Wolf ATEX 400VA/320VA and 250VA GRP Transformer
Operation and Maintenance Instructions
Please Retain – Read Before Use

LL-114/ T class /(Suffixes define cable, plug, socket and fuse options)
LL-214/ T class /(Suffixes define cable, plug, socket and fuse options)
LL-221/ T class /(Suffixes define cable, plug, socket and fuse options)

The Wolf ATEX GRP Transformer range are rated at 400VA/320VA and 250VA and use a durable GRP (glass reinforced polyester) enclosure housed in a protective 316 stainless steel skid.

Check model identification label attached to the lid for the transformer's power rating. The user must ensure this power rating is not exceeded.

400VA/320VA Transformer
The transformers listed below are certified with a maximum output of 400VA in an ambient temperature of up to 35°C or 320VA in an ambient temperature of up to 50°C, and are Group II, Category 2 equipment for use in Zone 1 & 2 potentially explosive gases, vapours & mists, where temperature class T3 is permitted, and zone 21 & 22 potentially explosive dusts where a maximum surface temperature of 195°C is permitted.

Approval Codes/Certification:

Ex II 2 G D Ex d e IIC T3 Gb
Ex t IIIC T195°C Db IP66

400VA - Tamb = -20 to +35°C 320VA - Tamb = -20 to +50°C

Model No	Input Voltage	Output Voltage
LL-114/T3/***	110V AC +6%, -10%	24V AC
LL-214/T3/***	230V AC +6%, -10%	24V AC
LL-221/T3/***	230V AC +6%, -10%	110V AC and 110V AC CTE.

Check model identification label attached to the lid for rated voltage.

250VA Transformer
The transformers listed below are certified with a maximum output of 250VA in an ambient temperature of up to 55°C and are Group II, Category 2 equipment for use in Zone 1 & 2 potentially explosive gases, vapours & mists, where temperature class T4 is permitted, and zone 21 & 22 potentially explosive dusts where a maximum surface temperature of 130°C is permitted.

Approval Codes/Certification:

Ex II 2 G D Ex d e IIC T4 Gb
Ex t IIIC T130°C Db IP66

Tamb = -20 to +55°C

Model No	Input Voltage	Output Voltage
LL-114/T4/***	110V AC +6%, -10%	24V AC
LL-214/T4/***	230V AC +6%, -10%	24V AC
LL-221/T4/***	230V AC +6%, -10%	110V AC and 110V AC CTE.

Check model identification label attached to the lid for rated voltage.

LCIE 02 ATEX 6248X.
Certificate 'X' suffix – Do not open when energised.
Notified Body – LCIE Paris – Head Office, 33 Avenue du General Lecierc, 92260 Fontenay-Aux-Roses, France.
Notified body number: **0081**

See Document LL-1271 (supplied with transformer) for ATX EC/EU Declaration of Conformity.

The transformer is also IECEx approved as described above:
IECEx LCIE 04.0016X.

IMPORTANT INFORMATION

1. Read these instructions carefully before commencing to use the Transformer and retain them for future use.
2. Check the approval label to ensure the Transformer is suitable for the supply provided, ambient temperature present and IP rating.
3. It is the user's responsibility to ensure there is no potential difference between the earth supply to the transformer and the earth where it is sited. Where this is not possible the transformer should also be locally earth bonded. A flexible cable with a conductor area of 6mm^2 minimum which is no longer than two metres is recommended for this. The transformer must be de-energised during connection or disconnection of the local earth bond.
4. The Transformer housing is constructed from GRP (Glass Reinforced Polyester) and the mounted sockets are plastic, the end user must ensure that these materials are suitable for the atmosphere the transformer will be used in. Excessive force should not be used on plastic components.
5. The Transformer must not be opened when energised. After disconnection from the mains supply a delay of 5 mins must be observed before opening.
6. Ensure all replacement fuses are of the correct type and current rating.
   Details of the fuses fitted are found on the transformer model identification label attached to the lid.
7. Prices and design are subject to alteration without notice. All products sold are subject to our conditions of sale. A copy of these instructions with any relevant revisions can be found at www.wolf-safety.co.uk

MAINTENANCE

1. Isolate the Transformer from the mains.
2. It is essential that the Transformer is maintained in accordance with the requirements of EN60079-17
3. A visual check should be carried out to ensure all internal cable is in good condition, and not suffering any sign of damage or degradation. All internal connections should be checked to ensure that they are correctly secured.
4. The transformer input cable and any attached cables should be inspected before each use. Any damaged cables should be replaced immediately.
5. The condition of the gaskets on the GRP enclosure and sockets should be inspected to ensure there is no breakdown in the IP66 rating.
6. If changing the input or output fuses care should be taken to replace with the correct type of fuse and secure the screwed cover on fully.
7. **IMPORTANT -** No modifications are permitted to the Transformer.

USER GUIDANCE FOR WOLF ATEX TRANSFORMERS

1. It is a requirement of the certification that the transformer is only operated in a vertical orientation, with the component transformer at the bottom. This is indicated by the orientation warning label affixed to the transformer door.
2. This Wolf ATEX Transformer is fitted with IEC 60269, 80kA breaking capacity cartridge fuses and is designed to supply a maximum load of 400VA/320VA or 250VA dependent on the rating of these fuses. The fuse types and maximum values must not be exceeded. The certification is reliant on these fuses to prevent the T Class (in max ambient) being exceeded under fault or overload conditions. Replacing these with fuses of a different type or of a higher rating could result in an unsafe condition occurring in the safe or hazardous area. To prevent nuisance tripping, the total power of apparatus operated from the transformer should not exceed the given maximum VA. Table 1 on page 2, contains suggested combinations of Wolf lamps that can be connected. Where apparatus other than Wolf lighting products are connected, its load should be checked to ensure it is suitable for use with type gG (general) fuses.
   Details of the fuses fitted are found on the transformer model identification label attached to the lid.
3. In the event of a fault in a circuit connected to the transformer, it is important that this fault current is interrupted by the output fuses before overheating damage to circuits and a potentially unsafe condition in the safe or hazardous area can occur. The user must therefore ensure that the maximum total impedance of the potential fault current flow path, from the source to the point of a fault, will not prevent this happening.
   The connected circuit impedance is proportional to the length and conductor area of the cable. Table 2 on page 2 contains Wolf's recommended maximum cable lengths for given transformer output voltage and fuse fitted. As can be seen from Table 2, reducing the fuse value increases the permitted cable length. Transformers with part numbers suffixed /2FXX are equipped with 2 off output fuses, and this permits the use of longer cable lengths as the load is distributed across two smaller value fuses. However, transformers with two output fuses, due to the centre tap of the secondary being connected to earth (CTE), will have shorter permitted cable lengths than non CTE versions of the same output voltage.
   Check model identification label on lid to establish whether the output of the transformer is CTE connected.
4. Apparatus with long cable lengths (>20m @ 24V) must be checked to ensure the calculated voltage drop will not prevent the apparatus from operating within the specified voltage tolerance (see apparatus instructions).
5. DIN rail mounted screw type terminal blocks are fitted to the transformer to connect the input cable. Each terminal is suitable for a single conductor up to 4mm^2 only. These terminals should be tightened down to 0.6 Nm whether a conductor is fitted or not.
6. Approved cable glands must be used and be suitable for the type of cable used. Any unused cable entries should be blanked off with an approved stopper plug to maintain a minimum IP rating as marked on the certification label. Gland and stoppers should be approved to maintain the certification and IP rating as per the label.

Table 1 and 2 below should be used in conjunction with one another to ensure that the combination of lamps does not exceed total maximum cable lengths permissible. The total cable length of a string of linkable lights is the combined total of all the lamps in the chain. Where cables with different

conductor areas are combined, the maximum cable length should be selected based on the smallest conductor area.
For advice regarding the cable type and conductor area fitted to your product please e-mail info@wolf-safety.co.uk

Table 1. Suggested combinations of lamps for use with Wolf ATEX 400VA/320VA and 250VA Transformers.

400VA Transformer Output Voltage	400VA Transformer Output Fuse	Max No of products where T3 temperature class is permitted 35°C max ambient temp.
24V	16A gG	4 x LL-500
		4 x WF-300
		8 x LX-400*
		4 x LL-24
	12A gG	6 x LX-400*
	10A gG	2 x LL500
		3 x WF-300
		5 x LX-400
	8A gG	2 x LL-420 + 2 x LL-500
		2 x LL-420 + 2 x WF-300
		2 x LL-420 + 4 x LX-400*
		2 x LL-24
	6A gG	1 x LL-420 + 1 x WF-300 + 1 x LX-400
	4A gG	4 x LL-420
110V	4A gG	4 x LL-500
		5 x WF-300*
		10 x LX-400*
		2 x LL-420 + 4 x LX-400

320VA Transformer Output Voltage	320VA Transformer Output Fuse	Max No of products where T3 temperature class is permitted 50°C max ambient temp
24V	16A gG	3 x LL-500
		3 x WF-300
		6 x LX-400*
		3 x LL-24
	12A gG	4 x LX-400*
	10A gG	2 x LL500
		3 x WF-300
		5 x LX-400
	8A gG	2 x LL-420 + 2 x LL-500
		2 x LL-420 + 2 x WF-300
		2 x LL-420 + 4 x LX-400*
		2 x LL-24
	6A gG	1 x LL-420 + 1 x WF-300 + 1 x LX-400
	4A gG	4 x LL-420
110V	4A gG	3 x LL-500
		5 x WF-300*
		10 x LX-400*
		2 x LL-420 + 4 x LX-400

250VA Transformer Output Voltage	250VA Transformer Output Fuse	Max No of products where T4 temperature class is permitted 55°C max ambient temp
24V	10A gG	2 x LL-500
		2 x WF-300
		5 x LX-400*
	8A gG	4 x LL-420
		2 x LL-420 + 1 x WF-300
		2 x LL-420 + 4 x LX-400
		2 x LL-24
	6A gG	3 x LX-400 + 1 x LL-420
		1 x LL-420 + 1 x WF-300 + 1 x LX-400
	4A gG	4 x LL-420
110V + 110V CTE	2A gG	1 x LL-420 + 2 x LL-500 + 1 x LX-400
		4 x WF-300
		6 x LX-400*

*Combinations requiring linkable lamps. Use a minimum conductor area of 2.5mm^2 in the circuit when using linkable lamps.
Users must consult tables 1, 2 + 3 and point four of the user guidance for Wolf ATEX transformers, for correct fuse rating and to ensure loading and voltage drop are not exceed.

The Wolf Safety Lamp Co. Ltd has a policy of continuous product improvement. Changes in design details may be made without prior notice.

E-mail: *info@wolf-safety.co.uk* ***Website:*** *www.wolf-safety.co.uk*

Table 2 Recommended maximum cable lengths for given transformer output voltage and fuse fitted.

2.5mm^2 Cable			4mm^2 Cable		
Output Voltage	Output Fuse	Max cable length	Output Voltage	Output Fuse	Max cable length
110V	4A gG	200M**	110V	4A gG	200M**
110V (CTE)	4A gG	200M	110V (CTE)	4A gG	200M**
110V	2A gG	200M**	110V	2A gG	200M**
110V (CTE)	2A gG	200M**	110V (CTE)	2A gG	200M**
24V	16A gG	20M	24V	16A gG	35M
24V	12A gG	25M	24V	12A gG	40M
24V	10A gG	35M	24V	10A gG	55M
24V	8A gG	40M	24V	8A gG	75M
24V	6A gG	60M	24V	6A gG	110M
24V	4A gG	100M	24V	4A gG	150M

Table 2 (continued) Recommended maximum cable lengths for given transformer output voltage and fuse fitted.

1mm^2 Cable (LL-420 ATEX inspection lamp only)			1.5mm^2 Cable		
Output Voltage	Output Fuse	Max cable length	Output Voltage	Output Fuse	Max cable length
110V	4A gG	200M	110V	4A gG	200M**
110V(CTE)	4A gG	100M	110V(CTE)	4A gG	150M
110V	2A gG	200M**	110V	2A gG	200M**
110V(CTE)	2A gG	200M**	110V(CTE)	2A gG	200M**
24V	12A gG	10M	24V	16A gG	10M
24V	10A gG	15M	24V	12A gG	15M
24V	8A gG	20M	24V	10A gG	20M
24V	6A gG	30M	24V	8A gG	30M
24V	4A gG	40M	24V	6A gG	45M
			24V	4A gG	60M

200M is given as this is considered a maximum that would be required in practical situations. **For additional advice regarding the permissible maximum cable lengths for given transformer output voltage and fuse fitted please e-mail info@wolf-safety.co.uk

DISPOSAL OF WASTE MATERIAL
Disposal of packaging, Transformer and associated parts should be carried out in accordance with national regulations.

Transformer spares.
WARNING: USE ONLY GENUINE WOLF REPLACEMENT PARTS.
LL-1281 – ATEX and IECEx 400VA 230/110V:24V component transformer.
LL-1282 – ATEX and IECEx 400VA 230:110V component transformer.
LL-1092 - ATX 110V 16A 2P+E flange mounted socket.
LL-387 - CEAG 110v 16A 2P+E flange mounted socket.
LL-378 – ATX 24 volt 16A ATX 2P+E flange mounted socket.
LL-1050 – CEAG 24 volt 16A ATX 2P+E flange mounted socket.
LL-1252- Protective Label Cover.

Table 3 -Fuses

Circuit Protected	Transformer Power	Transformer Input Voltage.	Fuse rating	Wolf Part Number
Input	400VA/320VA	110V	4A aM	LL-377
Input	400VA/320VA	230/254	2A aM	LL-1002
Input	250VA	110V + 230/254V	2A aM	LL-1002

Circuit Protected	Transformer Power	Transformer Output Voltage.	Fuse rating	Wolf Part Number
Output	400VA	110V	4A gG	LL-1007
Output	250VA	110V	2A gG	LL-1276
Output	400VA	24V	16A gG	LL-379
Output	400VA	24V	12A gG	LL-1067
Output	400 + 250VA	24V	10A gG	LL-1110
Output	400 + 250VA	24V	8A gG	LL-1024
Output	400 + 250VA	24V	6A gG	LL-1016
Output	400 + 250VA	24V	4A gG	LL-1007

For other spares contact Wolf Safety