

#### Description

UACS1 is a VDE-certified appliance coupler system for AC voltages up to 250 V and a maximum current up to 16A. Power network- and appliance side are separable and consist of a country-specific power plug, a suitable cordset with a straight or angled appliance connector and a product-specific appliance inlet. Because of modular and flexibly scalable system, appliance producers are able to connect all of their electric appliances with country-specific power outlets. This leads to various positive effects. Some examples are given here:

- country-independent production of appliances relating to the power network connection
- automatic installation and check of appliance coupler system
- determination of the country type by pushing the country-specific cordset into the appliance inlet at the logistic center or by the customer
- supply with more power cords incl., for countries like Italy, which have two or more types of non-compatible power sockets



As your certificated system supplier, we offer you a complete reliable and low-cost solution for connecting your electrical appliance to a wide range of country-specific power outlets. Types of country-specific power plugs and cables, cable length, straight or angled appliance connector and the specification of the appliance inlet can flexibly be adapted to your appliances. Referring to these facts, feel free to contact us. Our team can offer you competent advise.

#### Certification

The appliance coupler system UACS1 was tested and registered by the German Union for Electro-technics (VDE). It is certified by the following standards:

DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015+AC:2016; IEC 60320-1:2015

#### Technical Data of the Appliances Coupler System UACS1

Rating:	250 V~, max. 16 A, 50 Hz / 60 Hz, single phase
Applicable ambient temperature cordset:	70/90 °C
Applicable ambient temperature appliance inlet:	120 °C
IP protection code for connected use:	IP 40
Protection class:	I (grounded appliances)
Power cord:	H05VV-F 3G or H05V2V2-F 3G, other types on request
	Cord cross-section: 0.75 mm <sup>2</sup> / 1.0 mm <sup>2</sup> / 1.5 mm <sup>2</sup> (depends on current carrying capacity)
Power plug:	country-specific

The utilized materials are according to REACH, RoHS and PAH directives. All components of UACS1 coupler system are also CE-compliant. We are pleased to send you the relevant declarations of compliance on request.

#### UACS1 Appliance Connector – List of variants


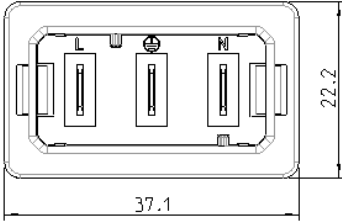
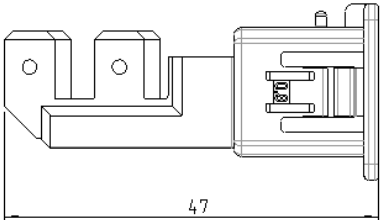
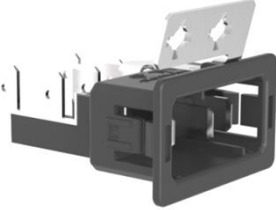
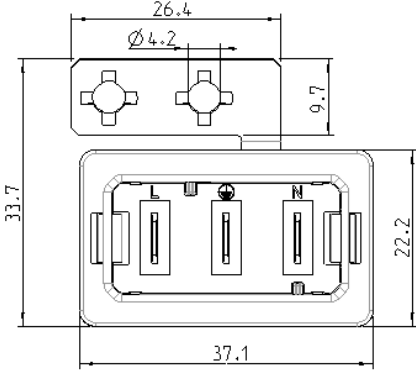
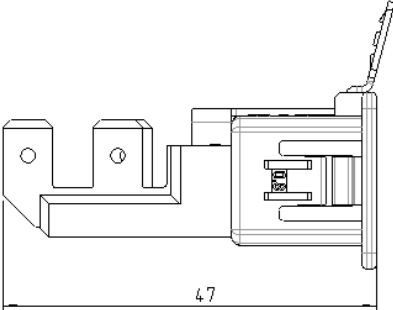

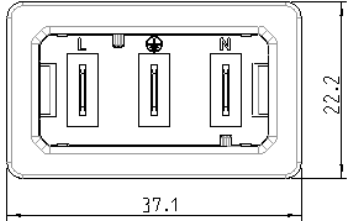
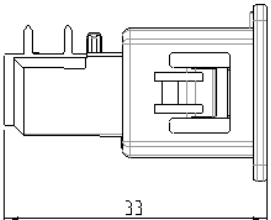
Our standard assortment contains appliance connectors with straight and angled bend protection.

Variant with straight bend protection	Variant with angled bend protection

## UACS1i – The appliance inlet with double snap in-catch mechanism

Three classic types of the appliance inlet are summarized under the labeling UACS1i:

- variant with two 6.3 mm blade connectors according to DIN EN 61210 on each contact
- variant with two 6.3 mm blade connectors according to DIN EN 61210 on the power carrying contacts and screwed joint protective earth
- variant with soldering pins<sup>1</sup> for pcb through-hole mounting

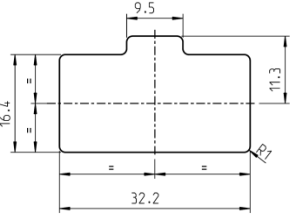
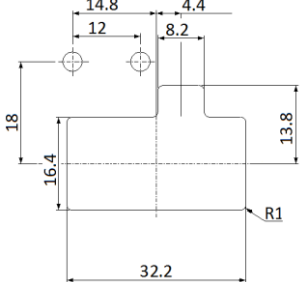
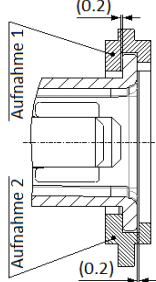


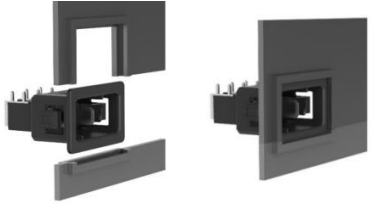
Variant with blade connectors	Variant with screwed joint PE	Variant with soldering pins
  	  	  

<sup>1</sup> Wave solderable according to DIN EN 61760

## UACS1i – Mounting recommendation

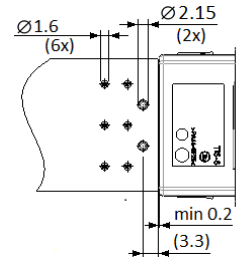
The appliance inlet can be mounted in sheet metal and plastic cases. If the inlet is mounted in a plastic case, a surrounding notch that absorbs all occurring forces, has to be provided. In sheet metal cases the inlet is secured by snap-fits located on opposite sides which allow a firm connection with the case. When fixed on the case, the holding forces of the appliance inlet are up to 100 N.

By standard a sheet metal of 0.8 mm thickness should be used<sup>2</sup>.

Metal cut out mounting: Variant with blade connectors <sup>3</sup>	Metal cut out mounting: Variant with screwed joint PE <sup>3</sup>	Plastic case mounting <sup>4</sup>
		
		

## PCB mounting recommendation

For current transfer to a PCB, there are two pins per trace - totaling six pins. Two positioning pins make it easy to place the inlet on the PCB. To prevent a force transfer from the inlet to the PCB while connecting, a secure fixation of the inlet is needed. The appliance inlet is applicable to PCBs with a thickness from 1.5 mm to 2.0 mm.



## UACS1v – The appliance inlet with quadruple snap in-catch mechanism and safety function

UACS1 is the innovative type of appliance inlet. Compared with the classic type UACS1i, different characteristics are enhanced:

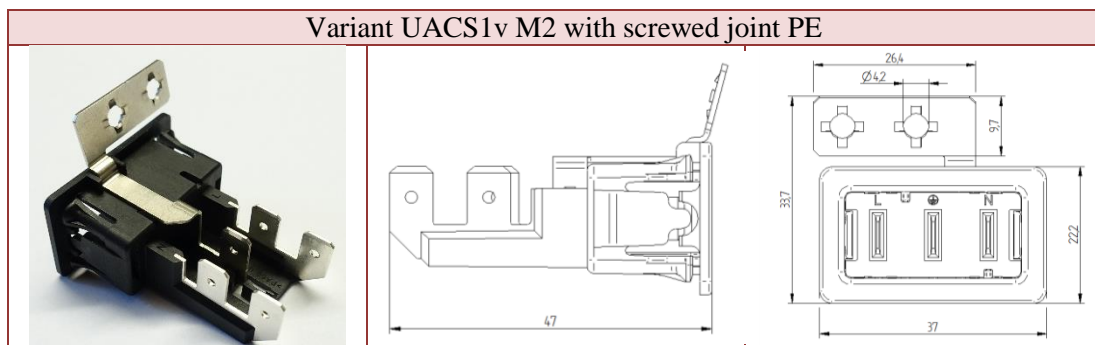
- Optimized quadruple snap in-catch mechanism improves the holding force up to more than 200 N on case
- Simplification of mounting by decreasing the maximum mounting force to 40N
- Higher flexibility relating to metal sheet thickness and manufacturing processes like punching, cutting, lasing, ...
- Design modification of the connector-inlet catch mechanism prevents the plugging of the appliance connector, when the appliance inlet is not mounted properly

<sup>2</sup> If the metal cut-out is manufactured by a punching press, care has to be taken that the punching burr does not hinder the mounting of the inlet. For non-punched cutouts like lased or cut ones, the appliance inlet UACS1i is only suited conditionally. The forces for mounting the inlet into the case are often too high.

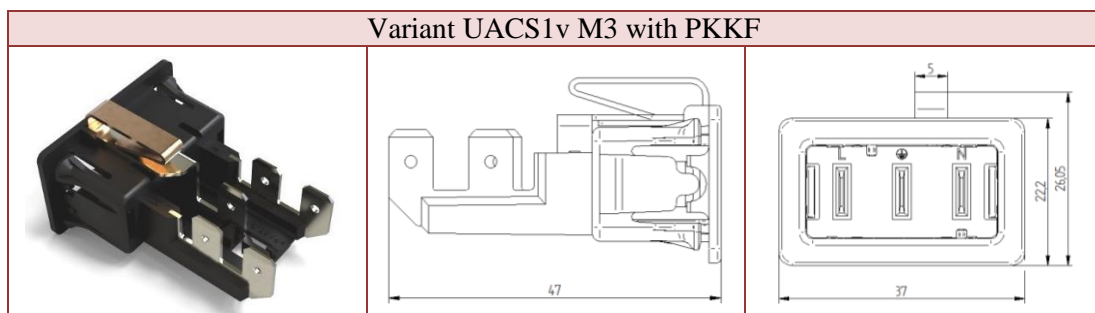
<sup>3</sup> The choice of suitable fixing materials for the PE contact has to be made according to IEC 60335. For the compliance with applicable standards the appliance manufacturer is responsible.

<sup>4</sup> Care has to be taken that the case mount is made wholly surrounding the inlet so that the appliance inlet inherit enough stability from the case.

For UACS1v, two types of inlets with mountable PE-contacts for a direct case conduction are available:



- Variant M2 with two 6.3 mm blade connectors according to DIN EN 61210 on the power carrying contacts and a screwed joint protective earth with one blade connector



- Variant M3 with two 6.3 mm blade connectors according to DIN EN 61210 on the power carrying contacts and a special innovative metal spring connection called “PKKF = Powerkontaktklemmfeder” on protective earth with one blade connector

**PE connection system “Powerkontaktklemmfeder (PKKF)”**

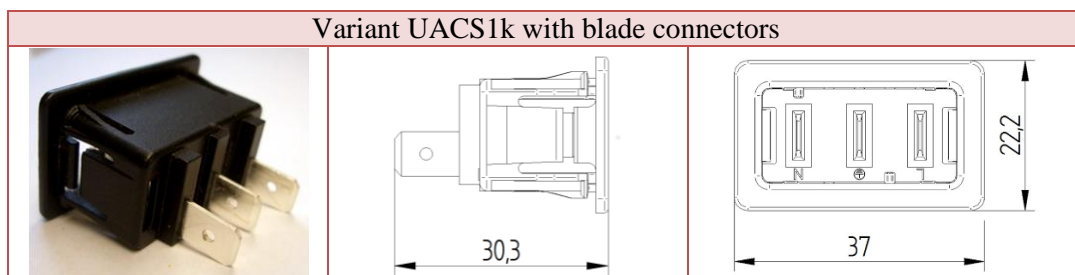
The PE type M3 with PKKF is a new certificated innovative connection system between the protective earth contact of the appliance inlet and the appliance case. Compared to other established PE-connection technologies like screwing or mounting a PE-cordset, a safe and long-living electrical connection can be achieved in only one work step. While the inlet snaps into the cutout of the appliance case, the PE contact is connected safely to the case by a permanent pushing clamping spring.

**UACS1k/m – The space-saving appliance inlet with quadruple snap in - catch mechanism and safety function**

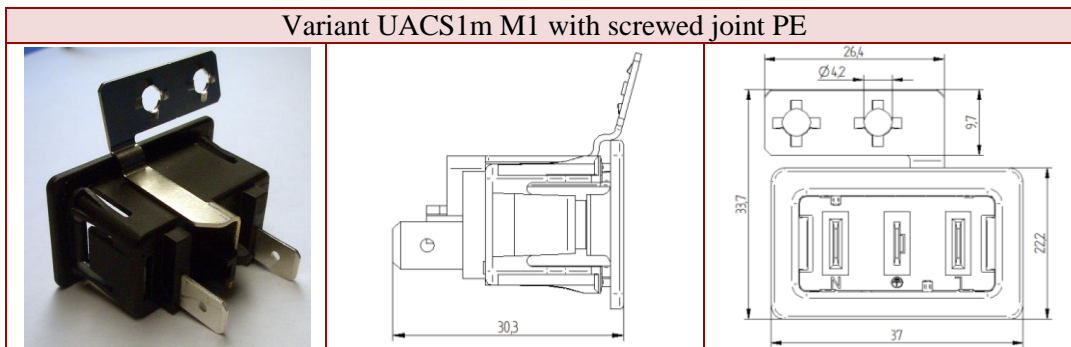
UACS1k and UACS1m are the space-saving variants of the appliance inlet.

During the development, the focus point for UACS1k and UACS1m was set on compactness, flexibility and a maximum of safety. Because of a length saving of ca. 16 mm these short types of appliance inlets are especially suitable for applications with limited space for appliance coupler systems. UACS1k and UACS1m also have the quadruple snap in – catch mechanism, which give them the same advantages as the longer variant UACS1v.

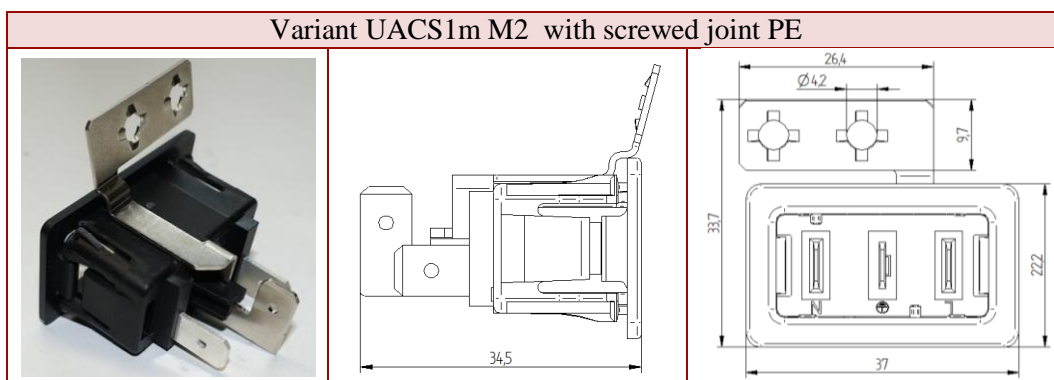
The appliance inlet UACS1k has three molded contacts. The inner wiring has to be completely connected by 6.3 mm blade connectors.



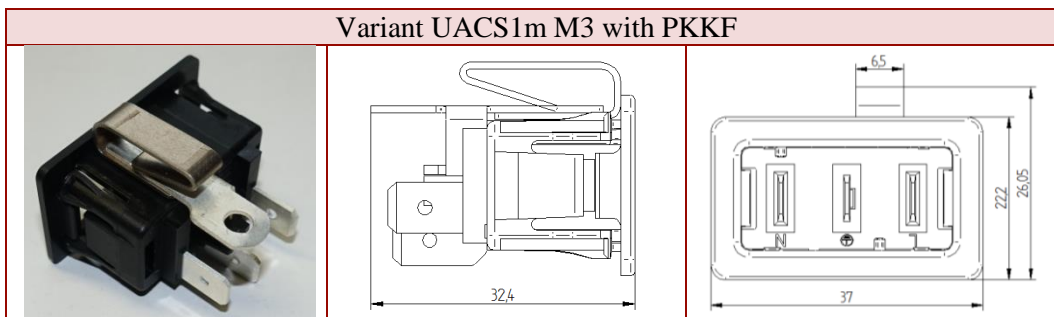
For UACS1m, three types of inlets with mountable PE-contacts for a direct case conduction are available:



- Variant M1 with one 6.3 mm blade connector according to DIN EN 61210 on the power carrying contacts and a screwed joint protective earth without blade connector



- Variant M2 with one 6.3 mm blade connector according to DIN EN 61210 on the power carrying contacts and a screwed joint protective earth with one blade connector



- Variant M3 with one 6.3 mm blade connector according to DIN EN 61210 on the power carrying contacts and a special innovative metal spring connection called “PKKF = Powerkontaktklemmfeder” on protective earth with one blade connector

### UACS1k/m/v – Mounting recommendation

The appliance inlets UACS1k, UACS1m and UACS1v can be mounted in sheet metal and plastic cases. If the inlet is mounted in a plastic case, a surrounding notch that absorbs all occurring forces, has to be provided. In sheet metal cases the inlet is secured by snap-fits located on each corner of the inlet housing which allow a firm connection with the case.

By standard a sheet metal of 0.6 to 0.8 mm thickness should be used.

The cutout for the case mounting varies between the different kinds of PE conduction:

Variant UACS1k with blade connectors	Variant UACS1m M1+M2 with screwed joint PE	Variant UACS1m M3 with special spring PE-conduction (PKKF)

### UACS1 – Coding system

Regarding the acceptable maximum of cord temperature and current, all components of the appliance coupler system UACS1 are marked clearly.

“Clearly” means in that case, that there is no compatibility from higher currents/temperatures to lower ones.

In that way a current overload and too high ambient temperatures on the power cord are prevented reliably.

For example a stove with the maximum current of 16A cannot be connected with a 10A-marked power cord.

	6 A / 70 °C	10 A / 70 °C	16 A / 70 °C
front view appliance connector			
front view appliance inlet			
	6 A / 90 °C	10 A / 90 °C	16 A / 90 °C
front view appliance connector			
front view appliance inlet			

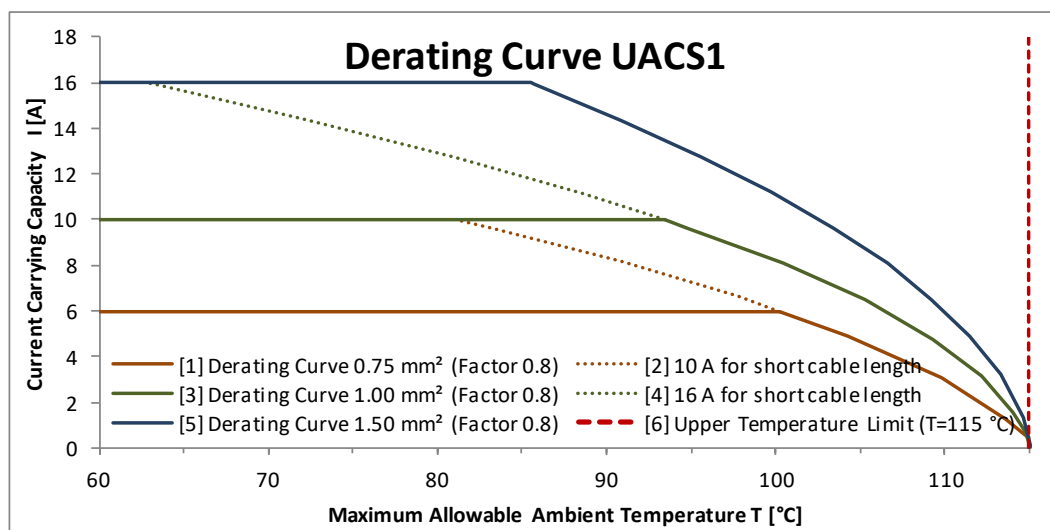
## Maximum current of the coupler system relating to the ambient temperature

During the development of electrical devices, it is necessary to regard, that the maximum current carrying capacity decreases with an increasing ambient temperature.

For example the materials of the appliance inlet can resist an ambient temperature of 120 °C for a long time.

But if there is a current of 10A or even more, the coupler system will be heated additionally by electrical power loss. Relating to a maximum temperature of 120 °C, the so called „Derating curves“ are shown in the following diagram for different European standard power cords. So in reality, the maximum acceptable current decreases already at ambient temperatures from 85 °C to 100 °C.

To prevent the coupler system from overheating, the installation place should be chosen under the point of view, that ambient temperatures higher than 70 °C will be avoided.



Derating curves<sup>5</sup> UACS1 according to DIN EN 60512-5-2, Variant with 6.3 mm connectors

## UACS1 - Accessories

Our appliance connection system UACS1 allows you to solve the topic of power connection by just one supplier. To make this possible, we offer you the following devices additionally:

- A test adapter, with which you can check your electrical appliance at the factory, even before connecting a suitable power cord
- Different case adapters made of metal sheet or plastic, which are necessary to mount the UACS1 appliance inlet into your appliance case without changing the cutout shape and size
- A universally marked power cord, which makes it possible to connect appliances with all current loadings and temperatures with the country-specific power network → service power cordset
- An extensive support to select the optimal configuration of UACS1 for your special appliance application

<sup>5</sup> versions for 0,75mm<sup>2</sup> (curve profile [1]) and versions for short cable length (curve profile [2] and [4]) on demand.

## Customer applications

Because of our highly flexible fully automated assembly lines, we have the possibility to realize a multitude of customer requests.

Application options:

- country specific power plug
- cord type, cord length and cord color
- variant of appliance connector (straight, angled)
- variant of appliance inlet (blade connectors, screwed joint PE, soldering pins)

Depending on request there are even further customer specific UACS1-solutions possible. Those we will develop, test, certify and produce together with you in a close cooperation. Feel free to contact us. Our team is eager to help you.

## Contact information

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