

ELL-200-E



Installation Instructions

ELL-200-E End of line lamp kit with cold applied connection technology for use with BARTEC PSB, MSB, HSB+ or HTSB trace heaters

Origin Installation Instructions

Table of contents							
Overview	2						
Certifications / Approvals / Marking	2						
Technical data	2						
Safety	3						
Intended Use	3						
Foreseeable Misuse	3						
Personal Qualification	3						
Kit contents	4						
Accessories	5						
Spare parts	6						
Installation	7						
Required tools / equipment	7						
Cautions and warnings	7						
Preparation of the trace heater	8						
Installation of the mounting stand	14						
Installation of the junction box	15						
Wiring	17						
Troubleshooting	22						
EC Declaration of conformity	23						
Limited Product warranty	25						

Overview

This manual covers the installation of the

BARTEC ELL-200-E End of line lamp kit. According to the order signal lamp can be front or top mounted. Colour can be green or red.

In some pictures you see the pictures with grounding braid. Whether you need to install this or not depends on whether you install the top mounted or front mounted signal lamp. The illustrations are schematic in this sense.



The trace heating system uses a self-regulating trace heater. It features a temperature-dependent resistive heating element that regulates and limits the heat according to the ambient temperature. If the ambient temperature rises, the power output of the trace heater is reduced. This self-regulating property prevents overheating which would cause damage to the trace heater. Crossing or overlapping with other parts of the same trace heating system is also possible.

The trace heaters are fixed equipment heating systems for pipes and tanks in ordinary and hazardous areas. Thanks to the parallel design the trace heater can be cut and installed to any required length (up to the maximum heating circuit length according to the design guide of the trace heating system).

The manual applies for enclosures made of polyester, aluminum and stainless steel material. Pictures in this manual shows polyester enclosures but are equivalent for all materials.

The following terms describe the parts of the trace heater within these instructions:



Certifications / Approvals / Marking

System certificate



IECEx DEK 20.0055X DEKRA 20ATEX0093 X

ELL-200-E End of line lamp kit for BARTEC PSB, MSB trace heaters

IECEx DEK 20.0055X

Ex eb 60079-30-1 IIC T6T31 Gb							
Ex tb 60079-30-1 IIIC T80 °C T170 °C¹ Db							
DEKRA 20ATEX0	093 X						
	II 2G Ex eb 60079-30-1 IIC T6T31 Gb						
	II 2D Ex tb 60079-30-1 IIIC T80 °C T170 °C¹ Db						

Enclosure certificate



IECEx DEK 21.0074X DEKRA 21ATEX0118 X

ELL-200-E End of line lamp kit for BARTEC PSB, MSB, HSB+ or HTSB trace heaters

IECEx DEK 21.0074X

LOLA BER ENOT TA						
Ex eb 60079-30-1 IIC T6110 °C (T4) ¹ Gb						
	Ex tb 60079-30-1 IIIC <i>T</i> _L 80 °C… <i>T</i> _L 110 °C¹ Db					
DEKRA 21ATEX0118 X						
	II 2G Ex eb 60079-30-1 IIC T6110 °C (T4)1 Gb					
	II 2D Ex tb 60079-30-1 IIIC <i>T</i> L 80 °C… <i>T</i> L 110 °C¹ Db					

Technical data

Junction box with mounting stand

eanotion box with mounting							
Ambient temperature range	-55 °C to +40 °C						
Min. Installation Tempera- ture	-55 °C						
Max. workpiece temperature mounting stand	240 °C						
Power supply	max. 277 Vac						
Max. circuit breaker size	32 A						
Trace heater output ²	10 W/m to 90 W/m						
Max. power conductor size	2.5 mm²						
Terminals	ComEx-module with screw terminals, 2x2 lines; Spring clamp Ex e; 1x3 PE						
Ingress Protection	IP 64 / IP 66 (EN60529)						
Connection Technology (CAK)							
Min. installation tempera- ture	-60 °C						

¹ For maximum surface temperature, see heating system design documentation

² nominal heat output at 10 °C

Safety

Risk of fire or electrical shock due to electric trace heating system. Follow these guidelines to avoid personal injury or material damage.

For safe installation of the ELL-200-E End of line lamp kit the technical requirements and instructions given in this manual must be followed. Keep these instructions for future reference. If applicable, leave them with the end user.

All electrical systems and installations must comply with BARTEC GmbH requirements and be installed in accordance with the relevant electrical codes and any other applicable national and local codes.

Use the ELL-200-E End of line lamp kit in accordance with the intended use and strictly comply with the operational data specified in section Technical Data.

Install all components of the trace heating system carefully, especially the connection kit, trace heater and end seal.

Any defective component of the kit must be replaced before installation. Replace each defect component of the trace heating system.

This kit contains silicone adhesive. Keep out of reach of children. Store at below 25 °C. Follow the safety instructions given on the packaging.

Use only original BARTEC accessories and spare parts.

Note that the Applicable Documents listed below shows further important information and must be observed in addition to this manual.

Applicable Documents

DesignGuide System (for PSB and MSB)	21-1S00-7D0001
DesignGuide Enclosure (for HSB+ and HTSB)	21-5400-7D0001
Installation Instructions Self-regulating trace heating cables	01-5800-7D0003
Storage conditions	21-0000-7Q0001

Intended Use

The ELL-200-E End of line lamp kit is a connection kit including a junction box with mounting stand and connection technology (CAK).

It can be used in trace heating systems combined with BARTEC heating cable types

- BARTEC PSB (07-5853-*)
- BARTEC MSB (07-5854-*)
- BARTEC HSB+ (07-584B-*)
- BARTEC HTSB (07-584C-*)

The kit may only be operated with one heating cable and one kind of heating cable in each heating circuit.

The approval and marking of the respective heating system, the technical data of the ELL-200-E End of line lamp kit and the applicable doc-uments must be observed.

For use with electrical systems, the relevant installation and operating conditions (e.g. according to ATEX Directive 2014/34/EU, EN 60079-0, EN 60079-14, EN 60079-17, EN 60079-30-2 and any other relevant national standards) must be observed.

Specific conditions of use

- All Trace heater boxes, Aluminium housing type 07-5180-****/**** The enclosure must not be used in areas affected by charge-producing processes, mechanical friction and separation processes, electron emission (e.g. in the vicinity of electrostatic coating equipment), and pneumatically conveyed dust
- Trace heater boxes, Cable entries PS-120-* type 27-59G2-*
 For the Box pedestal PS-120-* measures shall be taken to avoid electrostatic charging hazards

Foreseeable Misuse

The following activities are a misuse of the product and are not allowed:

- Use of the ELL-200-E End of line lamp kit for purposes other than those described in the intended use
- Installation, commissioning, operation, maintenance or disposal by unauthorised or unqualified personnel
- Work on live parts or circuits without switching off the ELL-200-E End of line lamp kit or the system
- Commissioning of damaged or faulty system components or incomplete installation
- Unauthorized technical modification of the ELL-200-E End of line lamp kit or its components

Personal Qualification

For system planning, installation, commissioning, operation and mainte-nance observe the requirements for personnel qualification according to DIN/EN 60079-14, note appendix A.

Kit contents

The following table lists the kit contents of the ELL-200-E End of line lamp kit:



Accessories

						Poly	Polyester adhesive tape								Catalog No.: PT-164					
							I to fix t	the hea	nting ca	able on	pipes.		Part No.: 02-5500-0005							
							19 mm x 50 m per roll Maximum withstand temperature: 100 °C													
								le PSB.												
	Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.																			
Tip: Refer to the following table to estimate the required number of tape rolls for your installation:																				
Pipe diameter in inch (DN)	1/4" (DN8)	1/2" (DN15)	3/4" (DN20)	1" (DN25)	1 1/4" (DN32)	1 1/2" (DN40)	2" (DN50)	2 1/2" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)	10" (DN250)	12" (DN300)	14" (DN350)	16" (DN400)	18" (DN450)	20" (DN500)	24" (DN600)	
Required no. of tape rolls per 100 ft (30 m) of piping	1	1	1	1	1	1	2	2	2	3	4	5	6	7	7	8	9	10	12	

						Glas	s clotł	n tape					Catalog No.: GT-164						
						Used to fix the heating cable on pipes.								Part No.: 02-5500-0047					
								per roll stand tem) 250 °C)	perature:	180 °C									
						For heating cable PSB, MSB, HSB, HSB+, HTSB and EKL Light, EKL Medium and EKL Premium.													
						Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.													
Tip: Refer to the following table to estimate the required number of tape rolls for your installation:																			
Pipe diameter in inch (DN)	1/4" (DN8)	1/2" (DN15)	3/4" (DN20)	1" (DN25)	1 1/4" (DN32)	1 1/2" (DN40)	2" (DN50)	2 1/2" (DN65)	3" (DN80)	4" (DN100)	6" (DN150)	8" (DN200)	10" (DN250)	12" (DN300)	14" (DN350)	16" (DN400)	18" (DN450)	20" (DN500)	24" (DN600
Required no. of tape rolls per 100 ft (30 m) of piping	1	1	1	1	1	1	2	2	2	3	4	5	6	7	7	8	9	10	12

	Aluminum adhesive tape Used to fix the heating cable on pipes. AT80: 50 mm x 50 m per roll AT150: 50 mm x 55 m per roll AT230: 50 mm x 50 m per roll AT80: Maximum withstand temperature: 176 °F (80 °C) For heating cable PSB AT150: Maximum withstand temperature: 302 °F (150 °C) For heating cable MSB, HSB and EKL Light, EKL Medium and EKL Premium AT230: Maximum withstand temperature: 446 °F (230 °C) For heating cable HSB+ and HTSB, and EKL Light, EKL Medium and EKL Premium Gluing below 10 °C should be avoided. Observe processing instructions on datasheet.	AT80: Catalog No.: AT80-164 Part No.: 02-5500-0003 AT150: Catalog No.: AT150-164 <i>Part</i> No.: 02-5500-0014 AT230: Catalog No.: AT230-164 Part No.: 02-5500-0043
--	---	---

Electrically traced warning label Warning label for trace heater circuits Recommended: electrical warning label every 3 m on the outside of the thermal cladding on a clearly visible place.	German: Catalog No.: HTWL-DE Part No.: 05-2144-0046 English: Catalog No.: HTWL-EN Part No.: 05-2144-0047 French: Catalog No.: HTWL-FR Part No.: 05-2144-0703 Russian: Catalog No.: HTWL-RU Part No.: 05-2144-0860
--	--



Stainless steel pipe straps

Stainless steel, for attaching mounting stands on pipes etc. No special tooling required.

for pipe ø up to DN80: Catalog No: PC-1 Part No.: 03-6510-0228

for pipe ø up to DN250: Catalog No: PC-2 Part No.: 03-6510-0229

Spare parts



Small pipe adaptor PBS

Mounting stand adaptor for pipe diameters of less than 35 mm. For use in mounting stands when using 1 or 2 heating cable, e.g. PBS-, ELL- or PBTC junction boxes. Catalog No.: PBS-SPA Part No.: 05-1105-0071

On pipe cable gland kit and end seal

Spare parts kit for use with heating cable PSB, MSB, HSB+, HTSB for replacement of damaged or lost parts. Catalog No.: CAK-SRS Part No.: 27-59CX-9C010001

Multi-kits available on request.



No claims for damage arising from alternations, errors or misprints shall be allowed.

Required tools / equipment Cautions and warnings The following tools are required for installation of the ELL-200-E **WARNING** End of line lamp kit: Risk of fire or electrical shock due to electric trace heating sys- Wire cutters Utility knife tem. Needle-nose pliers (2x) Flat screwdriver De-energize all power circuits before installation or servicing. Al- Electricians screwdriver Tongue and groove pliers ways use ground fault equipment protection with the trace heat- Crimping pliers 4 mm hex wrench ing system. Tape measure Keep the trace heater ends dry before and during installation. Observe the design guide of the trace heating system. Double-check that all power circuits are de-energized before you begin your work. Make sure that you do not exceed the maximum heating circuit length for the trace heater type you use. Observe the bending radius of each type of trace heater. Do not bend on the narrow axis. To avoid short circuits, do not connect the trace heater bus wires together. Keep all components and the trace heaters dry before and during installation. **▲ CAUTION** Risk of injury and/or material damage. Never step on or drive over the trace heater. Do not use it as a loop for stepping on. Preferably install the trace heater in a straight line along the pipe. This saves time, helps to avoid installation mistakes and prevents damage to the trace heater during the thermal insulation work. Preferably install the trace heater in the lower half of the pipe, but not on the lowest point. This prevents mechanical damage and allows for better heat distribution. If you use multiple trace heaters, position them with an offset of 90°. Mount the mounting stand and junction box preferably on top of the workpiece, e.g. the pipe. If a different orientation of the junction box and mounting stand is necessary, there is a risk of water collecting in the mounting stand. Avoid water accumulation in the mounting stand! BARTEC recommends applying the pipe insulation immediately after installing the junction box and the mounting stand.

Installation

ELL-200-E End of line lamp kit Installation Instructions



- Slide the trace heater grommet onto the trace heater and into the seal seat.
- Slide the blind plug into the free seal seat.
- Make sure that the trace heater stands out approximately 25 cm. This makes cable preparation easier.



- Slide the top unit of the mounting stand over the trace heater.
 - Slightly tighten the 4 fixing screws using a 4 mm hex wrench. Do not tighten them fully yet to allow the trace heater to be moved.



Remove 145 mm of the outer jacket on the end of the trace heater.









- Remove any remaining heating element that sticks to the bus wires.
- Twist the bus wires.

NOTICE

Risk of malfunction of the heating system. Before you continue, make sure that the bus wires are intact and not nicked or damaged.







- Thread the bus wires into the silicone pants.
- You might add further silicone adhesive to ensure optimal sealing.
- Slide the silicone pants all the way onto the heating element.



- Optional:
 - Crimp a ferrule (2.5 mm², not included) onto the twisted grounding braid.



• Crimp a ferrule (1.5 mm²) onto each of the bus wires.



19

Installation of the mounting stand

 Pull back the trace heater. Make a distance of max. 5 mm between top unit of the mounting stand and shown edge of the silicone pants.





 Now, tighten the 4 fixing screws of the top unit of the mounting stand using a 4 mm hex wrech.



23

24





26A

 For top mounted signal lamp: Unlock the fastener, pull away downwards base unit of the lamp modul.



Unscrew the lock nut of the top unit of the mounting stand.
 Feed the prepared trace heater into the junction box.
 Slide the junction box onto the top unit of the mounting stand.
 Install the lock nut and tighten it using tongue and groove pliers.



26B







21-54E2-7D0001/A 05/2023-EHT-432733 **Notice** Technical data subject to change without notice. No claims for damage arising from alternations, errors or misprints shall be allowed.

NOTICE

Insulation resistance measurement is recommended at certain stages:

- Preliminary test (on the reel, before installation of the trace heater on the construction site)
- Acceptance test (after installation of the heating circuit and before installation of the thermal insulation)
- Final inspection (immediately after completion of work on the thermal insulation)
- Upon commissioning
- Before switching on the installation
- For front mounted signal lamp:

Mount the cover of the junction box and tighten the 4 fixing screws using a flat screwdriver.



29/

ELL-200-E End of line lamp kit

NOTICE

Insulation resistance measurement is recommended at certain stages:

- Preliminary test (on the reel, before installation of the trace heater on the construction site)
- Acceptance test (after installation of the heating circuit and before installation of the thermal insulation)
- Final inspection (immediately after completion of work on the thermal insulation)
- Upon commissioning
- Before switching on the installation
- For top mounted signal lamp:

Mount the cover of the junction box and tighten the 4 fixing screws using a flat screwdriver.



- Apply the pipe's insulation according to the manufacturer's installation instructions.
- Apply an electrical warning label every 3 m on a clearly visible place.



NOTICE

Insulation resistance measurement is recommended at certain stages:

- Preliminary test (on the reel, before installation of the trace heater on the construction site)
- Acceptance test (after installation of the heating circuit and before installation of the thermal insulation)
- Final inspection (immediately after completion of work on the thermal insulation)
- Upon commissioning
- Before switching on the installation

Troubleshooting

Problem	Possible cause	Remedy
Trace heater remains cold	No power supply	Check the supply line
	Trace heater or cold lead cable not properly connected	Connect the trace heater and cold lead cable according to the installation instructions
	Control unit adjusted incorrectly	Adjust the control unit according to the instal- lation instructions
Automatic circuit breaker disengages	Automatic circuit breaker defective	Replace the automatic circuit breaker
	Automatic circuit breaker has wrong tripping characteristics, e. g. "B" instead of "C"	Install an automatic circuit breaker with Type-C tripping characteristics
	Nominal circuit breaker size is insufficient	Install an automatic circuit breaker with higher capacity (Observe the maximum am- perage of all components of the trace heating
	Maximum heating circuit length has been ex- ceeded	circuit!)
	End seal has not been installed	Split the heating circuit into separate circuits
	Short circuit	Install the end seal according to the installa- tion instructions
		Identify the cause and remedy the fault (e. g. ensure that tape tails are not twisted)
	Humidity inside the connection system or end seal	Replace the connection system / end seal
Ground fault protection is disengaged	Trace heater damaged	Replace the trace heater at the point where it is damaged
	Moisture in the junction box	Dry the junction box Be sure that the conduit drain is installed and breathing properly.
	Ground fault protection defective	Replace the ground fault protection device(s)

EC Declaration of conformity

EU Konformitätserklärung EU Declaration of Conformity Déclaration UE de conformité Nº 21-1S00-7C0001			BARTEC						
Wir	We	•	Nous						
	BARTEC Max-Eyth-S 97980 Bad M Germ	Straße 16 ergentheim							
erklären in alleiniger Verantwortung, dass das Produkt	declare unde responsibility the		attestons sous notre seule responsabilité que le produit						
PSB / MSB Heizsystem	PSB / MSB Hea		PSB / MSB Système de Chauffage						
	Typen 27-1S *-*27-1S4	3*-***/***							
auf das sich diese Erklärung bezieht den Anforderungen der folgen- den Richtlinien (RL) entspricht	to which this declar accordance with the following dire	ation relates is in e provision of the	se référant à cette attestation correspond aux dispositions des direc- tives (D) suivantes						
ATEX-Richtlinie 2014/34/EU	ATEX-Directive		Directive ATEX 2014/34/UE						
RoHS-Richtlinie 2011/65/EU	RoHS-Directive		Directive RoHS 2011/65/UE						
EMV-Richtlinie 2014/30/EU RED-Richtlinie 2014/53/EU	EMC-Directive RED-Directive		Directive CEM 2014/30/UE Directive RED 2014/53/UE						
und mit folgenden Normen oder nor- mativen Dokumenten übereinstimmt	and is in confor following stands normative de	mity with the ards or other	et est conforme aux normes ou docu- ments normatifs ci-dessous						
EN 6007 EN 60079-7: EN 60079 EN 60079 EN 60079 EN 60079-18:2 EN 605 + A1:2000 + A2 EN 504	079-0:2018 9-1 :2014 2015/A1:2018 -30-1:2017 9-31:2014 9-11 :2012 :015 + A1 :2017 29:1991 ::2013/AC :2019 95:2010 28 V2.1.1	EN 60947 EN 60947 EN 60068- EN 61000- EN 61000-6-4 :2 EN 60730 EN 60730 EN 6132 EN 61000 EN 61000-4-3: +A2: EN 61000	-7-2 :2009 2-27 :2009 -6-2 :2005 007 + A1 :2001 0-1:2011 -2-9:2010 6-1:2013 -4-2:2009 2006+A1:2007 2010 -4-4:2012						
EN 6239	5-1:2013	EN 61000-4-5: EN 61000 EN 61000 EN 61000-4-11	-4-6:2014 -4-8:2010						
Verfahren der EU-Baumuster- prüfung / Benannte Stelle	Procedure of EU-Ty Notified		Procédure d'examen UE de type / Organisme Notifié						
	DEKRA 20A	TEX0093 X							
0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL									
	CE ₀₀₄₄ Bad Mergentheim, 22.02.2023								
i.V. Tobias Dold			i A. Ulrich Mann						
Head of Business Unit	EHT	c	ertification Manager						

Γ

EU Konformitätserklärung EU Declaration of Conformity Déclaration UE de conformité № 21-54E2-7C0001		BARTEC
Wir	We	Nous
VVII	BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany	Nous
erklären in alleiniger Verantwortung, dass das Produkt ELL / ELS Anschlussgehäuse	declare under our sole responsibility that the product ELL / ELS Installation Enclosure	attestons sous notre seule responsabilité que le produit ELL / ELS coffret d'alimentation et CAK
und CAK An-/Abschlusstechnik	and CAK Power-/termination technique	Connexion-/terminaison tech-
	Typen 27-54E2-****/****	nique
auf das sich diese Erklärung bezieht den Anforderungen der folgen- den Richtlinien (RL) entspricht ATEX-Richtlinie 2014/34/EU RoHS-Richtlinie 2011/65/EU EMV-Richtlinie 2014/30/EU	27-59CX-****/**** to which this declaration relates is in accordance with the provision of the following directives (D) ATEX-Directive 2014/34/EU RoHS-Directive 2011/65/EU EMC-Directive 2014/30/EU	se référant à cette attestation correspond aux dispositions des direc- tives (D) suivantes Directive ATEX 2014/34/UE Directive RoHS 2011/65/UE Directive CEM 2014/30/UE
und mit folgenden Normen oder nor- mativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou docu- ments normatifs ci-dessous
EN 60079 EN 60079	2015/A1:2018 + A1:2000 + A2 -30-1:2017 EN 60068-	:2013/AC :2019 2-27 :2009 -6-2 :2005
Verfahren der EU-Baumuster- prüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
	DEKRA 21ATEX0118 X	
0344, DEKRA Ce	rtification B.V., Meander 1051, 682	5 MJ Arnhem, NL
i.V. Tobias poid Head of Business Unit	EHT C	i A. Ulrich Mann sertification Manager

Limited Product warranty

Scope

BARTEC warrants that all BARTEC products and accessories that are the subject of this manual will be free from defects in materials and workmanship from and after its date of purchase for a period of 12 (twelve) months.

For the avoidance of doubt, this limited product warranty will not cover any damage caused by:

- accidents,
- misuse, improper installation, operation, maintenance or repairs,
- neglect, or
- alteration.

Furthermore, BARTEC cannot be held liable under this warranty for:

- installation or removal costs,
- loss or damage to property,
- indirect, special, incidental or consequential damages (including, without limitation, loss of revenue or anticipated profits), or
- any other damages or costs directly or indirectly related to the warranty issue.

If all warranty conditions are met (as set forth below), BARTEC will, at its sole discretion:

- repair the product,
- replace the product, or
- refund the purchase price paid for the product.

This warranty gives you specific legal rights, and you may also have other rights which vary by country, state or province. Except as specifically provided otherwise in this limited product warranty, the BARTEC Group General Terms and Conditions shall apply.

General terms and conditions

BARTEC Global Terms and conditions are available at: https://www.bartec.de/en/terms/

Conditions

- The limited product warranty is subject to the following conditions:
- proper installation, operation and maintenance in compliance with the state of the technology and the product documentation, and
- presence of completely filled in acceptance reports for all installation, maintenance and repairwork operations.

How to claim the warranty

To file a claim under the limited product warranty:

- Notify BARTEC or your local BARTEC representative by written correspondence or email within 30 days after identification of a possible warranty issue.
- If requested, you must provide any warranty-related information and documentation to BARTEC, including, without limitation:
 - project planning documents, and
 - acceptance reports for installation, operation, maintenance or repairwork.

Contact

Bartec GmbH, Max-Eyth-Strasse 16, 97980 Bad Mergentheim Phone: +49 7931 597-0 Fax: +49 7931 591-499 info@bartec.com

GLOBAL HEADQUARTERS BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany Phone: +49 7931 597-0 Fax: +49 7931 597-499 info@bartec.com www.bartec.com