24 V d.c.	17	167.6	0.59	14 ÷ 131
FF15D48UN	9.84x9.84x4.94	8.78x8.78	48 V d.c.	16	140	0.4	14 ÷ 131
FF15D48UNR	9.84x9.84x4.94	8.78x8.78	48 V d.c.	16	160	0.58	14 ÷ 131
FF15PA115UF	9.84x9.84x4.4	8.78x8.78	115 V a.c.	16	70.6	0.23	14 ÷ 131
FF15PA115UFR	9.84x9.84x4.4	8.78x8.78	115 V a.c.	16	70.6	0.28	14 ÷ 131

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range
	in	in	V	W	CFM	inH ₂ O	°F
FF15PA115UN	9.84x9.84x4.42	8.78x8.78	115 V a.c.	19	85.3	0.4	14 ÷ 131
FF15PA115UNR	9.84x9.84x4.42	8.78x8.78	115 V a.c.	19	88.2	0.48	14 ÷ 131
FF15PD24UN	9.84x9.84x4.39	8.78x8.78	24 V d.c.	7.6	82.4	0.25	14 ÷ 131
FF15PD24UNR	9.84x9.84x4.39	8.78x8.78	24 V d.c.	7.6	88.2	0.34	14 ÷ 131
FF15PD48UN	9.84x9.84x4.39	8.78x8.78	48 V d.c.	8.6	82.4	0.25	14 ÷ 131
FF15PD48UNR	9.84x9.84x4.39	8.78x8.78	48 V d.c.	8.6	88.2	0.34	14 ÷ 131
FF20A115UE1	12.8x12.8x6.31	11.45x11.45	115 V a.c.	83	285.3	0.56	14 ÷ 131
FF20A115UER1	12.8x12.8x6.31	11.45x11.45	115 V a.c.	83	338.2	0.83	14 ÷ 131
FF20GA115UE1	12.8x12.8x6.25	11.45x11.45	115 V a.c.	156	434.1	0.68	14 ÷ 131
FF20GA115UEA1	12.8x12.8x6.25	11.45x11.45	115 V a.c.	156	564.7	0.71	14 ÷ 131
FF20GA115UER1	12.8x12.8x6.25	11.45x11.45	115 V a.c.	145	500	1.02	14 ÷ 131
FF20GA115UERA1	12.8x12.8x6.25	11.45x11.45	115 V a.c.	145	544.1	1.01	14 ÷ 131
FF20PA115UF	12.8x12.8x6.31	11.45x11.45	115 V a.c.	45	205.9	0.45	14 ÷ 131
FF20PA115UFR	12.8x12.8x6.31	11.45x11.45	115 V a.c.	45	220	0.54	14 ÷ 131



FF series filter fans Type 3R

- Free-tool clip mounting system
- Plate thickness: FF08 from 0.039 to 0.079in; FF12, FF13 from 0.051 to 0.126in; FF15, FF20 from 0.051 to 0.146in (up to 0.157in with cut-out max tolerance)
- Quick electrical connection by screwless terminal block
- Standard color RAL 9005
- Standard protection ratings: Type 3R and IP55 (IP54 for FF08 series). Optional versions: IP54
- Frequency: 50/60 Hz
- UV resistant
- Plastic construction against atmospheric deterioration, ideal for outdoor applications
- Other voltages available on request



Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range
	in						
FF08A115NN3	4.19x4.19x2.64	3.60x3.60	115 V a.c.	7.0	8.82	0.13	14 ÷ 131
FF08D12NN3	4.19x4.19x2.13	3.60x3.60	12 V d.c.	2.0	9.41	0.11	14 ÷ 131
FF08D24NN3	4.19x4.19x2.13	3.60x3.60	24 V d.c.	2.0	9.41	0.11	14 ÷ 131
FF08GA115NF3	4.19x4.19x3.14	3.64x3.64	115 V a.c.	10	15.29	0.22	14 ÷ 131
FF08GD24NN3	4.19x4.19x3.05	3.64x3.64	24 V d.c.	15	29.41	0.64	14 ÷ 131
FF12A115NN53	5.91x5.91x2.88	4.92x4.92	115 V a.c.	17	34.71	0.33	14 ÷ 131
FF12D24NN53	5.91x5.91x2.87	4.92x4.92	24 V d.c.	7.4	20.59	0.21	14 ÷ 131
FF13PA115NN53	8.03x8.03x3.76	6.97x6.97	115 V a.c.	15	64.71	0.38	14 ÷ 131
FF13PD24NN53	8.03x8.03x3.75	6.97x6.97	24 V d.c.	8.2	50	0.21	14 ÷ 131
FF15A115NF53	9.84x9.84x4.89	8.78x8.78	115 V a.c.	31	114.71	0.52	14 ÷ 131
FF15D24NF53	9.84x9.84x4.94	8.78x8.78	24 V d.c.	31	135.29	0.60	14 ÷ 131
FF20A115NE531	12.80x12.80x6.31	11.46x11.46	115 V a.c.	83	222.35	0.43	14 ÷ 131
FF20GA115NE31	12.80x12.80x6.25	11.46x11.46	115 V a.c.	146	434.12	0.68	14 ÷ 131

ROOF EXHAUST UNITS

Roof exhaust units are commonly used in restricted spaces to dissipate hot air that is extracted from the top of enclosures.

These units can be provided with an exhaust filter for either convection cooling or forced air-cooling in combination with a fan.

■ TP SERIES



CASING MATERIAL
Plastic structure with aluminum top



PROTECTION
Available in 4 different protection classes



VENTILATION
Natural air convection or forced air sucking

Model numbering system for TP SERIES

<i>description</i>	TP	19	R	115	B	A	-	S00	<i>description</i>
FAMILY TP / T TP = plastic									CUSTOM SERIES S** = custom version
FAN DIMENSION									
COLOR R = grey RAL 7032 U = grey RAL 7035 N = black RAL 9005									VERSION A = anodized
VOLTAGE 115 = 115 Va.c. 230 = 230 Va.c. () = no voltage									DESIGN



TP series roof exhaust unit without fan

- Plastic structure with aluminum top
- Plate thickness: any
- Available in 3 protection degree: IP24, IP54 and IP55
- Standard color RAL 7035, other colors available on request, subject to quantity



Model	Protection Degree
	IP
TP19U1	IP24
TP19U541	IP54
TP19U551	IP55



TP series roof exhaust unit

- Plastic structure with aluminum top
- Plate thickness: any
- Available in 4 protection degree: IP24, IP44, IP54 and IP55
- Standard color RAL 7035, other colors available on request, subject to quantity



Model	Rated Voltage	Rated power	Max air flow	Static Pressure	Protection Degree
	V	W	CFM	inH ₂ O	IP
TP19U115B1	115 V a.c.	97	338.2	1.87	IP24
TP19U115B441	115 V a.c.	97	329.4	1.89	IP44
TP19U115B541	115 V a.c.	97	288.2	1.93	IP54
TP19U115B551	115 V a.c.	97	288.2	1.93	IP55



Accessories - Adapters

- Allows filter fan installation in a semi built-in position in the electric cabinet, reducing the internal dimensions
- Available for 5.91x5.91in, 9.84x9.84in and 12.8x12.8in sizes
- Standard color RAL 7035 and RAL 7032

Model	Description
FPFA12-7032G	FF12
FPFA12-7035G	FF12
FPFA12-9005G	FF12
FPFA15-7032G	FF15
FPFA15-7035G	FF15
FPFA20-7011G	FF20
FPFA20-7032G	FF20
FPFA20-7035G	FF20



Accessories - Stainless steel cover

- Particularly suitable for outdoors applications or in the food&beverage industry (water protection)
- AISI 304 stainless steel cover of 0.04in thickness
- Cover with bayonet joint system
- IP56 protection degree in combination with an IP54 filter

Model	Description
SSC-08	FF08
SSC-12	FF12
SSC-13	FF13
SSC-15	FF15
SSC-20	FF20



Accessories - Document holder

- Holds documents in A4 format
- Fixing through a pre-installed double side adhesive tape
- Standard color RAL 7035

Model
TPD-A4



Accessories - Filter media

- Filter media can be cleaned, up to 10 times, by careful washing, blowing dry and lightly beating
- G4 not available for FF08 models
- 6 pcs. per kit

Model	Description	Filtration Class
M08FPFK	FF08	G3
M12FPF5K	FF12	G4
M12FPFK	FF12	G3
M13FPF5K	FF13	G4
M13FPFK	FF13	G3
M15FPF5K	FF15	G4
M15FPFK	FF15	G3
M20FPF5K	FF20	G4
M20FPFK	FF20	G3



Accessories - Pressure compensation device

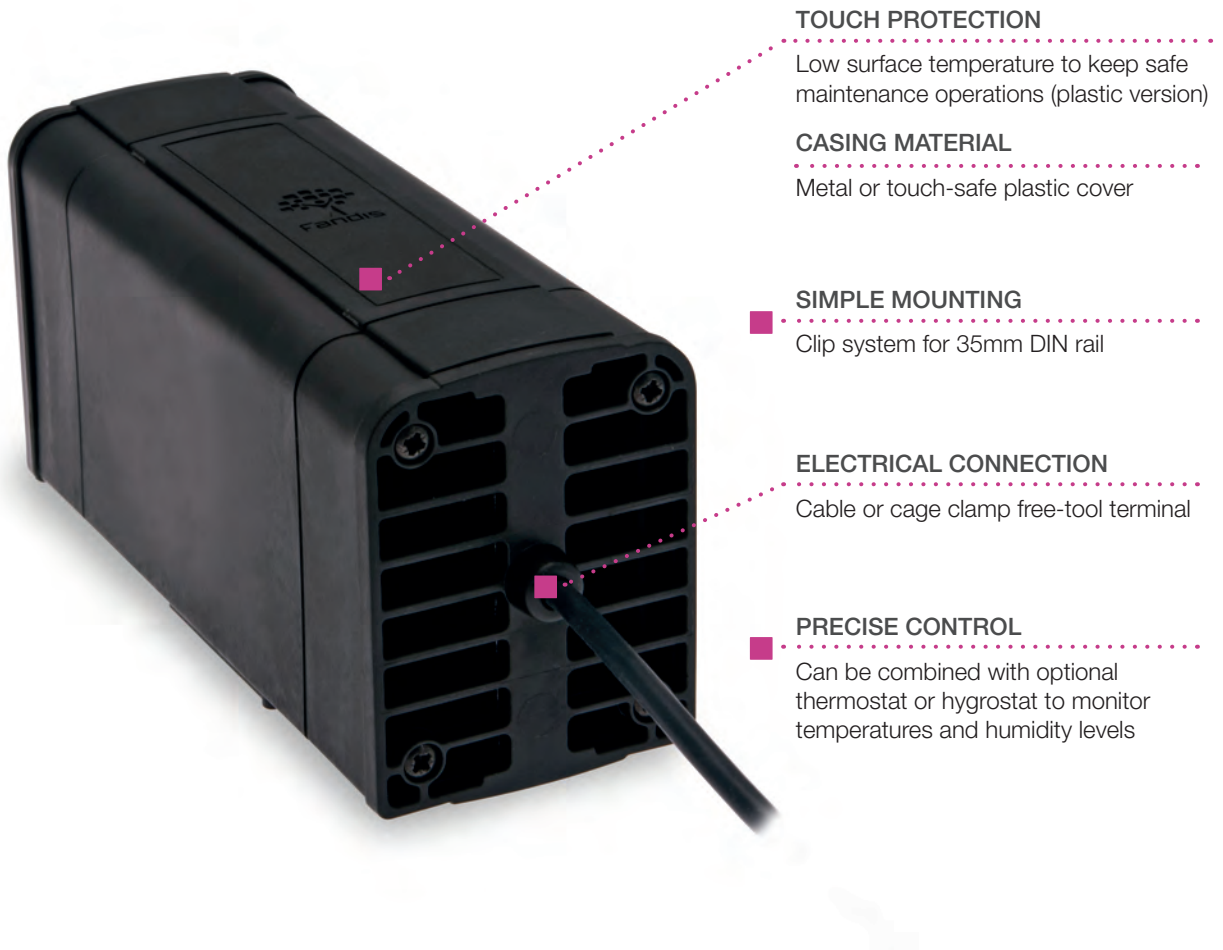
- Avoids the pressure compensation across the seal due to temperature fluctuations.
Air pressure changes are compensated and the ingress of dirt and water is prevented
- Easy installation to any cabinet, even retrospectively
- Standard color RAL 7035
- IP55 protection degree

Model
CP-U55-00

ANTI-CONDENSATION HEATERS

Heaters are used for warming up the air inside enclosures, protecting electrical and electronic components from condensation and corrosion. Fandis heaters have a self-regulating function that is designed to maintain optimal temperatures within enclosures.

■ H SERIES with cable and terminal block



TOUCH PROTECTION

Low surface temperature to keep safe maintenance operations (plastic version)

CASING MATERIAL

Metal or touch-safe plastic cover

SIMPLE MOUNTING

Clip system for 35mm DIN rail

ELECTRICAL CONNECTION

Cable or cage clamp free-tool terminal

PRECISE CONTROL

Can be combined with optional thermostat or hygrostat to monitor temperatures and humidity levels

■ Details that make the difference



Cage Clamp terminal



Touch Safe (plastic cover)



Clip system

■ H SERIES with fan

Heaters with built-in fans provide a forced air circulation to guarantee an even heat distribution in enclosures, thus minimizing the risk of condensation.



TOUCH PROTECTION
Low surface temperature to keep safe maintenance operations (plastic version)



ELECTRICAL CONNECTION
Cage clamp free-tool terminal



SIMPLE MOUNTING
Clip system for 35mm DIN rail



FAN
Long-life axial fan for evenly distributed air temperature

THERMAL PROTECTION
Integrated device against overheating situation

Model numbering system for H SERIES

description	H	V	M	S	150	T	HP	-	230	-	S00	description
FAMILY H												CUSTOM SERIES S** = custom version
SUBFAMILY T = terminal block series V = ventilated series W = wire series												VOLTAGE 115 = 115 Va.c. 230 = 230 Va.c. () = 110-240 Va.c./Vd.c.
COVER M = metal P = plastic												VERSION HP = High Performance
SIZE S = small B = big () = standard												PROTECTION T = with thermal protection () = without thermal protection
POWER												
005 = 5 W	020 = 20 W	045 = 45 W	100 = 100 W	250 = 250 W								
010 = 10 W	025 = 25 W	060 = 60 W	150 = 150 W	350 = 350 W								
015 = 15 W	030 = 30 W	080 = 80 W	200 = 200 W									



H series heaters with cable

- Metal (M) or touch-safe plastic (P) cover
- 3x20AWG cable with 500mm length
- Clip system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	HxWxD (in)	W	V	(lb)	
HWM005	3.07x1.10x1.93	5	110-240 V a.c./d.c.	0.31	CE; cURus;
HWM010	3.07x1.10x1.93	10	110-240 V a.c./d.c.	0.31	CE; cURus;
HWM015	3.07x1.10x1.93	15	110-240 V a.c./d.c.	0.31	CE; cURus;
HWM020	3.07x1.10x1.93	20	110-240 V a.c./d.c.	0.31	CE; cURus;
HWM025	4.25x1.10x1.96	25	110-240 V a.c./d.c.	0.36	CE; cURus;
HWM030	4.25x1.10x1.96	30	110-120 V a.c./d.c.	0.36	CE; cURus;
HWM045	4.25x2.42x3.35	45	110-240 V a.c./d.c.	1.25	CE; cURus;
HWM060	4.25x2.42x3.35	60	110-240 V a.c./d.c.	1.25	CE; cURus;
HWM080	6.22x2.42x3.35	80	110-240 V a.c./d.c.	1.60	CE; cURus;
HWM100	6.22x2.42x3.35	100	110-240 V a.c./d.c.	1.60	CE; cURus;
HWM150	8.19x2.42x3.35	150	110-240 V a.c./d.c.	2.01	CE; cURus;
HWP045	4.25x2.42x3.35	45	110-240 V a.c./d.c.	1.25	CE; cURus;
HWP060	4.25x2.42x3.35	60	110-240 V a.c./d.c.	1.25	CE; cURus;
HWP080	6.22x2.42x3.35	80	110-240 V a.c./d.c.	1.60	CE; cURus;
HWP100	6.22x2.42x3.35	100	110-240 V a.c./d.c.	1.60	CE; cURus;
HWP150	8.19x2.42x3.35	150	110-240 V a.c./d.c.	2.01	CE; cURus;



H series heaters with terminal block

- Metal (M) or touch-safe plastic (P) cover
- 3 screwless terminals
- Clip system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	HxWxD (in)	W	V	(lb)	
HTM045	5.43x2.42x3.35	45	110-240 V a.c./d.c.	1.31	CE; cURus;
HTM060	5.43x2.42x3.35	60	110-240 V a.c./d.c.	1.31	CE; cURus;
HTM080	7.4x2.42x3.35	80	110-240 V a.c./d.c.	1.66	CE; cURus;
HTM100	7.4x2.42x3.35	100	110-240 V a.c./d.c.	1.66	CE; cURus;
HTM150	9.37x2.42x3.35	150	110-240 V a.c./d.c.	2.07	CE; cURus;
HTP045	5.43x2.42x3.35	45	110-240 V a.c./d.c.	1.31	CE; cURus;
HTP060	5.43x2.42x3.35	60	110-240 V a.c./d.c.	1.31	CE; cURus;
HTP080	7.4x2.42x3.35	80	110-240 V a.c./d.c.	1.66	CE; cURus;
HTP100	7.4x2.42x3.35	100	110-240 V a.c./d.c.	1.66	CE; cURus;
HTP150	9.37x2.42x3.35	150	110-240 V a.c./d.c.	2.07	CE; cURus;



H series heaters with fan

- Metal (M) or touch-safe plastic (P) cover
- 3 screwless terminals
- Clip system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor with integrated bimetal thermal protector
- Other voltages available on request


Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	HxWxD (in)	W	V	(lb)	
HVMS200THP-115	5.63x2.42x3.35	200	115 V a.c.	1.60	CE; cURus;
HVMS250THP-115	7.6x2.42x3.35	250	115 V a.c.	1.90	CE; cURus;
HVMS350THP-115	9.57x2.42x3.35	350	115 V a.c.	2.26	CE; cURus;
HVPS200THP-115	5.63x2.42x3.35	200	115 V a.c.	1.60	CE; cURus;
HVPS250THP-115	7.6x2.42x3.35	250	115 V a.c.	1.90	CE; cURus;
HVPS350THP-115	9.57x2.42x3.35	350	115 V a.c.	2.26	CE; cURus;

MECHANICAL REGULATORS

Temperature and humidity regulators help to guarantee the optimal conditions inside the enclosure for trouble-free operations with electrical components.

They are used for controlling filter fans, heaters or for switching signal devices.

■ NO-NC THERMOSTATS



VERSIONS
Available with normally closed, normally open and change over contacts

SET POINT
Wide temperature setting range with Fahrenheit or Celsius scales

ELECTRICAL CONNECTION
Screw terminals

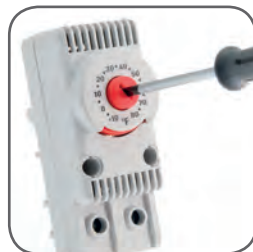
SIMPLE MOUNTING
Snap-on system for DIN rails

APPLICATIONS
Switching contact for filter fans, heaters and cooling unit or signal devices

Details that make the difference



°F e °C scales



Disk setting by hand or tool



Patented clip system

TWIN THERMOSTATS

Twin thermostats integrate two independently switchable devices within one compact unit, allowing the simultaneous control of heating and cooling equipment or signaling equipment.



SET POINT
Wide temperature setting range with Fahrenheit or Celsius scales

VERSIONS

Available with normally closed/normally open, normally closed/normally closed and normally open/normally open contacts

SIMPLE MOUNTING

Snap-on system for 35mm DIN rails

DUAL SYSTEM

Separate adjustment and operation

APPLICATIONS

Switching contact for filter fans, heaters and cooling unit or signal devices

ELECTRICAL CONNECTION

Screw terminals

Model numbering system for NO-NC Thermostats and Twin Thermostats

<i>description</i>	TRT	10A	230V	-	NC	F	PAxx	<i>description</i>
FAMILY TRT TRT = single thermostat TRT2 = twin thermostat								CUSTOM SERIES PAxx = custom version
RATED CURRENT								SCALE (Blank) = C° (Celsius) F = F° (Fahrenheit)
RATED VOLTAGE								
VERSION Single thermostat NC = Normally Closed NO = Normally Open	Twins thermostat NCNC = Normally Closed / Normally Closed NCNO = Normally Closed / Normally Open NONO = Normally Open / Normally Open							

■ **HYGROSTATS**

When used with heaters or filter fans, hygrostats keep the relative humidity (RH) levels of enclosures below the dew point and prevent condensation forming on electrical components.



ELECTRICAL CONNECTION

Screw terminals

SIMPLE MOUNTING

Snap-on system for 35mm DIN rails

APPLICATIONS

Combined with heaters or filter fans for a precise control of humidity levels

Model numbering system for Hygrostats

<i>description</i>	IGR	35	F	-	PAxx	<i>description</i>
FAMILY IGR IGR = Hygrostat						CUSTOM SERIES PAxx = custom version
Support 35mm DIN rail						VERSION F = Fandis



NO-NC Thermostats

- Normally Closed (NC) and normally Open (NO) versions
- Patented snap-on system on DIN rails TS35/15/32
- Wide temperature setting range
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage Range	Rated Current	Contact Current	Setting Range	Differential (referred to set point)	Accuracy	Approvals
	V	A	A	°F	K	K	
TRT-10A230V-NCF	60 V d.c.; 110-250 V a.c.	10	15	14 ~ 176	-3	±3	CE; cURus;
TRT-10A230V-NOF	60 V d.c.; 110-250 V a.c.	10	15	14 ~ 176	+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;



Twin thermostats

- Normally Closed/Normally Open (NC-NO), Normally Closed/Normally Closed (NC-NC) and Normally Open/ Normally Open (NO-NO) versions
- Separate adjustment and operation of the devices
- Snap-on system on DIN rail TS35
- Wide temperature setting range with °F or °C scales (available on request)
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage Range	Rated Current	Contact Current	Setting Range	Differential (referred to set point)	Accuracy	Approvals
	V	A	A	°F	K	K	
TRT2-10A230V-NCNCF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	14 ~ 176	-3	±3	CE; cURus;
TRT2-10A230V-NCNOF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	14 ~ 176	-3 (NC) / +4 if A < 5 ; +7 if A > 5 (NO)	±3	CE; cURus;
TRT2-10A230V-NONOF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	14 ~ 176	+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;



Hygrostats

- Snap-on system on DIN rail TS35
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage	Rated Current	Setting Range	Differential average	Accuracy	Approvals
	V	A	%RH	%RH	%RH	
IGR35F	120-240 V a.c.	12 - 6 ; 6 - 3	10 - 90	5	± 5	CE; cURus;



Door limit switches

- Versions available: plain plunger (FC-001), plain plunger with manual reset (FC-002), roller plunger (FC-003), roller plunger with adjustable lever (FC-004), plain plunger with 3 NC contacts (FC-005)
- No. 1 Normally Open (NO) contact and No. 1 Normally Closed (NC) contact, except for FC-005 model

Model	a.c. Rated Voltage Range V	a.c. Rated Current Range A	d.c. Rated Voltage Range V	d.c. Rated Current Range A	Approvals
FC-001	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-002	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-003	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-004	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-005	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;



Accessories - Slide limit switch

- Plastic support for simple positioning of FC series door limit switch
- The kit consist of No.1 slide for limit switch, No.2 screws and No.2 nuts

Model
SA-FC01K



Flashing signal devices

- Versions available: flashing device (FD01), flashing device with FC-001 (FD02), flashing device with FC-001 and FC-002 (FD03)
- 3 red flashing lights indicating live voltage presence
- Suitable for connection to single or three-phase systems
- Auxiliary kit with limit or interlock switches
- Closed door simulation (FD03)

Model	Rated Voltage Range V	Working Temp. Range °F	Approvals
FD01	110-290 V~; 220-500 V 3~	-13°F ~ 158°F	CE; cURus;
FD02	110-290 V~; 220-500 V 3~	-13°F ~ 158°F	CE;
FD03	110-290 V~; 220-500 V 3~	-13°F ~ 158°F	CE;

ENCLOSURE LED LIGHTS

When carrying out maintenance in electrical enclosures, good lighting is essential in order to ensure optimal inspection and control conditions.

Fandis LED lights are specifically designed to maximize performance, brightness and energy saving.

■ FLL SERIES

■ ADJUSTABLE LIGHT BEAM

Variable beam direction of 40° per side for directing the distribution of light

■ FLEXIBLE INSTALLATION

Standard screw-in or, optionally, magnetic fastening for metallic surfaces

SWITCH

ON/OFF or PIR movement sensor

■ QUICK CONNECTION

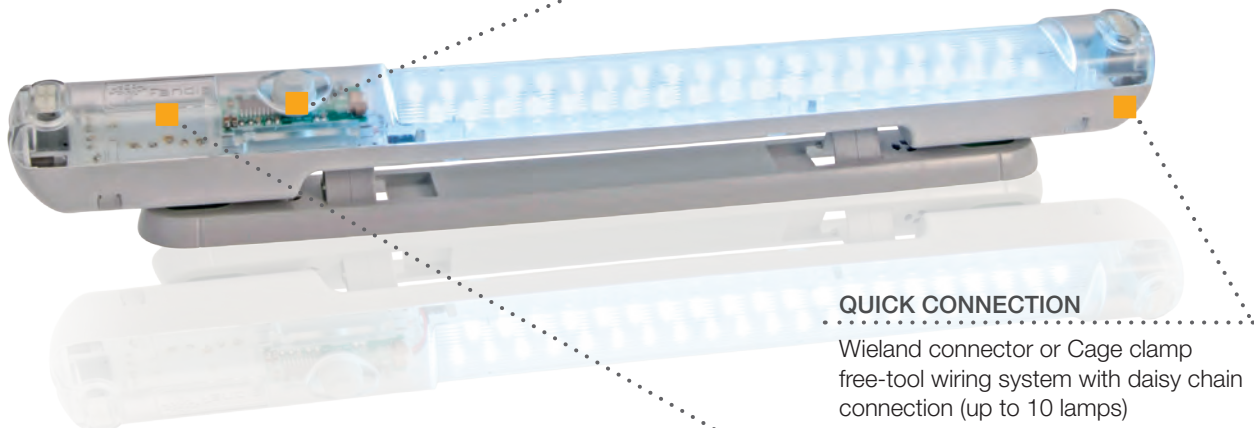
Wieland connector or Cage clamp free-tool wiring system with daisy chain connection (up to 10 lamps)

LABEL DESIGN

Adhesive or in relief customized label

■ ENERGY EFFICIENCY

Long life and low consumption by LED technology



■ Details that make the difference



Swivelling system



Cage Clamp or
Wieland connection



Magnetic fixing

Model numbering system for Hygrostats

description	FLL - 23 05 65 U - S V M X - SXX	description
FAMILY FLL = Fandis led lamp		CUSTOM SERIES SXX = custom version
VOLTAGE 12 = 115 Va.c. 23 = 230 Va.c. 30 = 115/230 Va.c. D"nn" = 12/48/24 Vd.c.		APPROVALS X = only CE version () = UL version
RATED POWER nn = absorbed power of lamp		INSTALLATION M = magnet pot () = by screw
CORRELATED COLOUR TEMPERATURE 65 = 6500÷7500K		CONNECTION V = single connector () = standard cage clamp
COLOURED PLASTIC U = RAL 7035		SWITCH S = switch IR = PIR sensor



FLL series AC LED lamps

- Long life and low energy consumption by LED technology
- ON/OFF switch (-S) or PIR movement sensor (-IR)
- Standard screw-in or, optionally, magnetic fastening for metallic surfaces (-IRM or -SM models)
- Wieland connector (-IRV or -SV models) or screwless wiring system
- Daisy chain connection (up to 10 units), except for models with Wieland connector
- Adjustable light beam
- Multi-voltage version available (FLL-300)
- Frequency: 50/60 Hz
- Other voltages available on request

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Lum. Flux	Approvals
	mm	V	W		K	lm	
FLL-120565U-IR	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRM	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRV	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRVM	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-S	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SM	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SV	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SVM	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IR	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRM	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRV	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRVM	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-S	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SM	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SV	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SVM	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;



FLL series DC LED lamps

- Long life and low energy consumption by LED technology
- ON/OFF switch (-S) or PIR movement sensor (-IR)
- Standard screw-in or, optionally, magnetic fastening for metallic surfaces (-IRM or -SM models)
- Wieland connector (-IRV or -SV models) or screwless wiring system
- Daisy chain connection (up to 10 units), except for models with Wieland connector
- Adjustable light beam

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Lum. Flux	Approvals
	mm	V	W		K	lm	
FLL-D120565U-IR	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRM	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRV	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRVM	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-S	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-SM	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-SV	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-SVM	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IR	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRM	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRV	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRVM	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-S	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SM	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SV	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SVM	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IR	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRM	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRV	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRVM	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-S	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SM	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SV	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SVM	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;

Accessories for LED **FLL Series** lamps

Model	Description
FLL-2MA	Magnets kit (2pcs.)
CE-006WF	2-pole female Wieland connector
CVFLL-01	Power cable 2x18 AWG Wieland F L=118.11in white
CVFLL-02	Power cable 2x18 AWG Wieland F L=118.11in orange

LIMITED LIABILITY AND WARRANTY DISCLAIMER

The Manufacturer hereby makes no representation or warranties expressed or implied, statutory or otherwise. All implied warranties, including those of merchantability or fitness for use are hereby disclaimed.

The product is made in conformity with the cogent standards provided for by European Health and Safety legislation.

Where expressly indicated, the product conforms to the standard of Safety and Performance defined by recognised international bodies and subject to their periodic verification.

Any loss or damage, both incidental and consequential, for any failure to perform or delay to perform due to wrong use or wrong installation of the product, as well as to the non-observance of technical specifications, are not covered by the Manufacturer's warranty.

The buyer alone is responsible to determine the suitability of the product.

The data indicated in the catalogue is purely indicative. The product is subject to wear.

Electrical connections must be carried out in compliance with pertinent national, state or local health and safety laws.

If the apparatus in which the product is incorporated should guarantee continuous use without variation or interruption in performance, the product must be utilised only in the presence of a device which immediately signals any functional anomaly or arrest, allowing immediate intervention or the activation of an auxiliary product.

If installed and/or integrated in other apparatus, the use and maintenance manual of the apparatus must also indicate the correct use of our product and its working characteristics and must prescribe its estimated life, before the product actually reaches the maximum working hours shown in the data sheets, that is to say, taking account of all the specific conditions of use and of the technical specifications supplied and must supply exhaustive information allowing the user to substitute the product (removal & substitution).

Any fan found to be defective within the limits of the warranty, will be replaced free of charge. Costs of labour or other extra subsequent costs relative to the removal, restitution or new installation of the fan are not covered by the product warranty.

Sales Conditions and Data Sheets available on www.fandisna.com

Other models are available on request, subject to quantities.

Colors of engineering.



Fandis North America Corp
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For more information: www.fandisna.com

MDT-A01US/1_0119_LTP

Reseller