AMK AMKASYN

VARIABLE SPEED DRIVES

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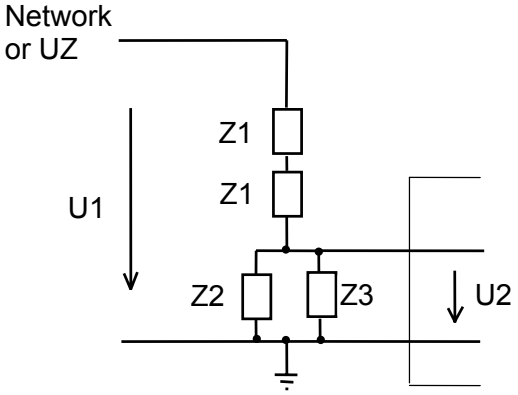
Subject to technical changes

Insulation resistance and high-voltage test on devices of the AMKASYN KE / KW series

1. Insulation resistance

The KE/KW modules are equipped with a potential-charged switched for registering and monitoring the the network or intermediate circuit voltage. This is implemented as an impedance protection acc. to EN 50178 (April 1998) chapter 5.2.8 (or A5.2.8 c).



Example: Network sensor
U1 = Voltage network -- PE
= 277 VAC
2 x Z1 = 2500 kΩ
Z2//Z3 = 15 kΩ // 15 kΩ
= 7.5 kΩ

Condition: U2 ≤ 25 VAC
is fulfilled

The multiply-installed impedance protections reduce the measurable insulation resistance of the devices.
For power terminals that are shorted among each other this results in a measurable insulation resistance towards PE according to the following table.

Type	Insulation resistance
KE xx	312 kΩ
KEN xx	312 kΩ
KW xxx	1250 kΩ
KWD x	1250 kΩ
KWF x	1000 kΩ

The insulation resistance test serves to detect insulation faults in the wiring.
For the insulation resistance test of the electric equipment of machines according to EN 60204-1 (VDE 0113) 1992 the AMKASYN devices need to be disconnected on the input side (network) as well as on the output side (motor) during the test.
A re-measurement of the insulation resistance can be done by shorting all power-sided terminals UZP, UZN, RBP, RBN, L1, L2, L3, L1.1, L2.1, L3.1, L1.2, L2.2, L3.2, U, V, W with each other and the resistance is then measured towards PE.

2. High voltage test

All AMKASYN devices have been subjected to a high voltage test in the factory.
The following needs to be observed during the high voltage test for the insulation of AMKASYN devices acc. to EN 60204 1998 (refer also to EN 50178):

- All power-sided terminals - UZP, UZN, RBP, RBN, L1, L2, L3, L1.1, L2.1, L3.1, U, V, W - have to be shorted among each other during the test in order to protect voltage-sensitive components and semi-conductors.
- The devices contain interference protection capacitors and have to be therefore tested with direct current.
- As a result of the impedance protections in the device, current flows during the test according to the following table: recommended test duration: 1 sec.

Type	Test current	Test voltage
KE xx	8 mA	2200 VDC
KEN xx	8 mA	2200 VDC
KW xx	2 mA	2200 VDC
KWD x	2 mA	2200 VDC
KWF x	2.2 mA	2200 VDC

Higher test voltage and extension of the test duration can lead to a damage of the device (e.g. overload of the impedance protection). Under these conditions the devices have to be disconnected during the test.