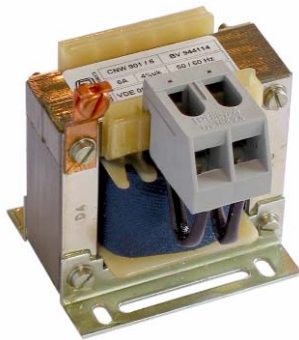




**INVERTEK
DRIVES**
www.invertek.co.uk

OPTIDRIVE INPUT LINE INDUCTORS



User Guide

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The manufacturer accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation. The contents of this User Guide are believed to be correct at the time of printing. In the interests of a commitment to a policy of continuous improvement, the manufacturer reserves the right to change the specification of the product or its performance or the contents of the User Guide without notice.

SAFETY

This option is specifically designed to be used with the Optidrive variable speed drive product and is intended for professional incorporation into complete equipment or systems. If installed incorrectly it may present a safety hazard. The Optidrive uses high voltages and currents, carries a high level of stored electrical energy, and is used to control mechanical plant that may cause injury. Close attention is required to system design and electrical installation to avoid hazards in either normal operation or in the event of equipment malfunction.

System design, installation, commissioning and maintenance must be carried out only by personnel who have the necessary training and experience. They must read carefully this safety information and the instructions in this Guide and follow all information regarding transport, storage, installation and use of the Option module, including the specified environmental limitations.

Please read the IMPORTANT SAFETY INFORMATION below, and all Warning and Caution boxes elsewhere.

SAFETY NOTICES

WARNING is given where there is a hazard that could lead to injury or death of personnel.

CAUTION is given where there is a hazard that could lead to damage to equipment.

It is the responsibility of the installer to ensure that the equipment or system into which the product is incorporated complies with the EMC legislation of the country of use. Within the European Union, equipment into which this product is incorporated must comply with 89/336/EEC, Electromagnetic Compatibility.

WARNING

Within the European Union, all machinery in which this product is used must comply with the Directive 89/392/EEC, Safety of Machinery. In particular, the equipment should comply with EN60204-1.

WARRANTY

Complete Warranty Terms and Conditions are available upon request from your IDL Authorised Distributor.

CAUTION

- Store the Option in its box until required. It should be stored in a clean and dry environment. Temperature range -40°C to $+60^{\circ}\text{C}$.

- Install the Option onto the Optidrive by inserting the row of 11 pins into the terminal connector of the Optidrive, ensuring that the terminals are tightened.

- If the Option is being used with Size#1 Optidrive, care should be taken to support the Option when the terminal screws of the Option are being tightened or loosened.

WARNING

- Optidrives and the Options should be installed only by qualified electrical persons and in accordance with local and national regulations and codes of practice.

- **Electric shock hazard!** Disconnect and **ISOLATE** the Optidrive before attempting any work on it. High voltages are present at the terminals and within the drive for up to 10 minutes after disconnection of the electrical supply.

- Where the electrical supply to the drive is through a plug and socket connector, do not disconnect until 10 minutes have elapsed after turning off the supply.

STANDARDS CONFORMITY

An Optidrive fitted with this Option complies with the following standards:

- CE-marked for Low Voltage Directive.
- IEC 664-1 Insulation Coordination within Low Voltage Systems.
- UL 840 Insulation Coordination for electrical equipment.
- EN50081-2 EMC Generic Emissions Standard, Industrial Level.
- EN50082-2 EMC Generic Immunity Standard, Industrial Level.
- Enclosure ingress protection, EN60529 IP00, NEMA 250.
- Flammability rating according to UL 94.

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INPUT LINE INDUCTORS

Reduce supply harmonic distortion and protect Optidrive against harmful supply disturbances

Most types of drive products create supply harmonic distortion owing to the configuration of the power input circuit. Input chokes are used to reduce the effects of the Optidrive upon supply harmonic distortion (see below).

Input chokes are also used to protect the power input circuits of the Optidrive against voltage spikes which might originate from lightning strikes or other equipment on the same supply.

Small power Optidrives are particularly susceptible to this on certain supplies where lightning occurs or if there are other power electronic devices which cause notching on the supply ie welders, dc drives etc.

Input Line Inductors are available for Optidrive size 1, 2 and 3.

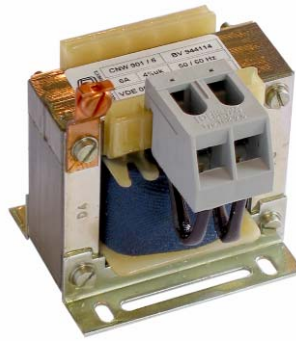
Optidrive Sizes 4, 5 & 6 include 3 phase line chokes as part of the product basic design, this significantly improves the robustness of these products and is a key specification benefit.

A range of input chokes for 12 pulse systems are available on request.

Note:

This Option is suitable for use on OD, ODE, ODP and ODV Drives.

For Part No. information please see Table opposite.



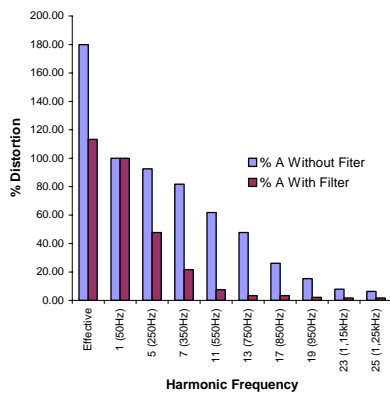
Specification

Part No.	Optidrive Size	Rated Voltage	Phase	Rated Current A	Inductance / limb mH
OD-IL121-xx	Size 1	< 230V	1	16	1.8
OD-IL221-xx	Size 2			25	1.1
OD-IL143-xx	Size 1	< 500V	3	6	4.8
OD-IL243-xx	Size 2			10	2.9
OD-IL343-xx	Size 3			36	0.81

Dimensions

Part No.	L mm	B mm	H mm	N1 mm	N2 mm	ØD mm	Mass kG
OD-IL121-xx	78	78	80	56	49	Ø4.8 x 9	1.1
OD-IL221-xx	85	95	95	64	59	Ø4.8 x 9	1.8
OD-IL143-xx	95	56	107	56	43	Ø4.8 x 9	1.3
OD-IL243-xx	125	71	127	100	55	Ø4.8 x 9	2.5
OD-IL343-xx	155	77	185	130	72	Ø8 x 12	7.2

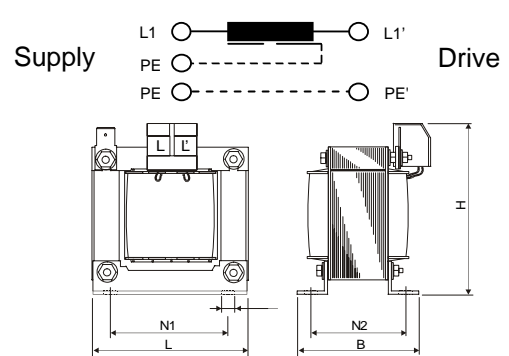
Fourier Analysis of Harmonic Distortion



The graph shows the effect of using an input choke on typical 4kW/ 5HP drive. The 50Hz current is used as a reference and is the current which delivers the useful power to the motor. The reduction in the total effective current (RMS) is clear.



1 Phase Circuit



3 Phase Circuit

