



# VK-SÖNT-04

## Shunt device user manual

### 1. Application

The shunt device can be used for currents with a frequency of AC 50/60 Hz, its nominal voltage must be between 380 - 420V, and its nominal current is 60 A.

### 2. Operating environment

Temperature: between -5 ~ + 40 degrees Celsius.

Relative humidity: the highest temperature is 40 degrees Celsius, it should not exceed 50%, the relatively low temperature allows relatively high humidity. Eg: at 20 degrees Celsius, the humidity is 80%.

The max operating altitude above sea level cannot exceed 2000 meters.

Do not use in places where there is explosive or flammable medium in the air! It does not cause any corrosive effect on metals. It can not damage insulating materials and it does not contain conductive dust.

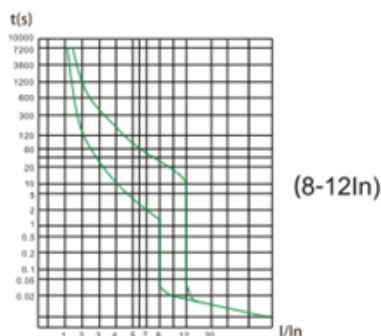
The device is housed in a plastic box with IP65 protection, which enables safe use even in a modest rain or drizzle according to FAM TBSZ and the Low Voltage Work Execution Conditions.

### 3. Description of the equipment

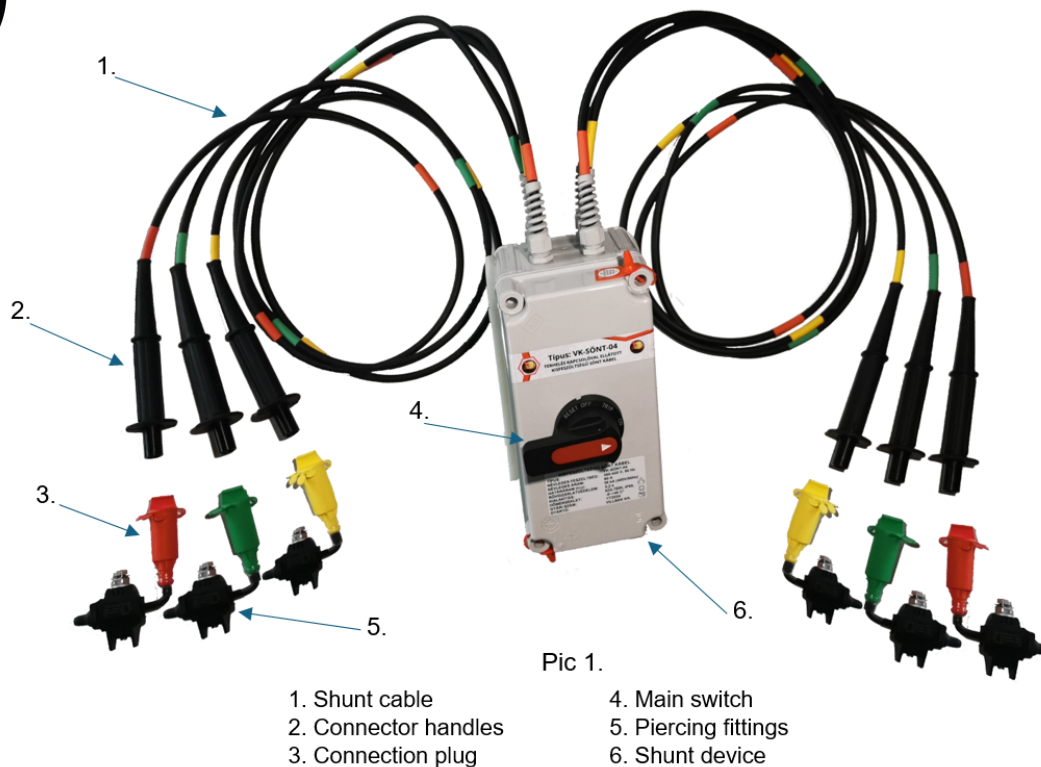
The shunt device contains a compact circuit breaker whose load capacity - due to the cross-section of the rubber cables connectors - is up to 60 A. At any power factor, i.e.  $\cos \varphi$ . This feature allows it to be used to interrupt pure capacitive currents up to 60 A.

The device is also capable of interrupting overcurrents, according to the following table of characteristics:

	Termikus kioldás			Mágneses kioldás		
	Nem kioldó áram	Kioldó áram	Idő	Tartó áram	Kioldási áram	Idő határ
60 A-ig	$1.05 \times I_n$		$\geq 1$ h	$8 \times I_n$		$\geq 0.2$ s
		$1.30 \times I_n$	$< 1$ h		$12 \times I_n$	$< 0.2$ s



The device's rated short-circuit tripping limit current  $I_{cu}$  (at 400 V, 50 Hz): 36 kA, which means that it can break once a phase short circuit of a transformer with a power of 1 MVA. This provides protection in the event that, despite the colored connection cables, a wrong connection is made and the operator switches the device to a short circuit.



#### 4., Use of the device

**The activity is classified as working under voltage, therefore the following operations must be carried out in accordance with the regulations of the GKM Decree Annex 21/2023 (VIII. 30), the FAM TBSZ and the Low Voltage Work Execution Conditions, with the appropriate FAM authorization!**

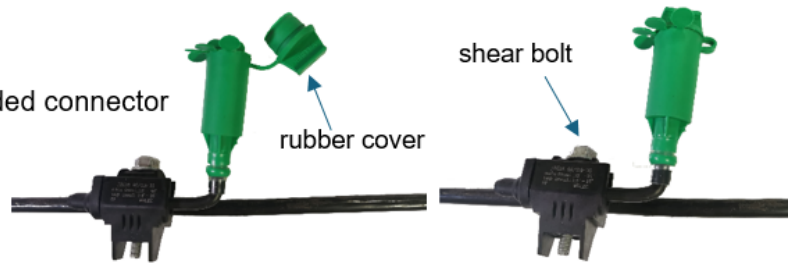
1.The integrity of the connecting handles and cables must be visually checked before each use! **DO NOT use the device in case of ANY visible damage!**

2.Before connecting the shunt cables always check the current flowing through the mains with a padlock current meter! If the magnitude of the current exceeds 60 A on any phase the shunt device cannot be used!

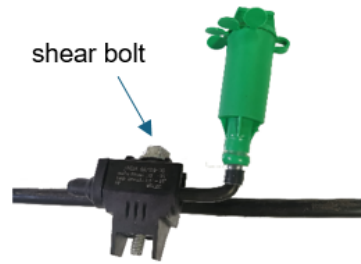
3.The shunt device connecting to the insulated wires with the piercing fittings. During the tightening of the piercing fittings, the rubber plug (Pic. 3) must be in the rubber bell of the pipe (Pic. 4), this ensures that the active part ( the threaded connector, Pic. 2) does not remain uninsulated. The connecting elements are connected to the insulated wire of the equipment designated for disconnection one by one by tightening the tear-off head screws. If it breaks off, it means that the screw has been tightened with a torque of at least 18 Nm, which is necessary to create a reliable connection. The screw will not be under live electric power!



Pic 2.



Pic 3.



Pic 4.

4. Checking the reliable connection: The rubber plugs must be removed (Figure 3) and the voltage between the phases must be measured on the threaded connector (Pic 2), which is live after piercing through the insulated wire shown in the picture. If, during the measurement, the voltage can be measured on one side - between the phases, in all combinations- then the connection is successful, the piercing contact is connected. Next make sure by phase-matching that the connecting plugs with the same color marking are on the same phase. The measurement should be done with special attention on the removed plugs, therefore the threaded connector does not cause a short circuit!

5. **ATTENTION!** The device must be turned "OFF" (Pic 5)! The insulated connector handles must be screwed onto the threaded connectors on each color-match pipe, therefore a cable marked with a specific color is connected to the same phase conductor. (Figure 6)



Pic 5



Pic. 6

6. Following the placing of all the grips, do a colormatch-check again. If it is OK, the device can be switched ON.

7. At this point, part of the current of the phases already flows through the shunt branch when the device is switched on. This can be checked with a padlock current meter. In this case, the current of the shunt branch is less than 1/10 of the current that can be measured in the main branch.



The main branch section between the connecting elements now can be cut off.

8.If the main branch is disconnected and the flowing through current exceeds 160A, then device will automatically disconnect, and the lever of the rotary switch will jump to "TRIP" position. In this case the device must be sent to the manufacturer for inspection.

9.Following the disconnecting of the main branch and put the disconnected wire ends in a standby state from an electrical, the device can be used to cut off the currents of the phases by turning the rotary switch to the "OFF" position with a firm movement.

Now the handles can be unscrewed and the connectors can be removed after putting the rubber plugs back into the pipe or they can be left on the insulated wire for later use. Therefore it is suitable for grounding short circuit or as a measurement reference point.

10.The casued punctures on the insulated wires by the piercing connector must be insulated again with an approved insulating material.

## **5., CONTENTS OF THE SET:**

Switchable three-phase shunt device, carrying bag, velcro cable ties, 6 colored pipes, 6 insulation piercing fittings that can be connected to the network.

## **6., Service and Maintance:**

The device does not require any special maintenance. Protect from dust and dirt and keep it clean. If any unexpected event occurs (downlock, falling, etc.), it must be sent to the manufacturer for inspection. Damage to the seal voids the 2 years warranty!

## **7., Periodic inspection:**

Mandatory in every 12 months using the methods specified by the manufacturer at the premises of Villbek Kft. The device may only be repaired by the manufacturer.

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