## SMART SENSOR BUSINESS

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the sensor people





Part no.: 50113668 AMS 300i 300 H Optical distance sensor

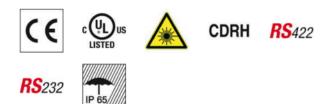


Figure can vary

# Contents

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- · Dimensioned drawings
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## Part no.: 50113668 – AMS 300i 300 H – Optical distance sensor

### **Technical data**

Series   AMS 300i     Application   Collision protection of cranes / gantry cranes Positioning of high-bay storage devices Positioning of skillet systems and side-tracking skates     Functions   Heating     Functions   Heating     Characteristic parameters   Image: State stat	Basic data	
Application     Collision protection of cranes / gainty cranes       Positioning of devices     Positioning of skillet systems and side-tracking skates       Functions     Heating       Characteristic parameters       MTTF     31 years       Optical data       Light source     Laser , Red       Laser class     2, IEC/EN 60825-1:2007       Messurement data       Messurement data     Accuracy       Messurement tange     20 300,000 mm       Accuracy     5 mm       Reproducibility (3 signa)     3 rum       Max. traverse rate     10 m/s       Electrical data       Pype     RS 232, RS 422       Rs 232     Transmission speed       Transmission speed     19,200 115,200 Bd       Rs 232       Transmission speed     19,200 115,200 Bd       Connection       Designation on device     BUS IN       Designation on device     BUS IN       Transmission speed     19,200 115,200 Bd       Connection       Designation on device     BUS IN       Designation on device     BUS		AMS 300i
Functions     Heating       Charactoristic parameters       Charactoristic parameters       MITTF       31 years       Optical data       Light source       Laser , Red       Laser of lass       Accuracy       Measurement range       Accuracy       Sum       Accuracy       Sum       Reproducibility (3 sigma)       Accuracy       Supply voltage Us       Beterical data       Performance data       Supply voltage Us       Iterater       Transmission speed       Performance data       Supply voltage Us       Iterater       RS 232 , RS 422       RS 232       Transmission speed       IPy200 115.200 Bd       Restormance data       Sum be of connections       S Piece(s)       Co	Application	Collision protection of cranes / gantry cranes Positioning of electroplating plants Positioning of high-bay storage devices
Functions     Heating       Charactoristic parameters       Charactoristic parameters       MITTF       31 years       Optical data       Light source       Laser , Red       Laser of lass       Accuracy       Measurement range       Accuracy       Sum       Accuracy       Sum       Reproducibility (3 sigma)       Accuracy       Supply voltage Us       Beterical data       Performance data       Supply voltage Us       Iterater       Transmission speed       Performance data       Supply voltage Us       Iterater       RS 232 , RS 422       RS 232       Transmission speed       IPy200 115.200 Bd       Restormance data       Sum be of connections       S Piece(s)       Co		
Characteristic parameters       MTTF     31 years       Optical data       Light source     Laser , Red       Laser class     2 , JEC/EN 60825-1:2007       Measurement data       Measurement range     200 300.000 mm       Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data       Performance data       Supply voltage Up     18 30 V , DC       Interface       Type     RS 232 , RS 422       RS 232     Transmission speed       19,200 115,200 Bd     RS 422       Transmission speed     19,200 115,200 Bd       KS 232 , RS 422       RS 422     Transmission speed       Torsenission speed     19,200 115,200 Bd       Meaction       Number of connections       S Piece(s)       Cannection       Pure for oncelion     Connector       Designation on device     BUS IN       Punction     BUS IN       Pata interface     Tra	Functions	
MTTF 31 years	Functions	Heating
MTTF 31 years	Characteristic perspectars	
Optical data       Light source     Laser , Red       Laser class     2 , IEC/EN 60825-1:2007       Measurement data       Measurement range     200 300,000 mm       Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data     9       Performance data     18 30 V , DC       Supply voltage UB     18 30 V , DC       Interface     7       Type     RS 232 , RS 422       RS 232     7       Transmission speed     19,200 115,200 Bd       RS 422     7       Transmission speed     19,200 115,200 Bd       RS 422     7       Transmission speed     19,200 115,200 Bd       Connection     3 Plece(s)       Connection     2 Plece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Function     Data interface       Thread size     Male       No. of pins     5 -pin		31 years
Light source Laser , Red Laser class 2 , IEC/EN 60825-1:2007 Measurement data Measurement range 200 300,000 mm Accuracy 5 mm Reproducibility (3 sigma) 3 mm Max. traverse rate 10 m/s Flectrical data Performance data Supply voltage U <sub>B</sub> 18 30 V , DC Interface Type RS 232 , RS 422 RS 232 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 3 Piece(s) Connection Number of connections 3 Piece(s) Connection 1 Type of connections 3 Piece(s) Connection 1 Type of connection Connector Designation on device BUS IN Function BUS IN Function BUS IN Function M12 Type Male No. of pins 5 -pin	WITE	
Light source Laser , Red Laser class 2 , IEC/EN 60825-1:2007 Measurement data Measurement range 20 300,000 mm Accuracy 5 mm Reproducibility (3 sigma) 3 mm Max. traverse rate 10 m/s Flectrical data Performance data Supply voltage U <sub>B</sub> 18 30 V , DC Interface Type RS 232 , RS 422 RS 232 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 19,200 115,200 Bd RS 422 Transmission speed 3 Piece(s) Connection Number of connections 3 Piece(s) Connection Connector Designation on device BUS IN Function BUS IN Function BUS IN Function BUS IN Function M12 Type Male No. of pins 5 -pin	Optical data	
Laser class     2 , IEC/EN 60825-1:2007       Measurement range     200 300,000 mm       Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data       Performance data       Supply voltage UB     18 30 V , DC       Interface       Type     RS 232 , RS 422       Transmission speed     19,200 115,200 Bd       RS 232 , RS 422       Transmission speed     19,200 115,200 Bd       Connection       Number of connections       Supply Notage UB       Connection 1       Type RS 232 , RS 422       RS 232     Transmission speed       Transmission speed     19,200 115,200 Bd       Connection       Supply colspan="2">Supply colspan="2">Connection       Designation on device       BUS IN       Function       Designation on device       BUS IN       Place M12       Type     Male		Laser , Red
Measurement range     200 300,000 mm       Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data       Performance data       Supply voltage UB       Interface       Type       RS 232 , RS 422       RS 232     Transmission speed       A 19,200 115,200 Bd       RS 422       Transmission speed       A 19,200 115,200 Bd       RS 422       Transmission opeed       A 19,200 115,200 Bd       RS 422       Transmission opeed       A 19,200 115,200 Bd       RS 422       Transmission opeed       Decessor       Connection       Connection 1       Type of connection       Data interface       Thread size       Mu2       Type       Male     Male <td< td=""><td>Laser class</td><td>2 , IEC/EN 60825-1:2007</td></td<>	Laser class	2 , IEC/EN 60825-1:2007
Measurement range     200 300,000 mm       Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data       Performance data       Supply voltage UB       Interface       Type       RS 232 , RS 422       RS 232     Transmission speed       A 19,200 115,200 Bd       RS 422       Transmission speed       A 19,200 115,200 Bd       RS 422       Transmission opeed       A 19,200 115,200 Bd       RS 422       Transmission opeed       A 19,200 115,200 Bd       RS 422       Transmission opeed       Decessor       Connection       Connection 1       Type of connection       Data interface       Thread size       Mu2       Type       Male     Male <td< td=""><td></td><td></td></td<>		
Accuracy     5 mm       Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data     10 m/s       Performance data     Supply voltage UB       Supply voltage UB     18 30 V , DC       Interface     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 232     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       Connection     Spiece(s)       Connection     Spiece(s)       Connection     Connector       Designation on device     BUS IN       Function     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin	Measurement data	
Reproducibility (3 sigma)     3 mm       Max. traverse rate     10 m/s       Electrical data        Performance data        Supply voltage UB     18 30 V , DC       Interface        Type     RS 232 , RS 422       Transmission speed     19,200 115,200 Bd       RS 232        Transmission speed     19,200 115,200 Bd       RS 422        Transmission speed     19,200 115,200 Bd       Connection        Number of connections     3 Piece(s)       Connection 1        Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Function     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin	Measurement range	200 300,000 mm
Max. traverse rate     10 m/s       Electrical data     Performance data       Supply voltage UB     18 30 V , DC       Interface     Type       Type     RS 232 , RS 422       RS 232     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       Connection     Splece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin	Accuracy	5 mm
Electrical data       Performance data       Supply voltage UB     18 30 V , DC       Interface       Type     RS 232 , RS 422       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       Connection     Spece(s)       Connection     Spece(s)       Connection 1     Connector       Designation on device     BUS IN       Function     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin	Reproducibility (3 sigma)	3 mm
Performance data       Supply voltage UB     18 30 V , DC       Interface       Type     RS 232 , RS 422       RS 232     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed       Transmission speed     19,200 115,200 Bd       Connection     S Piece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Function     Data interface       Thread size     M12       Type     Male       No. of pins     5 -pin	Max. traverse rate	10 m/s
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Type     RS 232, RS 422       RS 232     Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed     19,200 115,200 Bd       Connection     19,200 115,200 Bd       Number of connections     3 Piece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin	Supply voltage U <sub>B</sub>	18 30 V , DC
Type     RS 232, RS 422       RS 232     Transmission speed     19,200 115,200 Bd       RS 422     Transmission speed     19,200 115,200 Bd       Connection     19,200 115,200 Bd       Number of connections     3 Piece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin		
RS 232       Transmission speed     19,200 115,200 Bd       RS 422       Transmission speed     19,200 115,200 Bd       Connection       Number of connections     3 Piece(s)       Connection 1     Type of connection       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin		
Transmission speed     19,200 115,200 Bd       RS 422     19,200 115,200 Bd       Transmission speed     19,200 115,200 Bd       Connection       Number of connections     3 Piece(s)       Connection 1     Type of connection       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin		RS 232 , RS 422
RS 422     Transmission speed     19,200 115,200 Bd       Connection       Number of connections     3 Piece(s)       Connection 1     Connector       Type of connection     Connector       Designation on device     BUS IN       Function     BUS IN       Thread size     M12       Type     Male       No. of pins     5 -pin		
Transmission speed     19,200 115,200 Bd       Image: Speed Spee		19,200 115,200 Bd
Connection       Number of connections     3 Piece(s)       Connection 1     Type of connection     Connector       Type of connection on device     BUS IN     BUS IN       Function     BUS IN     Data interface       Thread size     M12     Male       No. of pins     5 -pin     5 -pin	RS 422	
Number of connections   3 Piece(s)     Connection 1     Type of connection   Connector     Designation on device   BUS IN     Function   BUS IN Data interface     Thread size   M12     Type   Male     No. of pins   5 -pin	Transmission speed	19,200 115,200 Bd
Number of connections   3 Piece(s)     Connection 1     Type of connection   Connector     Designation on device   BUS IN     Function   BUS IN Data interface     Thread size   M12     Type   Male     No. of pins   5 -pin	Connection	
Connection 1Type of connectionConnectorDesignation on deviceBUS INFunctionBUS IN Data interfaceThread sizeM12TypeMaleNo. of pins5 -pin	Number of connections	3 Piece(s)
Type of connectionConnectorDesignation on deviceBUS INFunctionBUS IN Data interfaceThread sizeM12TypeMaleNo. of pins5 -pin	Connection 1	
Designation on deviceBUS INFunctionBUS IN Data interfaceThread sizeM12TypeMaleNo. of pins5 -pin		Connector
FunctionBUS IN Data interfaceThread sizeM12TypeMaleNo. of pins5 -pin		BUS IN
Type   Male     No. of pins   5 -pin		BUS IN
No. of pins 5 -pin	Thread size	M12
No. of pins 5 -pin	Туре	Male
		5 -pin
	Encoding	B-coded

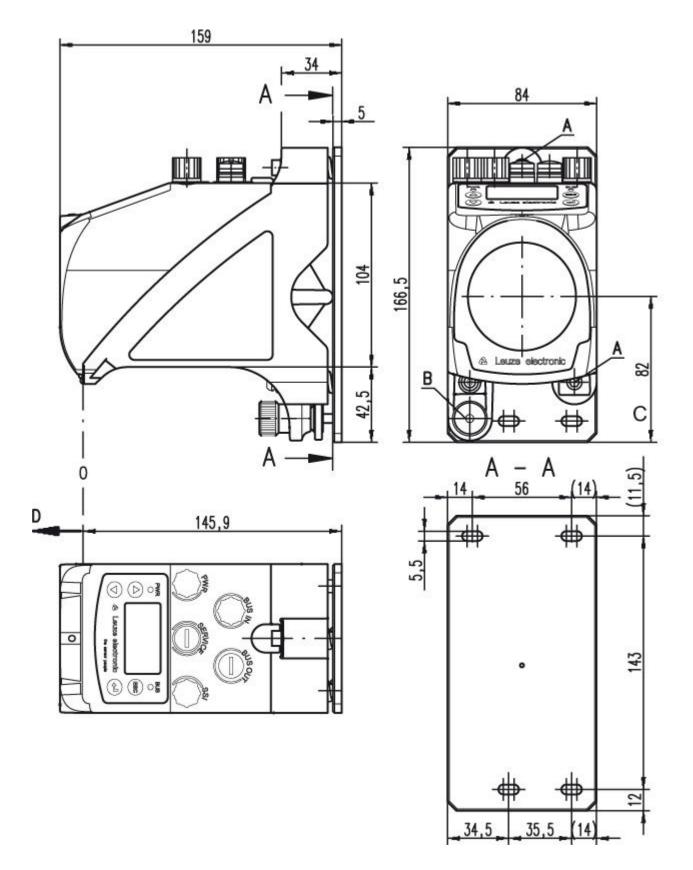
## Part no.: 50113668 – AMS 300i 300 H – Optical distance sensor

Connection 3		
Type of connection	Connector	
Designation on device	PWR	
Function	PWR / SW IN/OUT Voltage supply	
Thread size	M12	
Туре	Male	
No. of pins	5 -pin	
Encoding	A-coded	
Connection 4		
Type of connection	Connector	
Designation on device	SERVICE	
Function	Service interface	
Thread size	M12	
Туре	Female	
No. of pins	5 -pin	
Encoding	A-coded	
lechanical data		
esign	Cubic	
imension (W x H x L)	84 mm x 166.5 mm x 159 mm	
ousing material	Metal	
et weight	2,450 g	
ype of fastening	Through-hole mounting	
peration and display		
ype of display	LC Display LED	
perational controls	Membrane keyboard	
invironmental data		
mbient temperature, operation	-30 50 °C	
mbient temperature, storage	-30 70 °C	
elative humidity (non-condensing)	90 %	
Certifications		
egree of protection	IP 65	
rotection class		
ertifications	c UL US	
lassification		
ustoms tariff number	90318020	
Cl@ss 8.0	27270801	
eCl@ss 9.0 27270801		
ETIM 5.0 EC001825		
TIM 6.0	EC001825	

### Part no.: 50113668 – AMS 300i 300 H – Optical distance sensor

#### **Dimensioned drawings**

All dimensions in millimeters



A M 5 screw for alignment

- B Knurled nut with WAF 4 hexagon socket and M 5 nut for securing
- C Optical axis

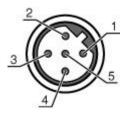
D Zero point of the distance to be measured

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#### **Electrical connection**

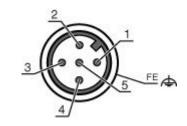
Connection 1	BUS IN	
Type of connection	Connector	
Function	BUS IN Data interface	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	5 -pin	
Encoding	B-coded	

Pin	Pin assignment
1	NC
2	TXD
3	GND ISO
4	NC
5	RxD



Connection 3	PWR	
Type of connection	Connector	
Function	PWR / SW IN/OUT Voltage supply	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	5 -pin	
Encoding	A-coded	

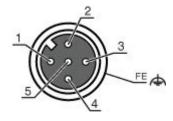
Pin	Pin assignment
1	VIN
2	I/O 1
3	GND
4	I/O 2
5	FE



Connection 4	SERVICE		
Type of connection	Connector		
Function	Service interface		
Thread size	M12		
Туре	Female		
Material	Metal		
No. of pins	5 -pin		
Encoding	A-coded		

## Part no.: 50113668 – AMS 300i 300 H – Optical distance sensor

Pin	Pin assignment
1	n.c.
2	RS 232-TX
3	GND
4	RS 232-RX
5	n.c.



### **Operation and display**

#### LEDs

LED	,	Display	Meaning
1	PWR	Off	No supply voltage
		Green, flashing	Voltage connected / no measurement value output / initialization running
		Green, continuous light	Device OK, measurement value output
		Red, flashing	Device OK, warning set
		Red, continuous light	No measurement value output
2	BUS	Green, flashing	Device ok, initialization phase
		Green, continuous light	Data transmission active

### Part number code

#### Part designation: AMS 3XXi YYY Z AAA

AMS	Operating principle: AMS: absolute measurement system
3XXi	Series/interface (integrated fieldbus technology): 300i: RS 422/RS 232 301i: RS 485 304i: PROFIBUS DP / SSI 308i: TCP/IP 335i: CANopen 338i: EtherCAT 348i: PROFINET RT 355i: DeviceNet 355i: DeviceNet 355i: EtherNet/IP 384i: Interbus
YYY	Operating range: 40: max. operating range in m 120: max. operating range in m 200: max. operating range in m 300: max. operating range in m
Z	Special equipment: H: with heating
AAA	Interface: SSI: with SSI interface

#### Note

A list with all available device types can be found on the Leuze electronic website at www.leuze.com.

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#### Notes

Observe intended use!

- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

#### WARNING! LASER RADIATION - LASER CLASS 2

#### Never look directly into the beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 2** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- Do not point the laser beam of the device at persons!
- Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- · Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.

#### NOTE

#### Affix laser information and warning signs!

Laser information and warning signs are affixed to the device. In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages.

- Affix the laser information sheet to the device in the language appropriate for the place of use. When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" note.
- Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
- Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.
- For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- Use as safety-related component within the safety function is possible, if the component combination is designed correspondingly by the machine manufacturer.

### Accessories

Connection technology - Connection cables

Part no.	Designation	Article	Description
50104171	KB SSI/ IBS-5000-BA	Connection cable	Suitable for interface: SSI, Interbus-S Connection 1: Connector, M12, Axial, Female, B-coded, 5 -pin Connection 2: Open end Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
50132079	KD U-M12-5A- V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

## Reflective tapes for distance sensors

Part no.	Designation	Article	Description
50115022	Reflexfolie 914x914mm-H	Reflector	Special design: Heating Supply voltage: 230 V, AC Design: Rectangular Reflective surface: 914 mm x 914 mm Base material: Aluminum composite Fastening: Mounting plate, Through-hole mounting
50108988	Reflexfolie 914x914mm-S	Reflective tape	Design: Rectangular Reflective surface: 914 mm x 914 mm Chemical designation of the material: PMMA Fastening: Adhesive

### Services

	Part no.	Designation	Article	Description
(@	S981001	CS10-S-110	Start-up support	Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.
	S981005	CS10-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.