

Accessories for FTTO Installation Components

A multitude of installation options
– simply Illustrated

Version 3.5



What This Guide Sets Out to Achieve

As a specialist for fiber optic-based transmission systems, MICROSENS offers the broadest portfolio of network components designed for professional integration in cable ducts, underfloor systems, walls and desks currently available on the market.

We offer an extensive portfolio of installation accessories for installing our components. This document contains recommendations on how to expand an existing installation as well as how to realise a brand-new setup.

The goal is to identify the perfect accessories for the given installation environment (e.g. cable duct and mounting box from manufacturer xy). This is aimed at achieving an optimal result with respect to mechanical stability, an installation which conforms to all the current standards and an attractive design.

MICROSENS 2020 - installation systems with no compromises!

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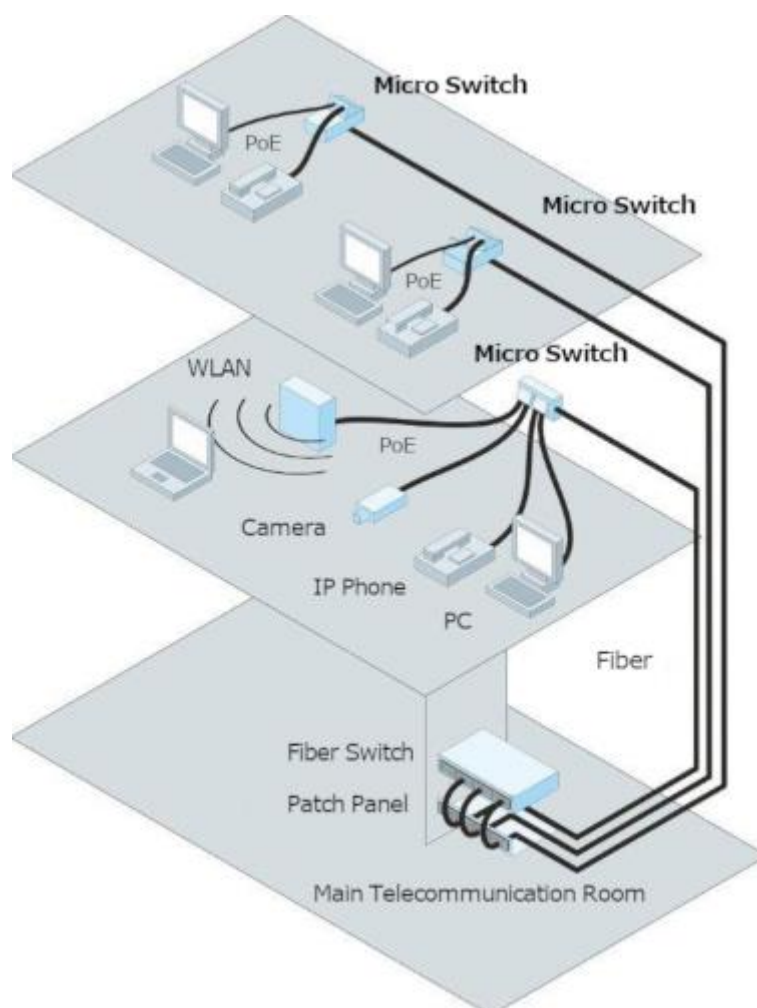
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1. Introduction to Fiber To The Office (FTTO)

Fiber To The Office (FTTO) is a EN50173-compliant and decentralised networking concept for modern office environments that intelligently combines the benefits of fiber optic and copper based cabling technologies.

In contrast to a classic Structured Cabling Network (SCN), FTTO deploys fiber optic cables throughout – all the way from the central wiring closet to the workplace area. Copper cabling is solely used for the last few metres to connect IP terminal equipment directly up to the MICROSENS Micro Switches.

The intelligent equalisation of the power density and the low space requirements compared to copper cabling have a noticeable, positive impact on economic results. FTTO completely cuts out the need for classical technical rooms on each floor which produce high costs due to their space and cooling requirements. For more information on our FTTO concept, please refer to <https://www.microsens.com>



Application Diagramme FTTO Concept

2. Introduction to M45 Modular Technology

Future-orientated cabling concepts are distinguished primarily by their flexibility. With M45 modular technology, MICROSENS provides the most compact installation solutions for active network components currently available on the market.

M45 modular technology is built on the basic dimensions of 45 x 45 mm. This design is found all over the world and allows it to be deployed in both national and international installation systems. It is the smallest size to which a Schuko socket can be reduced. Alongside standard installation in cable ducts and underfloor systems, desk and laboratory installation as well as room pillar and concealed installation are now widespread.

The main advantage of M45 modular technology is its cost efficiency compared to traditional systems – cutting installation costs by around 50%. The components no longer need to be fastened with screws, but are simply snapped into specially-designed mounting adapters or mounting boxes (snap in). This considerably reduces installation times.

When using installation components, MICROSENS differentiates between horizontal and vertical models. The devices are supplied for a perfect fit – no need to make any alterations or waste time putting the equipment together on-site. This not only reduces the amount of time and effort required, but also significantly increases the durability of the components.



MICROSENS 6-Port GbE Micro Switch
Generation 6



Micro Switch in cable duct with 45 mm track

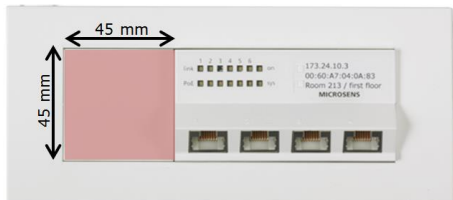


MICROSENS Micro Power Supply PoE+
MS700750 M45 Design

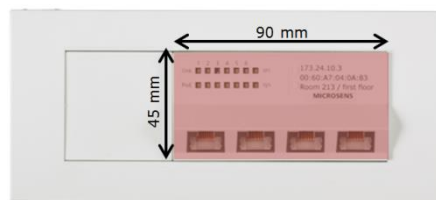
M45 modular technology – never has it been easier or quicker to install and integrate equipment!

Module 45 Size Details

M45



M45-2



MICROSENS components available in this size:
 (selection)
 - MS140033
 - MS140174
 - MS140150-GT

MICROSENS components available in this size:
 - Micro Switches
 - Micro Power Supply MS700750
 - Micro Automation Gateway MS442500M

Installing an MS140029 Micro Switch Installation Adapter



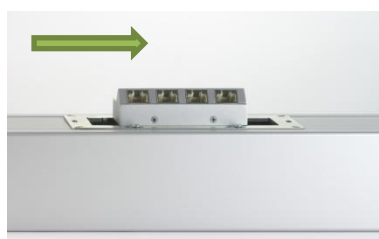
Screw the adapter plate onto the mounting box.



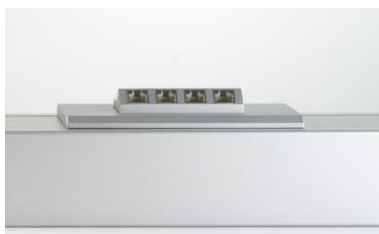
After connecting the network and power supply, insert the Micro Switch through the adapter plate at an angle.



Then place the Switch into the allocated adapter plate opening.



Snap the device onto the adapter plate.



Install the plastic cover.

3. Greater Security for Your Micro Switch

The adapter plate allows the device to be installed or removed without the need for tools. However, in order to make the unauthorised removal of a Micro Switch more difficult, especially in a public environment, MICROSENS also offers an optional locking plate set.

Step 1



First of all, the switch is installed and brought into position without the need for tools. In the illustrated example, however, the switch could be removed by simply sliding it sideways.

Step 2



To prevent being able to slide the switch over, the locking plate is screwed onto the mounting plate at the designated position. Now the switch can no longer be removed without tools, i.e. tools are now needed to remove it.

Step 3



Where a mounting plate designed to take up to three modules is used, the next step is to insert a blind cover as shown in the illustration.


This step is not necessary, when mounting a plate to take up a double module.

Step 4



The cover frame is then added to finish off the installation.

The order number of the locking adapter set, consisting of one locking plate and two screws, is MS140099. This can be combined with an MS140029-xx, MS140069-xx, MS140040F2-xx, MS140040BR2-xx, MS140040HW3 or MS140040UP3 adapter plate.

Image	Description	Order Number
	Locking plate for MICROSENS 2-socket + 3-socket adapters, consisting of one locking plate and incl. 2 screws	MS140099

4. Cable Ducts and Conduits

For installation in a cable duct where the nominal dimensions of the track exceed 45 mm, MICROSENS offers a series of adapter plates. The art of combining mounting adapter, resp. Mounting boxes with the desired cable duct requires additional knowledge which MICROSENS will be familiarizing you with on the following pages.

Example of how to install an MS140029 adapter plate



Adapter plate + E2 mounting box
in an OBO BETTERMANN GEK Rapid80 system



Insert Micro Switch



Apply cover frame



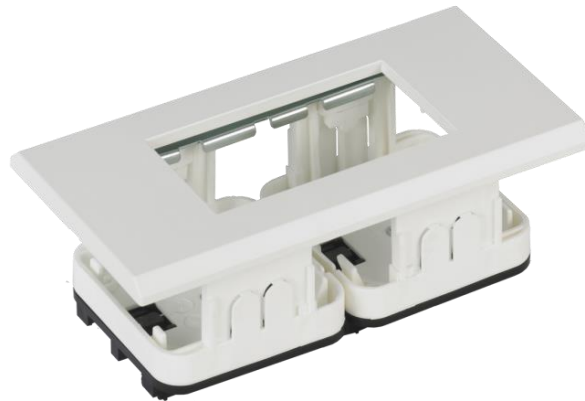
[watch a video
about
this product](#)

4.1 Installation Set with Universal Mounting Adapter for Ducts with an Anchor Rail

The MICROSENS MS140040BR2 installation set is suitable for all cable ducts with an anchor rail located at the rear of the duct where the devices are to be installed - be this in the shape of an anchor rail with a C-profile, a 35 mm combi-rail or a DIN rail.

This universal set replaces the mounting box. Its open design offers plenty of room for power and network connections. The set is adjustable to compensate for different inner duct heights (47, 50, 52 or 55 mm). No further installation components are required.

The cover frame is designed to overlap the area cut out of the upper duct section (duct cover).



watch a video about this product

Image	Description	Order Number
	M45 Installation set, consisting of a cover frame (168 x 85 mm), an adapter plate and 2x mounting adapter, pre-assembled	MS140040BR2
	Colour: pure white (RAL 9010)	
	Colour: varnished aluminium	MS140040BR2-AL
	Colour: graphit grey (RAL7021)	MS140040BR2-GT
	M45 installation kit for anchor rail with C-profile, consisting of cover frame, mounting adapter, 2x device carrier, pre-assembled and locking adapter including fastening screw	MS140040BR2-V
	Colour: pure white (RAL9010)	

*Further colours upon request



Installed on a C-profile anchor rail in a tehalit duct





Installed on 35mm-combi rail GEK cable duct

4.2 Installation Set for Front-Locking Tehalit Ducts

The MS140040F2 set is ideal for all front-locking, steel cable ducts manufactured by Hager (tehalit). This set, which replaces the mounting box, has an open design, offering plenty of room for power and network connections. No further installation components are required. The cover frame fits flush with the upper duct, i.e. it does not overlap the cut-out section.

The set consists of a triple-socket bracket with a matching cover. To install a Micro Switch, an M45 blind cover, which is included in the set, is also required. An optional locking plate can also be used to secure the Micro Switch.



Image	Description	Order Number
	Installation set, consisting of a 3-socket cover frame (184 x 86 mm), a front-locking mounting bracket, 1x M45 blind cover	MS140040F2
	Colour: Pure white (RAL 9010)	
	Colour: varnished aluminium	MS140040F2-AL
	Colour: graphit grey (RAL7021)	MS140040F2-GT
	Locking plate for MICROSENS 2-socket + 3-socket adapters, consisting of one locking plate and incl. 2 screws	MS140099

*Further colours upon request



Finished installation in a tehalit duct

4.3 Cable Ducts with Standard E2 Mounting Boxes

For the universal installation of MICROSENS installation components in standard ducts with E2 mounting boxes, MICROSENS supplies an MS140029 installation set.

This two-component set consists of an adapter plate with an M45 track which allows a Micro Switch to be inserted without needing to use tools. This newly-designed adapter plate, which can optionally be used in combination with a locking plate to secure a Micro Switch (please refer to MS140099), has now been additionally reinforced to make it resistant to bending. It also includes a cover frame which fits the switch perfectly.

Alongside the MICROSENS adapter set, an original E2 mounting box supplied by the respective cable duct manufacturer (not included in the set) is required for the installation. A table listing all the compatible E2 mounting boxes is available on page 23ff.



[watch a video about this product](#)

Image	Description	Order Number
	M45 installation set for an E2 mounting box, consisting of an adapter plate and a cover frame	MS140029
	Colour: Pure white (RAL9010)	
	Colour: varnished aluminium	MS140029-AL
	Colour: graphit grey (RAL7021)	MS140029-GT
	M45 universal installation kit for E2 mounting box, consisting of mounting adapter, cover frame (168 x 85 mm) and locking adapter including fastening screw	MS140029-V
	Colour: pure white (RAL9010)	
	Single cover frame	MS140070
	Colour: Pure white (RAL9010)	
	Colour: varnished aluminium	MS140070-AL
	Colour: graphit grey (RAL7021)	MS140070-GT

*Further colours upon request



Micro Switch with cover, installed in an E2 mounting box

4.4 Right Side Installation in E2 Mounting Boxes

Fiber optic cables only have a limited bending radius. MICROSENS now offers a solution which allows a Micro Switch to be installed on the right side – thus making extra space for the fiber optic cabling.

The three-component set consists of an adapter plate with a 45 mm track which allows a Micro Switch to be inserted without needing to use tools. The plate has been specially reinforced for improved bend resistance and stability. A locking plate can also be installed to secure the Micro Switch. In addition, the set also includes a blind cover.

Not included in the set are compatible E2 mounting boxes, such as those manufactured by Legrand, Bticino and OBO Bettermann.

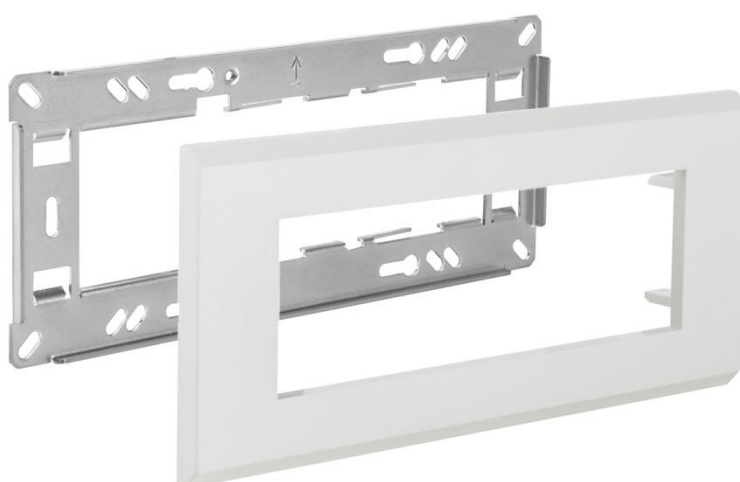




Image	Description	Order Number
	M45 Installation set, consisting of a cover frame (184 x 86 mm), a mounting bracket, 1x M45 blind cover	MS140069
	Colour: Pure white (RAL9010)	
	Colour: varnished aluminium (RAL9010)	MS140069-AL
	Colour: graphit grey (RAL7021)	MS140069-GT
	Locking plate for MICROSENS 2-socket + 3-socket adapters, consisting of one locking plate and incl. 2 screws	MS140099

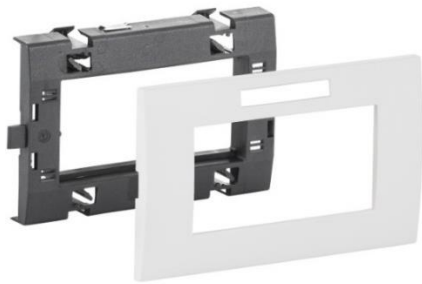
*Further colours upon request



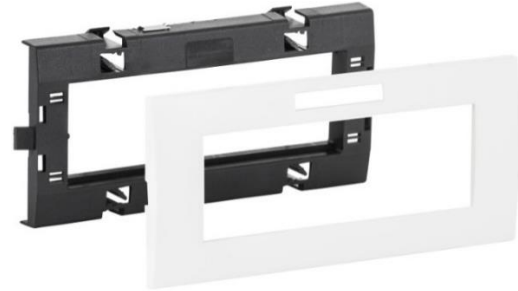
4.5 Installation Set for Front-Locking Kleinhuis Ducts

The MS140047F-KH and MS140047F3-KH sets are suitable for all front-locking device cable ducts manufactured by Kleinhuis. These sets, which replace the mounting box, have an open design, offering plenty of room for power and network connections. No further installation components are required. The cover frame fits flush with the upper duct, i.e. it does not overlap the cut-out section.

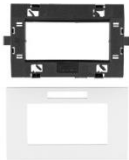

The **MS140047F-KH** set is based on a double socket bracket with a matching cover. This installation set is only suitable for usage with a G6 Switch. The **MS140047F3-KH** set is based on a triple-socket bracket with a matching cover. To install a Micro Switch, an M45 blind cover, which is included in the set, is also required. This installation set is suitable for all Micro Switch generations in M45 design.



MS140047F-KH



MS140047F3-KH

Image	Description	Order Number
	M45 Installation set, consisting of a 2-socket cover frame and a front-locking mounting adapter	MS140047F-KH
	Colour: Pure white (RAL9010)	
	Colour: varnished aluminium	MS140047F-KH-AL
	Colour: graphit grey (RAL7021)	MS140047F-KH-GT
	M45 Installation set, consisting of a 3-socket cover frame, a front-locking mounting adapter, 1x M45 blind cover	MS140047F3-KH
	Colour: Pure white(RAL9010)	
	Colour: graphit grey (RAL7021)	MS140047F3-KH-AL
	Colour: graphit grey (RAL7021)	MS140047F3-KH-GT

*Further colours upon request



MS140047F-KH installed in a Kleinhuis duct



MS140047F3-KH installed in a Kleinhuis duct

4.6 Installation Set for Front-Locking Niedax Ducts

The MS140047F-ND and MS140047F3-ND sets are suitable for all front-locking, steel cable ducts manufactured by Niedax. These sets, which replace the mounting boxes, have an open design, offering plenty of room for power and network connections. No further installation components are required. The cover frame fits flush with the upper duct, i.e. it does not overlap the cut-out section.



The **MS140047F-ND** is based on a double socket bracket with a matching cover. This installation set is only suitable for usage with a G6 Switch. The **MS140047F3-ND** set is based on a triple-socket bracket with a matching cover. To install a Micro Switch, an M45 blind cover, which is included in the set, is also required. This installation set is suitable for all Micro Switch generations in M45 Design.



MS140047F-ND



MS140047F3-ND

Image	Description	Order Number
	M45 Installation set, consisting of a 2-socket cover frame and a front-locking mounting adapter	MS140047F-ND
	Colour: Pure white (RAL9010)	MS140047F-ND-AL
	Colour: varnished aluminium	MS140047F-ND-AL
	Colour: graphit grey (RAL7021)	MS140047F-ND-GT
	M45 Installation set, consisting of a 3-socket cover frame, a front-locking mounting adapter, 1x M45 blind cover	MS140047F3-ND
	Colour: Pure white (RAL9010)	MS140047F3-ND-AL
	Colour: varnished aluminium	MS140047F3-ND-AL
	Colour: graphit grey (RAL7021)	MS140047F3-ND-GT

*Further colours upon request



MS140047F-ND installed in a Niedax duct




MS140047F3-ND installed in a Niedax duct

4.7 Installation Set for Front-Locking Rehau ducts

For Rehau cable ducts of the Signa Base series, we offer a front-locking cover frame with an integrated M45 locking rail. The installation kit is available with space for two M45 module or three M45 module. The sets replace the mounting box and offer plenty of space for connecting the power supply and network connection. No further installation components are required for the installation. The cover frame fits flush with the upper duct, i.e. it does not overlap the cut-out section.










Image	Description	Order Number
	M45 installation kit for front-locking Rehau trunking, consisting of a mounting cover (135 x 80 mm) Colour: pure white (RAL9010)	MS140048F-RH
	M45 installation kit for front-locking Rehau trunking, consisting of a mounting cover and a M45 blind cover (200 x 80 mm) Colour: pure white (RAL9010)	MS140048F3-RH














*Further colours upon request

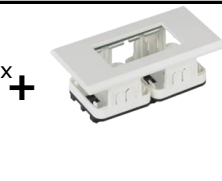

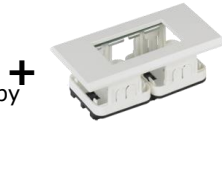

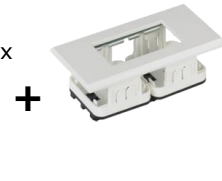

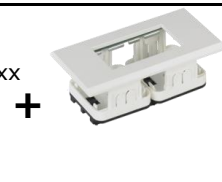

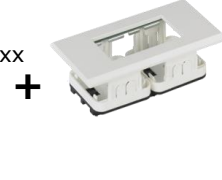




MS14048F3-RH installed in the Signa Base cable duct





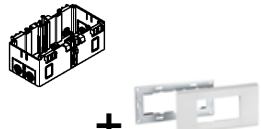
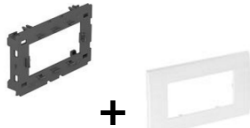
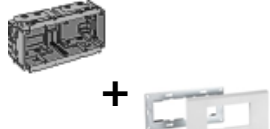
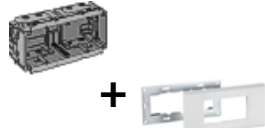
4.8 tehalit Cable Ducts

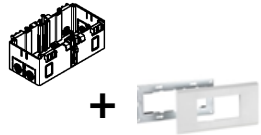


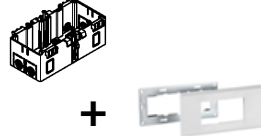
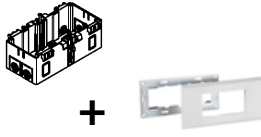
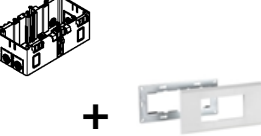

Cable duct	Mounting box/adaptor	Suitable MICROSENS Installation Set	Image
tehalit.BRN duct profile 68 mm high, 80 mm top part, molded parts, front-locking device installation Typ: BRN65xxx	Included in the set	MS140040F2	
tehalit.BRH duct profile 68 mm high, top part 80 mm, molded parts, front-locking device installation Typ: BRH6xxx	Included in the set	MS140040F2 or MS140040BR2	
tehalit.BRS duct profile, 70 mm high, 80 mm top, molded parts, front-locking device installation Type: BRS65xxx	Included in the set	MS140040F2	
tehalit.BRS duct profile, 85 mm high, 80 mm top part, molded parts, front-locking device installation Type: BRS85xxx	Included in the set	MS140040F2	
tehalit.BRS duct profile, 100 mm high, 80 mm top part, molded parts, front-locking device installation Type: BRS100xxx	Included in the set	MS140040F2	
tehalit.BRA duct profile, 70 mm high, 80 mm top part, molded parts, front-locking device installation Type: BRA65xxx(w/o 65b)	Included in the set	MS140040BR2	
tehalit.BR duct profile, 70 mm high, molded parts, C-Profile device installation Type: BR70100	Included in the set	MS140040BR2	

Cable duct	Mounting box/adapter	Suitable MICROSENS Installation Set	Image
tehalit.BR duct profile double compartment, molded parts, C-Profile device installation Type: BR70214	Included in the set	MS140040BR2	
tehalit.BRN duct profile, 70 mm high, molded parts, C-Profile device installation Type: BRN70xxx	Included in the set	MS140040BR2	
tehalit.BRHN duct profile, 70 mm high, molded parts, C-Profile device installation Type: BRHN70xxx	Included in the set	MS140040BR2	
tehalit.BRH duct profile, 70 mm high, molded parts, C-Profile device installation Type: BRH70132	Included in the set	MS140040BR2 Cover MS140075-BRH required	 + 
tehalit.BR duct profile, 70 mm high, molded parts, C-Profile device installation Type: BR70130	Included in the set	MS140040BR2 Cover MS140075 required	 + 
tehalit.BR duct profile, 85 mm high, molded parts, C-Profile device installation Type: BR85130	Included in the set	MS140040BR2 Cover MS140075 required	 + 
tehalit.BRS duct profile, 70 mm high, 120 mm top part, molded parts, C-Profile device installation Type: BRS65xxxB	Included in the set	MS140040BR2 Cover R9282xxx by Hager required	 + 
tehalit.BRS duct profile, 85 mm high, 120 mm top part, molded parts, C-Profile device installation Type: BRS85210B	Included in the set	MS140040BR2 Cover R9282xxx by Hager required	 + 

Cable duct	Mounting box/adapter	Suitable MICROSENS Installation Set	Image
tehalit.BRS duct profile, 100 mm high, 120 mm top part, molded parts, C-Profile device installation Type: BRS100210B	Included in the set	MS140040BR2 Cover R9282xxx by Hager required	 
ehalit.BRA duct profile, 70 mm high, 120 mm top part, molded parts, C-Profile device installation Type: BRA65xxxB	Included in the set	MS140040BR2 Cover BRA1202Rxxx by Hager required	 
tehalit.BRH duct profile, 70 mm high, molded parts, C-Profile device installation Type: BRH70172	Included in the set	MS140040BR2 Cover R6492xxx by Hager required	 
tehalit.BR duct profile, 70 mm high, molded parts, C-Profile device installation Type: BR70170	Included in the set	MS140040BR2 cover L917290xx by Hager required	 
tehalit.BR duct profile, 85 mm high, molded parts, C-Profile device installation Type: BR85170	Included in the set	MS140040BR2 Cover L917290xx by Hager required	 
tehalit.BR duct profile double compartment, molded parts, C-Profile device installation Type: BR70214	Included in the set	MS140040F2	


4.9 OBO BETTERMANN Cable Ducts

Cable duct	Mounting box/adaptor	Suitable MICROSENS Installation Set	Image
Rapid 80 cable duct made of plastic, steel or aluminium, various models and sizes available	Set replaces mounting box 71GD7 Recommended model No need to cut holes out for cable routing	MS140038-RP80 2 component set	
Rapid 80 device installation duct made of plastic, steel or aluminium, various models and sizes	Set replaces mounting box 71GD7 Recommended model No need to cut holes out for cable routing	MS140039-RP80 3-component set	
Rapid 80 device installation duct made of plastic, steel or aluminium, various models and sizes	Front-locking mounting box manufactured by OBO BETTERMANN Type: 71GD7	MS140029	
Rapid 45 device installation duct made of plastic, steel or aluminum, various models and sizes	No mounting box required, the Micro Switch fits the 45 mm rail of the Rapid45 duct without the need for further accessories	Not required	
BK70xxx (older Typs)	Mounting box for PVC ducts GEK series von OBO BETTERMANN Typ: 2390 8T2	MS140029	
GEK 70xxx cable duct (older Typs)	Not required	MS140035	
GES 70xxx cable duct (older Typs)	GED-2	MS140029	
GEA 70xxx duct PVC (older Typs)	GED-2	MS140029	

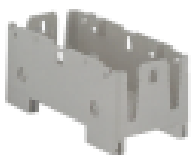
Cable duct	Mounting box/adaptor	Suitable MICROSENS Installation Set	Image
BS70xxx (older Typs)	Mounting box for PVC ducts GEK series von OBO BETTERMANN Typ: 2390 8T2	MS140029	
BBA70xxx (older Typs)	Not required	MS140040BR2	
BBST70xxx (older Typs)	Not required	MS140040BR2	
BS90xxx (older Typs)	Mounting box for PVC ducts GEK series von OBO BETTERMANN Typ: 2390 8T2	MS140029	
GEA 55110 S (older Typs)	Mounting box for PVC ducts GEK series von OBO BETTERMANN Typ: 2390 8T2	MS140029	
GEA 55135 O (older Typs)	Mounting box for PVC ducts GEK series von OBO BETTERMANN Typ: 2390 8T2	MS140029	
6 WIK 2 (older Typs by Ackermann)	Not required	MS140040BR2	

4.10 Mounting Box Overview - Sorted by Cable Duct Manufacturer



Baukulit

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	KFR/44	<ul style="list-style-type: none"> • Frontlocking mountingbox • Manufacturer Spelsberg 	MS140029
	362-104		
	High 44 mm		




Dahl

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	GK/D	<ul style="list-style-type: none"> • for Dahl GKB and LKO ducts • No longer available 	MS140029
	MS140049		
		For Dahl ducts w/o mounting rail	MS140029
		<ul style="list-style-type: none"> • Attached to the rear wall of the duct 	

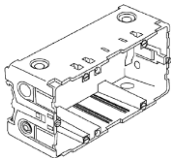

GGK

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	GED 50/2	<ul style="list-style-type: none"> • For installation of 80 mm devices in cable routing duct systems and device installation duct systems with DIN mounting rails 	MS140040BR2
			*replaces mounting box
	KFR/44	<ul style="list-style-type: none"> • Frontlocking mountingbox • Manufacturer Spelsberg 	MS140029
	362-104		
	High 44 mm		

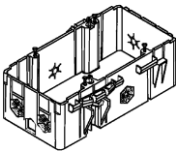


Hager (tehalit)

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	L4719SCHW EAN = 4 012740 264549 142 x 71 x 55	<ul style="list-style-type: none"> For cable ducts with 100mm front cover and c-rail, e.g. BR70130 	MS140029 *MS140040BR2 is recommended when purchasing new
	G2737 EAN = 4 012740 885379 142 x 64 x 50	<ul style="list-style-type: none"> For cable ducts with 80mm front cover and c-rail e.g. BR70100 und BR 70214 	MS140029 *MS140040BR2 is recommended when purchasing new
	G2860 EAN= 4012740220057 142 x 64 x 42	<ul style="list-style-type: none"> Front locking mountingbox, double, made from polyamide, halogenfree, old no. G2705 	MS140029




Kleinhuis

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	KED265 142 x 71 x 59	<ul style="list-style-type: none"> For cable ducts with 80mm and 112mm cable duct cover 	MS140040BR2 *replaces mounting box
	KD2/50 382 450 01 142 x 71 x 59	<ul style="list-style-type: none"> For cable ducts with 80mm and 112mm cable duct cover Manufacturer Spelsberg 	MS140040BR2 *replaces mounting box
	KED65D	<ul style="list-style-type: none"> For cable ducts with 80mm and 112mm cable duct cover 2 required per Switch 	MS140029

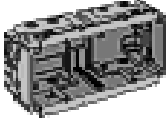

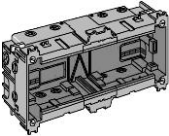

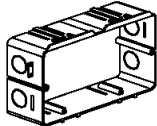
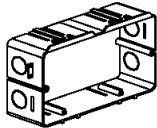
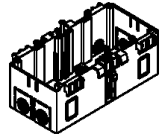
Niedax

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation Set
	GDHR 50-2 142 x 82 x 52	<ul style="list-style-type: none"> • Front-locking, GK78 device installation ducts, installation width 78 mm, steel/aluminium 	MS140029
	KD2 cam lock 12mm 362 404 01	<ul style="list-style-type: none"> • Front locking, cable duct GK78 installation width. 78mm, steel/aluminium • High 44mm. • Manufacturer Spelsberg 	MS140029
	KD2/52 (Typ 52mm) 382 052 01 142 x 70 x 56	<ul style="list-style-type: none"> • for cable ducts GK100, installation width 110mm/Steel • Manufacturer Spelsberg 	MS140040BR2 *replaces mounting box



Nowaplast

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation Set
	KD2/52 382 052 01 142 x 70 x 56	<ul style="list-style-type: none"> • Cable ducts PVC/aluminium/steel, FB device installation ducts, HSG device installation ducts • Manufacturer Spelsberg 	MS140040BR2 *replaces mounting box
	KD2 hook lock 362 104 01 Hight 44mm.	<ul style="list-style-type: none"> • Front locking, cable ducts, installation width 80mm, BR-PVC, BR-Aluminum, BR- steel profiled • Manufactured Spelsberg 	MS140029
	KD2 Nockenv.12mm 362 194 01	<ul style="list-style-type: none"> • Front locking, cable ducts, installation width 80mm, BR-PVC, BR-Aluminum, BR- steel profiled • Manufactured Spelsberg 	MS140029



**OBO
BETTERMANN**

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation Set
	71GD2 35172NV 160 x 74 x 42,5	<ul style="list-style-type: none"> Front locking 	MS140029
	71GD3 35172PV 150 x 74 x 47,5	<ul style="list-style-type: none"> Front locking 	MS140029
	71GD7 37087BV 142 x 76 x 51	<ul style="list-style-type: none"> Front locking, for S990 cover frames 	MS140029
	71GD9 142 x 76 x 51	<ul style="list-style-type: none"> Front locking, for S990 cover frames 	MS140029
	7GD8Z 35172V4 142 x 71 x 62	<ul style="list-style-type: none"> Typ 55 mm / für 110mm cable ducts with C-rail 	MS140029 *MS140040BR2 is recommended when purchasing new
	GED-2 (PVC) 6257 60 5 141 x 78 x 48	<ul style="list-style-type: none"> Steel/aluminium Cable ducts GES/GEA 	MS140029
	GED-2 HF (ABS) 6257 62 5 141 x 78 x 48	<ul style="list-style-type: none"> Steel/aluminium cble ducts Serie GES/GEA 	MS140029
	2390/8T2 6270 77 8 141 x 81 x 52	<ul style="list-style-type: none"> PVC cable ducts serie GEK 	MS140029


Rehau

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation
	KD2/55 382 055 01 142 x 70 x 59	<ul style="list-style-type: none"> Device installation ducts PVC/aluminium/steel, signo BK, BS, BA, FBK window sill ducts Manufacturer Spelsberg 	MS140040BR2 *replaces mounting box
	KD2 Hakenvers. 362 104 01 142 x 70 x 59	<ul style="list-style-type: none"> Device installation ducts PVC/aluminium/steel, signo BK, BS, BA, FBK window sill ducts Manufacturer Spelsberg 	MS140040BR2 *replaces mounting box

Spelsberg

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation
	TA55-2 392 055 01 142 x 70 x 61	<ul style="list-style-type: none"> Typ 55 mm / for 110 mm cable ducts with c- rail 	MS140040BR2 *replaces mounting box
	TA50-2 (Typ 50mm) 392 050 01 142 x 70 x 56	<ul style="list-style-type: none"> for FB cable ducts PVC 	MS140040BR2 *replaces mounting box


Stago

Image	Typ /Ordernumber	Description	Suitable MICROSENS Installation
	KFR/44 362-104 Höhe 44 mm	<ul style="list-style-type: none"> front locking mounting box Manufacturer Spelsberg 	MS140029

Thorsman

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	MIB-A2	<ul style="list-style-type: none"> • Front-locking socket • Available at MICROSENS under the art. No. MS140037V2-5 	MS140029
	142 x 79 x 45		

Van Geel

Image	Typ / Ordernumber	Description	Suitable MICROSENS Installation Set
	KFR/44	<ul style="list-style-type: none"> • front locking mounting box 	MS14029
	362-104	<ul style="list-style-type: none"> • Manufacturer Spelsberg 	
	Höhe 44 mm		
	Art. Nr.: 8510102	<ul style="list-style-type: none"> • Mounting box for duct systems with anchor rail (e.g. type GWO-4) • Manufacturer: Legrand • Available at MICROSENS under the art. No.: MS140043 	MS140029

*The sides of some mounting boxes are fitted with a screw fastening mechanism which is required to secure the mounting box in the duct. The sides of these mounting boxes should, therefore, not be altered. However, as the Switch requires sufficient space for the cabling, we recommend alternatively using an MS140040BR2 set (mounting box not required).

4.11 PoE Power Supply Installation in a Cable Duct

Installation components with Power-over-Ethernet functionality require a 48 VDC power supply (resp. 54 VDC for PoE+). This is generally achieved by using an external power supply which is integrated during installation.



PoE+ installable
power supply MS700710



Micro Power Supply PoE+
MS700750

4.11.1 Micro Power Supply Mounting for Standard M45 Adapter

The 54 VDC power supply type MS700750 is an installable power supply in monolithic design. It has a wide-range input between 90 and 264 VAC and converts the input voltage into the required DC voltage for PoE+-enabled micro switches (IEEE 802.3at).

The fanless power supply is short-circuit proof and operates in an temperature range between 0°..40°C. Two LEDs signalize corresponding voltages on primary and secondary side for function monitoring.

It is the perfect installation solution for all commercially available modular technology M45 installation systems, such as cable duct, floor tank, media column and DIN rail. The design corresponds to that of the Micro Switch (see page 7), which means that identical installation accessories can be used for mounting.



Power supply MS700750 mounted with Micro Switch in MS140131GT-7
chassis



MICROSENS Micro Power Supply mounted with installation set MS140029 in cable duct

4.11.2 Mounting on C-Rail, 35mm Combi Rail or 35mm DIN-Rail

MICROSENS offers a universal installation adapter for the MS700710 power supply which makes light work of installation on a C-profile, 35 mm combi-rail or 35 mm DIN rail. The installation adapter is screwed onto the power supply and is then simply snapped onto the respective profile. This is shown in the illustration below. The installation set (power supply not included) can be ordered by quoting the article No.: **MS-140075-UNI**. A combi-set, consisting of an MS700710 power supply and an MS140075-UNI installation set can be ordered by quoting the article No.: **MS700710-UNI**.



PoE+ power supply MS700710 mounted with MS140075-UNI on combi rail



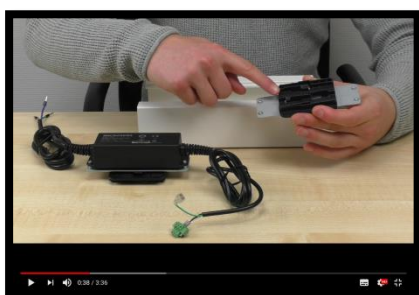
PoE+ power supply MS700710 mounted with MS140075-UNI on c-profile

4.11.3 Installation in a Front-Locking Tehalit Duct

MICROSENS offers a special installation set for front-locking tehalit ducts made of steel. This bracket - with the power supply attached to it - is simply snapped onto the assembly track and then covered over by the upper duct section. This installation set can be ordered by quoting the following product number: **MS140075-10F**.



MS700710 power supply installed in a tehalit duct using an MS140075-10F power supply bracket



Videos of our MS140075-UNI and MS140075-10F products



Social Media QR Codes






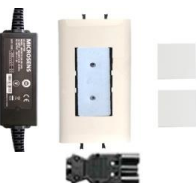


4.11.4 Magnetic Installation

For magnetic surfaces, MICROSENS offers the option of installing an MS700701 power supply using an MS140075-MAG installation set. This installation set has four neodymium magnets attached to the bottom for really quick and easy installation on any magnetisable surface.



MS700701 slotted onto an MS140075-MAG installation plate

Image	Description	Order Number
	Micro Power Supply, 230 VAC, 54 VDC, 70 W power supply for Micro Switches, Snap-In-Installation	MS700750
	Power supply 100-230 VAC / 54 VDC, 1.35 A, 65 W, open wire ends, fixed cable, conducted grounding Input: 3x 1.5mm Output: 1x DC screw terminal	MS700710
	54V/1.2A 65W for PoE+, 3x1.5 mm2 with pre-installed WAGO plug	MS700710-WG
	54V/1.2A 65W for PoE+, 3x1.5 mm2 with pre-installed Wieland plug	MS700710-WL
	54V/1.2A 65W for PoE+, 3x1.5 mm2 with pre-installed T12 plug	MS700710-T12
	MS700710 power supply, incl. universal installation set for C-profile, 35 mm combi-rail and 35 mm DIN rail installation 54V/1.2A 65W for PoE+	MS700710-UNI
	MS700710 power supply, incl. universal installation set for C-profile, 35 mm combi-rail and 35 mm DIN rail installation 54V/1.2A 65W for PoE+, 3x1.5 mm2 with pre-installed WAGO plug	MS700710-UNI-WG
	MS700710 power supply, incl. universal installation set for C-profile, 35 mm combi-rail and 35 mm DIN rail installation 54V/1.2A 65W for PoE+ 3x1.5 mm2 cable with pre-installed Wieland connector at one end	MS700710-UNI-WL
	Universal installation set for MS700710 power supply, designed for C-profile, 35 mm combi-rail and 35 mm DIN rail installation	MS140075-UNI
	MS700710 power supply, incl. installation set for frontlocking Hager (tehalit) steel cable ducts with 80 mm cover track, pre-installed 54V/1.2A 65W for PoE+	MS700710-FTH
	MS700710 power supply, incl. installation set for frontlocking Hager (tehalit) steel cable ducts with 80 mm cover track, pre-installed 54V/1.2A 65W for PoE+ 3x1.5 mm2 cable with pre-installed WAGO connector at one end	MS700710-FTH-WG
	MS700710 power supply, incl. installation set for frontlocking Hager (tehalit) steel cable ducts with 80 mm cover track, pre-installed 54V/1.2A 65W for PoE+ 3x1.5 mm2 cable with pre-installed Wieland connector at one end	MS700710-FTH-WL

Image	Description	Order Number
	MS700710 power supply, incl. installation set for frontlocking Hager (tehalit) steel cable installation ducts with 80 mm cover track, pre-installed	MS140075-10F
	Installation set for installing an MS700701 using magnets. Set consists of a magnetic bracket with strain relief and cable tie	MS140075-MAG
	Installation set for installing an MS700710 using magnets.	MS140075-10MAG
	Installation set for Legrand cable duct systems, consisting of an MS700710 power supply, a front-locking adapter, a cover frame, 2x M45 blind covers, preinstalled	MS700710-LGF
	Installation set for Legrand cable duct systems, consisting of an MS700710 power supply, a front-locking adapter, a cover frame, 2x M45 blind covers, preinstalled 54V/1.2A 65W for PoE+ 3x1.5 mm2 cable with pre-installed WAGO connector at one end	MS700710-LGF-WG
	Installation set for Legrand cable duct systems, consisting of an MS700710 power supply, a front-locking adapter, a cover frame, 2x M45 blind covers, preinstalled 54V/1.2A 65W for PoE+ 3x1.5 mm2 cable with pre-installed Wieland connector at one end	MS700710-LGF-WL
	Power supply installation set for wall duct socket. Set consists of an installation plate, a power supply bracket, a cover frame and 2x M45 blind covers	MS140076
	WAGO-WINSTAR MIDI socket, fits WAGO connectors	MS190261-F
	Wieland Gesis connector socket, fits Wieland connectors	MS190260-F

5 Underfloor Installation

With the introduction of underfloor installation in modern office environments, it is now easy to install inconspicuous power outlets, passive data connections and active installation components throughout the building – with minimal space requirements.

For underfloor installation, we recommend using a vertical MICROSENS installation component model. These models offer optimum cabling management technology without RJ-45 cables getting in the way of neighbouring installation units. The TP connector cables point directly to the through openings in the floor tank cover.



OBO BETTERMANN underfloor tank, including a MICROSENS Micro Switch and an MS140027 installation set

5.1 Installation Sets for OBO Underfloor Systems

The MS140026 and MS140027 sets are needed to install M45 modular MICROSENS installation components in an OBO BETTERMANN (formerly Ackermann) underfloor system. Both sets can accommodate three M45 modules. Which set is required depends on the size of the underfloor tank.




Image	Description	Image
	Installation set, consisting of one mounting box (length: 165 mm), one device bracket and 1x M45 blind cover UF Scope of delivery: Parts pre-assembled	MS140026
	Installation set, consisting of one mounting box (length: 208 mm), one device bracket, 1x M45 blind cover UF, 1x box cover Scope of delivery: Parts pre-assembled	MS140027
	Replacement/individual component for MS140026, consisting of a device bracket and an M45 blind cover UF	MS140024
	Installation set for Ackermann underfloor GB3 mounting box consisting of Device bracket, cover, M45 blind coverUF	MS140025
	Cover plate for GB3 mounting box	MS140027-1







GTK 9/12 Metal Adapter

Some older underfloor systems from OBO Bettermann (type GEE 7/10-5 R, GEE 9/12-5) are only compatible with mounting boxes of the GTK 9/12 type. MICROSENS has developed a special adapter which corresponds exactly to the installation dimensions of the GTK 9/12 and also has an M45-2 snap-in track. The adapter is made of galvanized sheet steel and has a locking plate to secure the Micro Switch.



Image	Description	Order Number
	Underfloor installation set for OBO Bettermann GTK 9/12, consisting of adapter M45-2 incl. locking plate Colour: black	MS140027-GB3

5.2 OBO (Ackermann) Underfloor Systems

System	Image	Description	Suitable MICROSENS Installationset
GES2		One MS140026 can be used	MS140026
GES4		Up to two MS140026 can be used	MS140026
GES6		Up to three MS140026 can be used	MS140026
GESR7		Two MS140026 and one MS140027 can be used	MS140026, MS140027,
GES9		Up to three MS140027 can be used	MS140027
GRAF9		Up to three MS140027 can be used	MS140027

MICROSENS Micro Switch in a OBO BETTERMANN Underfloor System



Underfloor system open






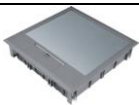
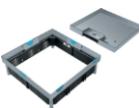
Underfloor system closed

5.3 electraplan Systems


All the electraplan underfloor systems listed below are used in combination with an MS140021-45 installation set. The casing included in the set is fitted with a 45 mm snap in rail to which all MICROSENS installation components can be simply attached without the need for further tools.

For older electraplan underfloor systems ("hinged cover"), which were available until 2008, you will need to use an MS140021-AB set which includes a mounting box specially designed to match this particular model.



System	Image	Description
VR10		Up to two MS140021-45 can be used
VR12		Up to three MS140021-45 can be used
VANR12		Up to three MS140021-45 can be used
VQ12		Up to three MS140021-45 can be used
EKQ12		Up to three MS140021-45 can be used

Order Information

Image	Description	Order Number
	Installation set for electraplan underfloor systems, consisting of mounting box, snap rail, 2x M45 blind cover UF Dimension: 225x75x53mm (LxWxH)	MS140021-45

5.4 PUK Underfloor Systems

All the PUK underfloor systems listed below are used in combination with an **MS140121-KU** installation set. This set includes a casing which is fitted with a 45 mm snap-on rail to which all M45 installation components can be simply attached – without the need for further tools.



Supported Underfloor Systems

Typ	Image	Description
UEKD2-R UEBD2-R		Up to two MS140121-KU can be used
UEKD2-V UEBD2-V		Up to two MS140121-KU can be used
UEKD3-R UEBD3-R		Up to three MS140121-KU can be used
UEKD3-V UEBD3-V		Up to three MS140121-KU can be used
UEKDD-V-E		Up to three MS140121-KU can be used

Order Information

Image	Description	Order Number
	Installation set for PUK, consisting of mounting box and 2x M45 blind cover UF	MS140121-KU



MS140121-KU installation set for PUK underfloor systems



Micro Switch inserted into an MS140121-KU installation set

5.5 Installation Set for PUK Underfloor Systems with High PoE+ Needs



MICROSENS has developed a special installation kit for PUK underfloor systems for better dissipation of waste heat. The installation kit has a 45 mm snap-in rail in which all M45 installation components fit without additional installation tools.

The set contains a metal mounting adapter and half a M45 blind cover.



Micro Switch mounted in MS140121-GT

Order Information

Image	Description	Order Number
	Installation set for PUK, consisting of mounting adapter and a 1/2 M45 blind cover in pure white, RAL9010	MS140121
	Installation set for PUK, consisting of mounting adapter and a 1/2 M45 blind cover in graphit, RAL7021	MS140121-GT



5.6 PoE+ Power Supply Unit Installation in the Underfloor Area

Using the Power-over-Ethernet function requires a 48 V DC power supply (or up to 54 V DC for PoE+) with sufficient power budget. Usually an external power supply unit is used for this purpose, which can be integrated into the installation.

There are also various installation options for the use of PoE+ in the underfloor area for the appropriate power supply variants.

5.6.1 Mounting of PoE+ Power Supply in Underfloor Area

Due to its dimensions and properties, the flexible PoE+ installation power supply MS700710 is suitable for placement in the false floor so that no mounting space is robbed of the underfloor installation. Optional is the use of the MS700710-UNI variant, which can be easily mounted on an existing anchor rail with C-profile or DIN rail using the C-profile adapter integrated here. The simple placement of the MS700710 within the cable tray is also practical.



In addition to the intermediate floor, the use below the underfloor duct (if the ambient conditions allow it) is typical. In this case, the power supply unit can be mounted or screwed/riveted underneath the mounting box (easiest: the mounting box where the Micro Switch is installed) using the integrated device underneath.

When used within the selected underfloor duct in a mounting box, it must be taken into account that the dimensions of the MS700710 in the underfloor systems presented here usually require an entire mounting box. In this case a direct access to the power supply is possible.



MS700710-UNI mounted
on DIN-Rail



MS700710 below
UF-System on mounting box



MS700710 on UF mounting box
(MS140027)

5.6.2 Micro Power Supply PoE+ Mounting in Underfloor Area

Due to the M45 design of the Micro Power Supply MS700750 the integration into the underfloor system is comparable to the integration of the Micro Switch. The adapters presented in chapters 5.1 to 5.5 can also be used for the MS700750.



MS700750 mounted in MS140026

Image	Description	Order Number
OBO-Bettermann/Ackermann		
	Installation set Unterflur Ackermann GB2 incl. mounting box, consisting of mounting adapter, cover, M45 blind cover UF	MS140026
	Installation set Unterflur Ackermann GB3 incl. mounting box, consisting of mounting adapter, cover, M45 blind cover UF Dimensions: 208x76x39mm (LxWxH)	MS140027
Hager/tehalit		
	Installation set for Hager (electraplan), consisting of a Mounting box, a snap-on rail and 2x M45 blind covers UF Dimensions: 225x75x53mm (LxWxH)	MS140021-45
PUK		
	Installation set für PUK, consisting of mounting box and 2x M45 blind covers UF	MS140121-KU
	Installation set for PUK, consisting of mounting adapter and a 1/2 M45 blind cover in pure white, RAL9010	MS140121
	Installation set for PUK, consisting of mounting adapter and a 1/2 M45 blind cover in graphit, RAL7021	MS140121-GT

MICROSENS Micro Switch and Micro Power Supply mounted in OBO BETTERMANN Underfloor System



6 Modular Chassis for Universal Adaptations

6.1 GT-Chassis

The modular and versatile GT chassis from MICROSENS is the optimal installation solution for all workstations that cannot be optimally connected from cable ducts or floor tanks.

Universal applications include, for example:

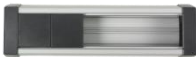
- Wall/surface mounting
- Installation directly on a desk
- Mounting underneath the desk top
- Raised floor installation

The GT chassis is completely designed for M45, both the front profile and the side accesses. The length can be selected variably in module steps of M45. Horizontal and vertical mounting is possible with the appropriate mounting accessories. Suitable accessories such as cable entries or brackets for the desired mounting type can be found on page 48 and from page 51 onwards.

On request, customer-specific configurations can be set up directly by MICROSENS and delivered ready for use. Support for the optimal configuration of the desired solution can also be obtained directly from MICROSENS.



GT-Chassis MS140131GT-5

Image	Description	Order Number
 MS140131GT-x	M45 GT 4 –slot chassis, incl. 2x M45 blind covers	MS140131GT-4
	M45 GT 5 –slot chassis, incl. 2x M45 blind covers	MS140131GT-5
	M45 GT 6 –slot chassis, incl. 2x M45 blind covers	MS140131GT-6
	M45 GT 7 –slot chassis, incl. 2x M45 blind covers	MS140131GT-7
	M45 GT 8 –slot chassis, incl. 2x M45 blind covers	MS140131GT-8
	M45 GT 9 –slot chassis, incl. 2x M45 blind covers	MS140131GT-9
	M45 GT 10 –slot chassis, incl. 2x M45 blind covers	MS140131GT-10
	M45 GT 11 –slot chassis, incl. 2x M45 blind covers	MS140131GT-11

*

Several free M45 modular slots are required to install a PoE+-capable power supply in a GT-chassis. When installing a power supply together with a Micro Switch, this means that a minimum number of M45 modular slots are required.

Depending on the power supply used, the following space is required in the chassis:

- MS700710: 4 additional modular slots (please refer to the image below)
- MS700750: 3 additional modular slots
- MS700701: 3 additional modular slots



Micro Switch installed with a power supply in an MS140131GT-8

If the Micro Switch is installed with a downlink, this also requires one free M4 modular slot in the GT chassis.



Micro Switch installed with a downlink in an MS140131GT-8













Configuration Example: GT Chassis

MICROSENS



Description	Order Number	Quantity
5-slot GT chassis, incl. 2x M45 Blind covers	MS140131GT-5	1
6-Port GbE Micro Switch G6 GT 1x 100/1000X SFP-Slot, horizontal, managed, 5x 10/100/1000T, 230VAC, microSD-Slot, RS-232 Port (mini USB)	MS440209M-G6+GT	1
SFP Transceiver GbE MM 850nm 1000Base-SX, LC, DDM, -40..+85°C	MS100200DX	1
M45 Module GT with integrated cold device plug (C14), RAL7021	MS140150-GT	1
M45 blind cover GT (RAL7021)	MS140033-GT	1
M45 Module GT with cable outlet, RAL7021	MS140160-GT	1
M45 chassis desk adapter	MS140144	1
Pre-installed with 230VAC cabling	MSSonderbau	
Label with IP, MAC, Location	MSLabel	

Side Covers für MS140131GT-x

Image	Description	Order Number
	M45 module GT With cable outlet Mini-GEK 20x20mm, RAL7021	MS140162-GT
	M45 module GT With integrated Schukoplug (C14), RAL7021	MS140150-GT
	M45 blind cover GT, RAL7021	MS140033-GT
	M45 module GT cable inlet plate with retainer included (2xO 13 mm & 4xO 6 mm) RAL7021	MS140161-GT
	M45 module GT With cable outlet, RAL7021	MS140160-GT
	M45 module GT With integrated Schukoplug (C14) and simplex-connector LC, RAL7021	MS140159-GT-LCSSM
	M45 module GT With integrated Schukoplug (C14) and 4xLC/PC connector RAL7021	MS140159-GT-4LCPC
	M45 module GT With integrated Schukoplug (C14) and duplex-connector SC, RAL7021	MS140151-GT-SCDMM
	M45 Module GT With integrated RJ45-connector (1x)	MS140180-GT
	M45 Module GT With RJ45-connector (2x)	MS140165-GT




MS190001VS (lockable Schukoplug, S.50) mounted at MS140131GT

6.2 Slim-Chassis

The compact MICROSENS Slim-chassis variant represents a further chassis solution with numerous configuration options comparable to those of the GT-chassis. The design of the slim-chassis, which is optimized for bright environments, is mainly used in the health care sector and within office environments. The front profile can be variably equipped with M45 components and can be configured in module steps of 45 mm.

Suitable accessories such as retaining adapters, passive module components and cable inlets or outlets can be found on page 50f. On request, customer-specific configurations can be set up directly by MICROSENS and delivered ready for use. Support for the optimal configuration of the desired solution can also be obtained directly from MICROSENS.



Image	Description	Order Number
	M45 SLIM-Chassis 4-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-4
	M45 SLIM-Chassis 5-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-5
	M45 SLIM-Chassis 6-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-6
	M45 SLIM-Chassis 7-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-7
	M45 SLIM-Chassis 8-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-8
	M45 SLIM-Chassis 9-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-9
	MS140131SL-x M45 SLIM-Chassis 10-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-10
	M45 SLIM-Chassis 11-slot incl. 2x M45 blind covers pw (RAL 9010)	MS140131SL-11

*Zubehör ab S.50f.





Configuration Example: SLIM-Chassis

MICROSENS

Description	Order Number	Quantity
4-slot M45 SLIM-Chassis incl. 2x blind cover RAL 9010	MS140131SL-4	1
6-Port GbE Medical Micro Switch TP G6 1x 10/100/1000 PoE+ PD, horizontal, managed 5x 10/100/1000T, 44..57VDC microSD-	MS445186PM-48G6+	1
SLIM-Chassis Sidecover	MS140166SL	1
SLIM-Chassis sidecover with integrated RJ-45 Connector	MS140164SL	1
M45 Chassis mounting adapter medical rail 10x25	MS140809	1










Side covers for MS140131SL-x






Image	Description	Order Number
	SLIM-Chassis side cover	MS140166SL
	SLIM-Chassis side cover With integrated LWL-connector SC duplex	MS140167SL
	SLIM-Chassis side cover With integrated RJ45 connector	MS140164SL
	SLIM-Chassis side cover With integrated Schukoplug (C14) and duplex-connector SC	MS140151SL-SCDMM
	SLIM-Chassis side cover With integrated Schukoplug (C14)	MS140150SL

6.3 Accessories




6.3.1 Installation Options for GT and SLIM Chassis

Image	Description	Order Number
	M45-Chassis under desk installation set	MS140142
	M45-Chassis intermediate floor installation set, holder for 2 chassis	MS140143
	M45-Chassis desk adapter screw clamp	MS140144
	M45-Chassis DIN-Rail installation set	MS140145-V2
	M45-Chassis magnetic holder (per chassis mounting 2xMS140146 required)	MS140146
	M45-Chassis mounting wings installation set	MS140148
	M45 Chassis mounting adapter medical rail 10x25	MS140809
	M45 Chassis mounting adapter medical rail 10x25Medical Carbamed rail 8x35	MS140809-CM

6.3.2 M45 Blind Covers

Image	Description	Order Number
	M45 Blind cover PW (RAL9010)	MS140033
	M45 Blind cover GG (RAL7021)	MS140033-GT
	M45 Blind cover aluminium colour	MS140033-AL
	1/2 M45 Blind cover PW (RAL9010)	MS140034
	1/2 M45 Blind cover GG (RAL7021)	MS140034-GT

6.3.3 M45 Sockets

Image	Description	Order Number
	M45 Module GG Socket Schuko 45°, RAL7021	MS140174-GT
	M45 Module PW Socket Schuko 45°, RAL9010	MS140174
	M45 Module AL Socket Schuko 45°, aluminium colour	MS140174-AL

6.3.4 More M45 Installation Components

Image	Description	Order Number
	M45 module GT with integrated Schukoplug (C14), RAL7021	MS140150-GT
	M45 Module GT with integrated Schukosocket (C13), RAL7021	MS140151-GT
	WIELAND-plug male GT size 1/2 M45, RAL7021	MS140153-GT
	WIELAND-socket female GT size 1/2 M45, RAL7021	MS140154-GT
	M45 1/2 module GT Holder for WIELAND-plug/socket, RAL7021	MS140155-GT
	M45 Module GT Holder for WIELAND plug/socket, RAL7021	MS140156-GT
	M45 Module GT Double holder for WIELAND-plug/socket, RAL7021	MS140157-GT
	M45 USB + MicroUSB Charger mit 1xUSB/1x MicroUSB cable 1.5 A 5 V dc RAL7021	MS140168-GT
	M45 HDMI female-female connection GT, module size 1/2 M45, RAL 7021	MS140169-GT
	GEIM SCCR002/14 Wieland-plug (male)	
	GEIM SCCR001/14 Wieland socket (female)	
	Electrical plug (Schuko) Wieland to GST18-3S socket 3 x 2,5mm ² black, selectable length	MS190105-0x,x
	Security lock electrical plug (Schuko) to socket C13, 2m, 3 x 0,75 mm ²	MS190001VS
	Electrical patch cord swiss SEV 1011 (Typ J. T12) to socket C13, 1,8m, 3 x 0,75 mm ²	MS190009 
	Flexible ribbon patch cable, RJ45 (CAT6) on both sides, black length 0.15m	MS191300-0,15
	Flexible ribbon patch cable, RJ45 (CAT6) on both sides, black length 0.3m	MS191300-0,3
	Flexible ribbon patch cable, RJ45 (CAT6) on both sides, black length 0.15m	MS191300-0,5

Rapid 45 Installation Set for Surface Mounting



The suitable set for the easy installation of a MICROSENS Micro Switch. The particularly simple variant in design as well as in installation offers enough storage space to perfectly cover the necessary cabling.



Micro Switch mounted in MS140091




Micro Switch mounted in MS140091P

Image	Description	Order Number
	RAPID45-surface mounting set M45 dimensions 330x100x53mm, end piece + top cover, RAL9010	MS140091
	For Micros Switches with Internernal 230V power supply	
	RAPID45- surface mounting set M45 dimensions 400x100x53mm, end piece + top cover, RAL9010	MS140091P
	The special variant for PoE(+) Inkl.: MS700750 Micro Power Supply, 230 VAC, 54VDC, 70 W power supply unit for Micro Switches, Snap In mounting	

*Longer version also available upon request



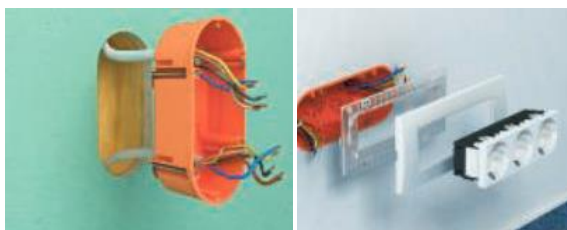
Configuration Example for Surface Mounting Set **MICROSENS**

	Description	Order Number	Quantity
	RAPID45 M45 surface mounting set dimensions 53x100x400mm, end piece + top cover, RAL9010	MS140091P	1
	Incl.: MS700750 Micro Power Supply, 230 VAC, 54VDC, 70 W power supply for Micro Switches, Snap In mounting		
	6-Port GbE Micro Switch G6 PoE+ 1x 100/1000X SFP-Slot, horizontal, managed, 5x 10/100/1000T PoE+, 44..57VDC, microSD-Slot, RS-232 Port (mini USB)	MS440209PM-48G6+	1

7 Wall Installation

It is important to distinguish between the following types of wall installation:

- **Hollow wall installation:** For a hollow wall installation, the mounting box is inserted into an opening which has been specially drilled to size. The mounting adapter, switch and cover frame are then mounted accordingly.



- **Concealed installation:** This option involves plastering the mounting box into the wall whilst using a cover to protect the inside of the mounting box from dirt. The mounting adapter, switch and cover frame are then mounted accordingly.



- **Surface mounting:** Surface mounting includes all installations carried out on top of the actual wall surface. The big advantage of this type of installation is the low expenditure required.



7.1 Hollow Wall Installation

The four-part hollow wall installation set is designed directly for the modular technique 45 and offers sufficient space for MICROSENS installation components. For better accessibility for both power and fiber optic connections, this set is designed with a triple M45 frame. An M45 blind cover is included in the delivery.

Optionally a locking plate can be mounted to secure the micro switch.

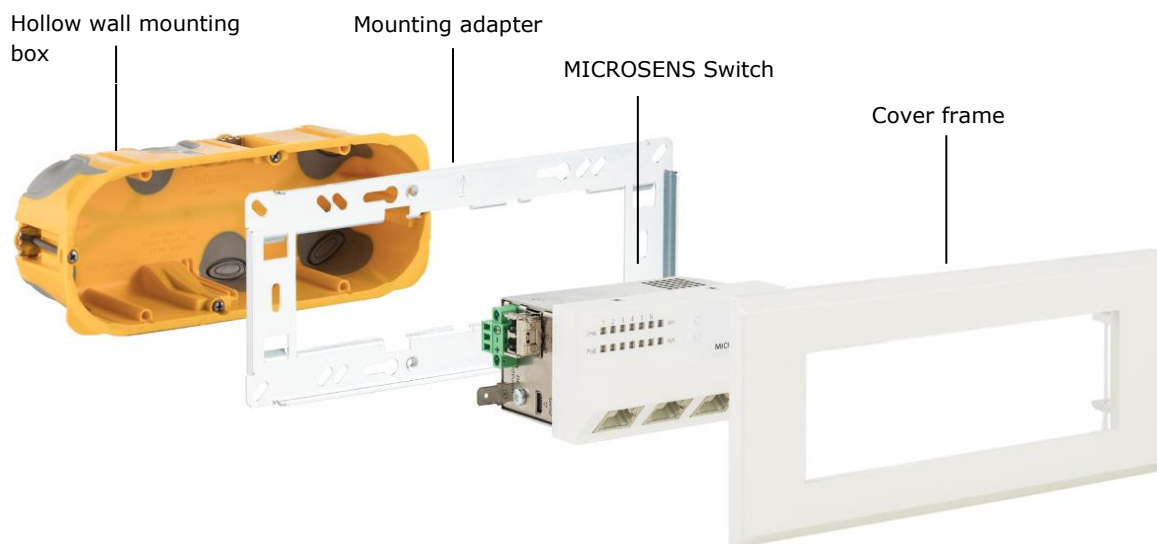


Image	Description	Order Number
	M45 hollow wall installation set, includes: hollow wall mounting box triple, mounting adapter, cover frame, blind cover, RAL9010 Mounting box dimensions: 183x69x50mm	MS140040HW3
	Locking plate for MICROSENS 2-socket + 3-socket adapters, consisting of one locking plate and incl. 2 screws	MS140099

*Further colours upon request





Micro Switch + MS140040HW3

7.2 Flush-Mounting Installations Set

The four-part flush-mounted installation set is designed directly for the Module Technology 45 and offers sufficient space for MICROSENS installation components. For better accessibility for both power and fiber optic connections, this set is designed with a triple M45 frame. An M45 blind cover is included in the delivery.

Optionally a locking plate can be mounted to secure the micro switch.



Image	Description	Order Number
	<p>M45 flush-mounting installation set, includes: triple flush mount mounting box, mounting adapter, cover frame, blind cover, RAL9010</p> <p>Mounting box dimensions: 186x90x50mm</p>	<p>MS140040UP3</p>
	<p>Locking plate for MICROSENS 2-socket + 3-socket adapters, consisting of one locking plate and incl. 2 screws</p>	<p>MS140099</p>

*Further colours upon request



Micro Switch with cover frame, flush mounted

7.3 Installation Set for Kaiser Mounting Boxes

This two-component set contains an adapter plate with an M45 track which can be used to insert a Micro Switch and corresponding cover frame without the need for further tools. The adapter plate was specially developed for KAISER mounting boxes. An overview of matching mounting boxes is available on the next page.

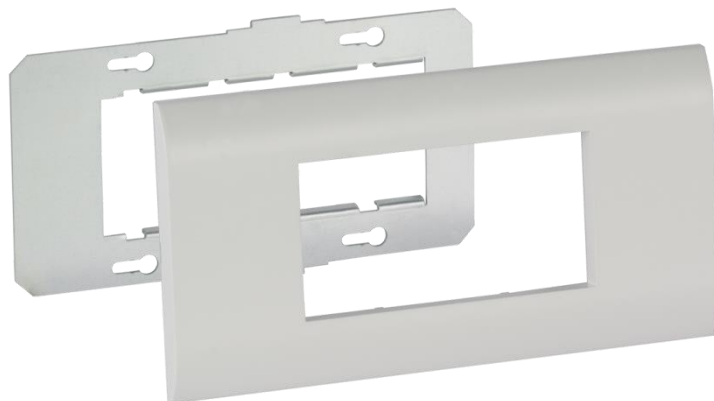



Image	Description	Order Number
	Installation set for KAISER mounting boxes, includes mounting adapter and a cover frame Colour: pure white (RAL9010)	MS140045


*Further colours upon request







Micro Switch with cover frame mounted in a KAISER box

Alternative Hollow wall-, Flush- and Surface-Mounted Mounting Boxes

F-tronic

Image	Typ/Order Number Dimension (mm)	Description	Suitable MICROSENS Installation Set
	E118 143 x 67 x 47mm	<ul style="list-style-type: none"> suitable for hollow walls and flush mounting Always use a milling crown with edge countersink during assembly 	MS140045
Milling hole \varnothing 2 x 68 mm			

KAISER

Image	Typ/Order Number Dimension B x H x T (mm)	Description	Suitable MICROSENS Installation Set
	9062-94 143 x 67 x 75	<ul style="list-style-type: none"> Electronic box for: hollow walls and flush mounting (deep version, airtight) Color orange 	MS140045
Milling hole \varnothing 2 x 68 mm			
	9062-74 143 x 67 x 75	<ul style="list-style-type: none"> Electronic box for: hollow walls and flush mounting (deep version, airtight) Color white 	MS140045
Milling hole \varnothing 2 x 68 mm			
	9062-02 143 x 67 x 47	<ul style="list-style-type: none"> Electronic box for: hollow walls and flush mounting Color orange 	MS140045
Milling hole \varnothing 2 x 68 mm			
	9062-77 143 x 67 x 47	<ul style="list-style-type: none"> Electronic box for: hollow walls and flush mounting Color white 	MS140045
Milling hole \varnothing 2 x 68 mm			

7.4 PoE+ -Power Supply Wall Installation

Using the Power-over-Ethernet function requires a 48 V DC power supply (or up to 54 V DC for PoE+) with sufficient power budget. Usually an external power supply is used for this purpose, which can be integrated into the installation.

For the use of PoE+ in the area of wall installation, there are also various installation options for the appropriate power supply variants.

7.4.1 Mounting of an PoE+ Installation Power Supply

For the MS700710 there are various options for wall mounting due to its dimensions and characteristics.

On the one hand the integration in a separate mounting box is typical. This is then covered on the outside by matching M45 blind covers.

Under suitable environmental conditions and sufficient space conditions (e.g. in the area of a hollow wall), the rear mounting of the power supply unit on the mounting box of the used Micro Switch is also practicable. For this purpose, the MS700710 can be mounted or screwed/riveted on the rear side using the integrated device.



- A) Back side mounting by screw
- B) Seperate in a mounting box

7.4.2 Mounting of a Micro Power Supply PoE+ in Wall

Due to the M45-2 design of the MS700750, the integration in the area of wall installation is comparable to the integration of the micro switch. The adapters presented in chapters 7.1 to 7.3 can also be used for the MS700750.



MS700750 mounted in MS140040HW3

8 Furniture Installations

This category offers versatile solutions for users who do not have device installation ducts or floor tanks or who do not want to install them later. Here you will find a practical option that offers easy installation and an attractive design for numerous applications such as office desks, laboratories, cabinets or counters.



8.1 Furniture Inlet Casing

This installation kit is sunk into an adapted opening in the furniture and is easy to install. A space-saving and stylish solution for placing a micro switch close to the user. MICROSENS offers a version with cable outlets on the rear side and a version with cable outlets on the side to provide sufficient space for the cable feed depending on the inlet depth. For the mounting a set is also available.

Possible examples for installation situations: Inlet in a table, cabinet or counter.

The selection of insert components for the additional modules can be found on page 51f.




Image	Description	Order Number
	5-slot M45 furniture inlet module, cover made of polished, chrome-plated steel, cable outlets at the rear, designed for desktop depths of between 10..24 mm	MS140128R-5
	5-slot M45 furniture inlet module, cover made of polished, chrome-plated steel, cable outlets at the sides, designed for desktop depths of between 10..24 mm	MS140128S-5

*Zubehör auf S.50f.



Configuration Example: Furniture Inlet Casing

MICROSENS




Description	Order Number	Quantity
5-slot M45 furniture inlet module, includes the casing and 2x M45 blind covers	MS140128R-5	1
 6-Port GbE Micro Switch TP G6 PoE+ GT 1x 10/100/1000 PoE+ PD, horizontal, managed 5x 10/100/1000T PoE+, 44..57VDC, microSD-Slot, RS-232 Port (mini USB)	MS450186PM-48G6+GT	1
M45 Module GT socket Schuko 45°, RAL7021	MS140174-GT	2

8.2 Retractable modular Table Column

The table column is ideal for meeting rooms, the entire unit including active technology is recessed in the table. MICROSENS M45 components fit perfectly into the housing, which also offers space for additional module components such as sockets. The cover is available in the desired color graphite grey or aluminum color.

The selection of insert components for the additional modules can be found on page 51f.



Image	Description	Order Number
	M45 Table column GT 4x M45, incl. 2x ½ blind covers GT and 1x M45 blind cover GT, RAL7021	MS140122-GT-4
	M45 Table column GT 5x M45, incl. 2x ½ blind covers GT and 1x M45 blind cover GT, RAL7021	MS140122-GT-5
	M45 Table column GT 6x M45, incl. 2x ½ blind covers GT and 1x M45 blind cover GT, RAL7021	MS140122-GT-6
	M45 Table column GT 7x M45, incl. 2x ½ blind covers GT and 1x M45 blind cover GT, RAL7021	MS140122-GT-7
	Top cover for M45 table column graphite grey RAL7021	MS140124-GT
	Top cover for M45 table column aluminium colour	MS140124-AL
	Cable inlet for MS140122 chassis	MS140124-CA
	Cable inlet for MS140122 chassis, incl. strain relief	MS140124-CASR

* For accessories, please refer to page 51f.



Micro Switch mounted in a MS140122-GT-x column



MS140122-GT-x column, submersion inn desk


9 Industrial Installations

Industrial applications usually make special demands on the mechanical assembly of the active components. MICROSENS also offers suitable accessories for these applications.

9.1 DIN-Rail Mounting

MICROSENS offers an adapter for mounting M45 installation components on DIN rails (or in distribution boxes). With this adapter the installation components are snapped onto a 35 mm DIN rail. A mounting set consists of a mounting adapter and a plastic holder for 35 mm DIN rails, and can be rotated in 90° steps for optimal alignment.



Image	Description	Order Number
	DIN-Rail adapter for Micro Switch G6 rotatable , incl. screws *Variabel rotation of the Switch(horizontal/vertical)	MS140805-G6*



Horizontal Micro Switch with MS140805-G6 on DIN-Rail



Micro Switch vertical version with MS140805-G6 on DIN-Rail*

*Micro Switch also available in the ruggedized version with extended operating temperature range

9.2 IP 67 Mast Box

With the IP67 mast box MICROSENS offers a preassembled compact housing, which is ideally suited for the integration of the Ruggedized Gigabit Micro Switch. Thus, WLAN access points, video cameras, weather stations, barrier systems and other control and monitoring systems can be connected to an IP network in outdoor areas. The housing is made of glass fiber reinforced polycarbonate.

The housing is usually mounted using a clamp band or appropriate mounting brackets. The particularly compact housing dimensions also allow direct mounting inside mast systems, for which optional mast hooks are available. The pre-assembled IP67 housing has a fiber cassette and thus supports the accommodation of fiber optic connections.

For PoE+ applications, a version with a built-in 48 V DC power supply (see photo, ruggedized micro switch not included) is available, whereby the 230 V AC feed lines are intercepted via terminal blocks. The housing is equipped with three PG cable glands (2x PG11 and 1x PG16) for cable feed. A further PG13 gland can be optionally realized via a further drilling device.

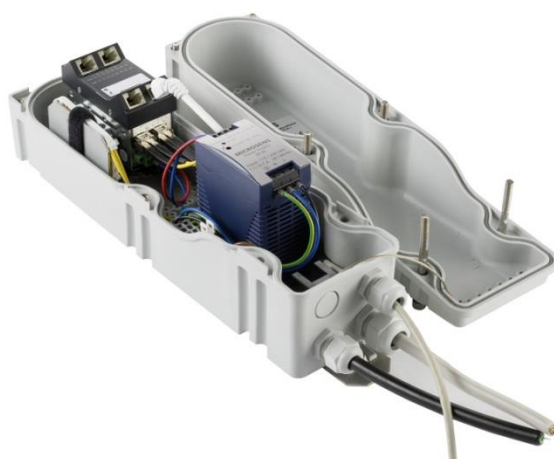



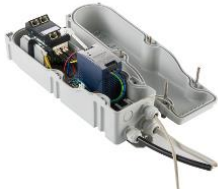
Image	Description	Order Number
	IP67 Mast Box, incl. fiber cassette and DIN rail, 1x PG16 + 2x PG11 gland joints (it is also possible to create one additional PG13 outlet)	MS711000
	Pre-assembled IP67 Mast Box, prepared to take up a Micro Switch, with an internal 24 VDC power supply, incl. fiber cassette and DIN rail, 1x PG16 + 2x PG11 gland joints, Micro Switch not included	MS711000-24
	Pre-assembled PoE+ IP67 Mast Box, prepared to take up a Micro Switch with PoE/PoE+ functionality, incl. a 48 VDC DIN power supply, incl. fiber cassette and DIN rail, 1x PG16 + 2x PG11 gland joints, Micro Switch not included	MS711000-230NT48
	Mast hooks for attachment to a mast	MS711000-PH

As an active network component, the 6-port Gigabit Ruggedized Micro Switch is ideally suited. It is available in different versions depending on the requirements. Three different voltage versions (48 V DC for PoE/PoE+ applications, 24 V DC and 230 V AC) and three different port variants are available (2x fiber optic for bus or ring topologies, 1x fiber optic as well as a pure RJ-45 variant).

In combination with the ruggedized micro switch, the IP67 mast box becomes a powerful and compact active distributor for outdoor applications.



Configuration Example: PoE+ Mast box/LWL-Ring MICROSENS

	Description	Order Number	Quantity
	Pre-assembled PoE+ IP67 Mast Box, prepared to take up a Micro Switch with PoE/PoE+ functionality, incl. a 48 VDC DIN power supply, incl. fiber cassette and DIN rail, 1x PG16 + 2x PG11 gland joints, Micro Switch not included	MS711000-230NT48	1
	6-Port GbE Ruggedized Micro Switch G6 PoE+ 2x 100/1000X SFP-Slots, vertikal, managed 4x 10/100/1000T PoE+, 44..57VDC, microSD-Slot, RS-232 Port (RJ-45)	MS440217PMXH-48G6+	1
	SFP Transceiver GbE SM 1310nm 1000Base-LX, LC, DDM, -40..+85°C	MS100210DX	2



IP67-Mast box closed with additional PG13-Screw connection

9.3 19" Profile with 35 mm DIN Rail

Robust solutions for industrial technology such as switches, converters and power supplies are usually mounted on 35 mm DIN rails and therefore have a corresponding snap-in mounting device. For a variety of applications the reliable systems have to be mounted in 19" chassis.

Especially for this purpose MICROSENS offers appropriate 19" aluminum profiles with integrated 35 mm DIN rails. Herewith the installation of industrial components in 19" rack cabinets is easy and without the necessity of temporary measures. The solid profile has an overall height of 3 U and offers sufficient space for the front side device connection technology due to a DIN rail offset to the rear. An optionally available version with an overall height of 3 U is very cost-effective due to its sheet metal construction.



Image	Description	Order Number
	19" aluminium profile with an integrated 35 mm DIN rail, specially designed for installing industrial components in 19" cabinets, height: 3U	MS140819
	Cost effective 19" aluminum profile with integrated 35 mm DIN mounting rail for the installation of industrial components in 19" cabinets, height 3 HE, painted RAL 7035	MS140819-V2



MS140819 mounted with MICROSENS components


9.4 Additional Accessories for the Industrial Sector

The industrial solutions are usually mounted on DIN rails. For a suitable installation MICROSENS offers practical accessories. Most often the products are combined with suitable power supplies. For this purpose MICROSENS offers appropriate cable sets in different lengths.


In the field of cable management MICROSENS offers proven strain relief in two gradations, which are snapped onto the DIN rail. For higher tensile forces there are also metal cable support strips available. Further mounting accessories such as end clamps as well as brackets for the modular technology 45 complete the program of industrial solutions.

Do you need further accessories? Then please contact us!


9.4.1 Device Wiring

Image	Description	Order Number
	Equipment supply cable, end sleeves 2x 1.5mm ² 10 cm long, red/black litz wires, ends open	MS190120-0,1
	Equipment supply cable, end sleeves 2x 1.5mm ² 20 cm long, red/black litz wires, ends open	MS190120-0,2
	Equipment supply cable, end sleeves 2x 1.5mm ² 50 cm long, red/black litz wires, ends open	MS190120-0,5

9.4.2 Cable Feed, resp. Cable Fixing Plate

Image	Description	Order Number
	Single strain relief for DIN rail, black plastic	MS140820-1
	Four-fold strain relief for DIN rail, black plastic	MS140820-4
	Double strain relief for DIN rail, metallic	MS140821-2
	Four-fold strain relief for DIN rail, metallic	MS140821-4

9.4.3 Locking Block for DIN Rails

image	Description	Order Number
	Locking block 35mm DIN rail screwable, Width: 10 mm, Colour: aluminium	MS140806

MICROSENS

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