



Operating and Assembly Instructions

Electronic function module UO-EM-D41

Evaluation to U-ONE® - LWL Decoder

certificated according EN 61508 SIL2 and DIN EN ISO 13849-1 PL d

Read the Operating and Assembly Instructions prior to assembly,
starting installation and handling!
Keep for future reference!





Trademark

U-ONE is a registered trademark of Johannes Hubner Fabrik elektrischer Maschinen GmbH.

Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

Viton® is a registered trademark by Du Pont.

Loctite® is a registered trademark from Henkel AG & Co. KGaA, Düsseldorf.

All other brand names and product names are trademarks or registered trademarks of their respective owner.

Protected trademarks bearing a [™] or [®] symbol are not always depicted as such in the manual.

However, the statutory rights of the respective owners remain unaffected.

Manufacturer / publisher

Johannes Hubner

Fabrik elektrischer Maschinen GmbH

Siemensstraße 7

35394 Giessen

Germany

Phone:

+49 641 / 7969-0

Fax:

+49 641 / 73645

E-Mail:

info@huebner-giessen.com

www.huebner-giessen.com

Headquarters:

Giessen

Court of registration:

Giessen

Commercial register number:

HRB 126

The manual has been drawn up with the utmost care and attention. Nevertheless, we cannot exclude the possibility of errors in form and content. It is strictly forbidden to reproduce this publication or parts of this publication in any form or by any means without the prior written permission of Johannes Hubner Fabrik elektrischer Maschinen GmbH.

Subject to errors and changes due to technical improvements.

Copyright © Johannes Hubner Fabrik elektrischer Maschinen GmbH.

All rights reserved.

Directory

1 General	4
1.1 Information about the operating and assembly instructions	4
1.2 Scope of supply	4
1.3 Explanation of symbols	4
1.4 Disclaimer	5
1.5 Copyright	5
1.6 Guarantee terms	5
1.7 Customer service	5
2 Safety	5
2.1 Responsibility of the owner	5
2.2 Personnel	6
3 Technical Data	7
3.1 Type plate / Connection diagram	7
3.2 Connections and indicators	7
3.3 Connected loads environment	8
3.4 Dimension drawing	8
3.5 Mounting the module	8
4 Functional safety	9
4.1 Characteristic safety values	9
4.2 Proper use	10
4.3 Improper use	10
4.4 Faults table	10
5 Additional module UO-EM-FIL	11
5.1 Type plate / connection diagram	11
5.2 Connected loads, environment	11
5.3 Dimension drawing	12
6 Transport, packaging and storage	13
6.1 Safety information concerning transport	13
6.2 Goods inward inspection	13
6.3 Packaging (disposal)	13
6.4 Storing packages (devices)	13
6.5 Returning devices (repairs/goodwill/warranty)	14
6.6 Disposal	14
7 Declaration of Conformity/Certificate	15

1 General

1.1 Information about the operating and assembly instructions

These operating and assembly instructions provide important instructions for working with the device. They must be carefully read prior to starting all tasks, and the instructions contained herein must be followed.

In addition, applicable local regulations for the prevention of industrial accidents and general safety regulations must be complied with.

These Operating and Installation Instructions are valid only in conjunction with the U-ONE® SIL manual.

For other, non SIL certified electronic function modules please refer to the separate Operating and Installation Instructions.

1.2 Scope of supply

The scope of supply of the electronic function module fiber optic converter UO-EM-D41 includes the Operating and Installation Instructions (with SIL safety instructions), the programming software U-ONEPro (on CD) and the programming cable.

The Operating and Installation Instructions for the electronic function module is also included on the supplied CD.

1.3 Explanation of symbols

Warnings are indicated by symbols in these operating and assembly instructions. The warnings are introduced by signal words that express the scope of the hazard.

The warnings must be strictly heeded; you must act prudently to prevent accidents, personal injury, and property damage.



WARNING!

Indicates a possibly dangerous situation that can result in death or serious injury if it is not avoided.



CAUTION!

Indicates a possibly dangerous situation that can result in minor injury if it is not avoided.



CAUTION!

Indicates a possibly dangerous situation that can result in material damage if it is not avoided.



NOTES!

Indicates useful tips and recommendations as well as information for efficient and trouble-free operation.



NOTES!

Do not use a hammer or similar tool when installing the device due to the risk of damage occurring to the bearings or coupling!



DANGER!

Life-threatening danger due to electric shock!

Indicates a life-threatening situation due to electric shock. If the safety instructions are not complied with there is danger of serious injury or death. The work that must be executed should only be performed by a qualified electrician.

1.4 Disclaimer

All information and instructions in these operating and assembly instructions have been provided under due consideration of applicable guidelines, as well as our many years of experience.

The manufacturer assumes no liability for damages due to:

- Failure to follow the instructions in the operating and assembly instructions
- Non-intended use
- Deployment of untrained personnel
- Opening of the device or conversions of the device

In all other aspects the obligations agreed in the delivery contract as well as the delivery conditions of the manufacturer apply.

1.5 Copyright



NOTE!

Content information, text, drawings, graphics, and other representations are protected by copyright and are subject to commercial property rights.

It is strictly forbidden to make copies of any kind or by any means for any purpose other than in conjunction with using the device without the prior written agreement of the manufacturer. Any copyright infringements will be prosecuted.

1.6 Guarantee terms

The guarantee terms are provided in the manufacturer's terms and conditions.

1.7 Customer service

For technical information personnel is available that can be reached per telephone, fax or email. See manufacturer's address on page 2.

2 Safety



DANGER!

This section provides an overview of all the important safety aspects that ensure protection of personnel, as well as safe and trouble-free device operation.

If these safety instructions are not complied with significant hazard can occur.

2.1 Responsibility of the owner

The device is used in commercial applications. Consequently the owner of the device is subject to the legal occupational safety obligations, and subject to the safety, accident prevention, and environmental protection regulations that are applicable for the devices area of implementation.

2.2 Personnel

Qualified personnel only are permitted to install, mount, program, commission, operate, maintain and take out of service the devices.

Qualified personnel are people who have received

- training to qualify as an electrician or
- instructions from qualified trades personnel

entitling them to work with and on devices, systems, machinery and plant in accordance with generally accepted standards and safety engineering guidelines.

In addition, the owner is obliged to deploy only personnel who

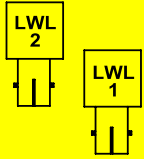
- are familiar with the fundamental regulations covering work safety and accident prevention,
- have read and understood the chapter "Safety" in these Operating and Installation Instructions,
- and are familiar with the basic and specialist standards that apply to the specific application.

3 Technical Data

For decoding fiber optic signal transmissions from the basic unit, and the power supply of the other electronic function modules.

3.1 Type plate / Connection diagram

Siemensstrasse 7 35394 Giessen / Germany www.huebner-giessen.com	
Typ / Type UO-EM-D41	
S/N 123456	Versorgungsspannung / Power supply 12...30 V DC, max. 2 W
C/N 12345	
Bj./Y 2011	
IP20	
Zertifiziert nach / Certified through IEC 61508 - SIL2 DIN EN ISO 13849 PLd	

Anschlussplan / Connection diagram EL668a	
Versorgungsspannung Supply Voltage	1 12...30 V DC 2 GND
	Optischer Eingang Optical Input LWL 2 Optischer Eingang Optical Input LWL 1

3.2 Connections and indicators



Anzeigen		
PWR	LED lit:	Operational
Ready	LED lit:	FOC1 connection OK

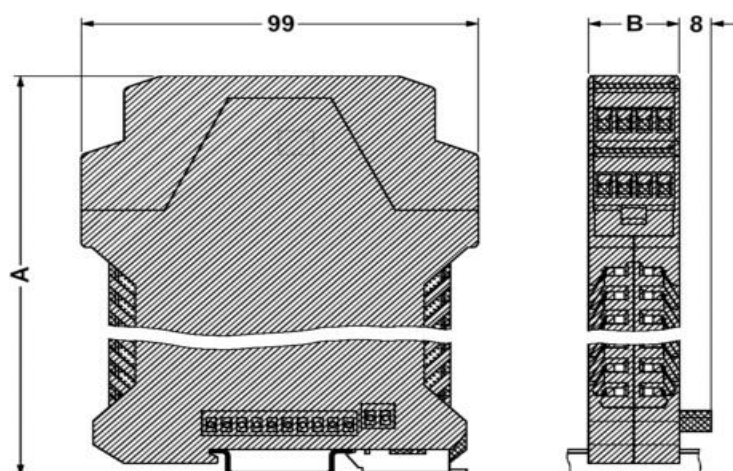
Anschluss	
RS232	Programming cable connection for further non-safety relevant modules

3.3 Connected loads environment

Description	Worth
Supply voltage	12 ... 30 V DC
Power consumption	max. 2 W plus power consumption of next electronic function modules
Connection	<ul style="list-style-type: none"> • COMBICON®-terminal strip for supply voltage • ST-plug connector for fiber optic
Outputs	Internal bus connection to next electronic function modules
Programming interface	RS232
Connecting diagram	EL668a
Device temperature range	-25 ... + 70 °C
Degree of protection	IP20

3.4 Dimension drawing

A = 114,50 mm B = 22,50 mm



3.5 Mounting the module

Snap the modules onto the top-hat rail and slide together.



ATTENTION!

Ensure you do not damage the connectors when you snap the modules onto the rail and push them together!

Ensure the modules contact reliably when joining them together on the top-hat mounting rail.
Fit the supplied shrouding covers to both ends of the mounted terminals.

Follow the connection diagram!

4 Functional safety

4.1 Characteristic safety values

The details below refer to the overall system consisting of:

Basic device UOM 41L-1212

Electronic function module LWL decoder UO-EM-D41

Characteristic safety values for basic device + LWL decoder	
Safety class / standard	<ul style="list-style-type: none"> • SIL2 to EN 61508 • Performance level 'd' to EN ISO 13849-1 • Category 2
System structure	1 channel with diagnostics (1oo1D)
Device type	Type B (complex components)
Hardware fault tolerance (HFT)	0
Type of operating mode	'High demand' to EN 61508 (high demand rate)
Probability of a dangerous failure per hour (PFH _d)	$1,37 \times 10^{-7}$ [1/h]
Failure rate: safe detected (λ_{SD}) safe undetected (λ_{SU}) Dangerous detected (λ_{DD}) Dangerous undetected (λ_{DU})	λ_{SD} : $5,92 \times 10^{-8}$ [1/h] λ_{SU} : $1,40 \times 10^{-7}$ [1/h] λ_{DD} : $1,00 \times 10^{-6}$ [1/h] λ_{DU} : $1,37 \times 10^{-7}$ [1/h]
Mean time to a dangerous failure (MTTF _d)	97,6 years (high)
Diagnostic coverage on average (DC _{AVG})	medium
Proportion of safe failure fraction (SFF)	88 %
Service life or proof test interval to EN 61508	10 years Thereafter the components must be replaced with new components

4.2 Proper use

The universal encoder system from the series UOM 41L-1212 which includes the electronic function module UO-EM-D41 has been designed and built solely for the intended purpose described in these Operating and Assembly Instructions.

We do not accept liability of any kind for damages arising from improper use of the device. The owner bears sole responsibility for any improper use.

4.3 Improper use

- Do not use the device in potentially explosive areas.
- It is not permitted to use the device in locations higher than 3000 m above sea level.

4.4 Faults table

Faults	Possible cause	Remedy
No LED lit	No power supply	Check connection cable and voltage supply
Contact Hubner-Service (page 2) if none of the actions listed above provide a solution!		

5 Additional module UO-EM-FIL

The module UO-EM-FIL is an additional module to the universal encoder system U-ONE for reducing the EMC-influences. It is installed in front of the function module UO-EM-D41.

By using this UO-EM-FIL no supply voltage must be connected to the UO-EM-D41.

5.1 Type plate / connection diagram

Siemensstrasse 7 35394 Giessen / Germany www.huebner-giessen.com	
JOHANNES HÜBNER GIESSEN	
Typ / Type UO-EM-FIL	
S/N 123456	Versorgungsspannung / Power supply 12...30 V DC
C/N 12345	
Bj./Y 2012	
IP20	

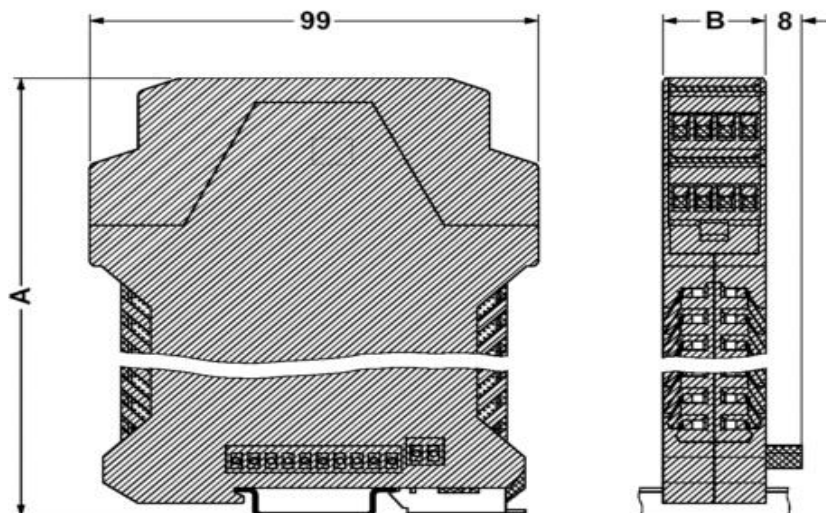
Anschlussplan / Connection diagram PN169-410	
Versorgungsspannung Supply Voltage	1 12...30 V DC 2 GND
Achtung: Bei Verwendung des UO-EM-FIL darf keine Versorgungsspannung am UO-EM-D41 angeschlossen werden!	
Caution: If using UO-EM-FIL it's not allowed to connect supply voltage to UO-EM-D41!	

5.2 Connected loads, environment

Description	Worth
Connection	COMBICON®-terminal strip
Outputs	Internal bus connection to next electronic function modules
Connecting diagram	PN169-410
Device temperature range	-25 ... + 70 °C
Degree of protection	IP20

5.3 Dimension drawing

A = 114,50 mm B = 22,50 mm



6 Transport, packaging and storage

6.1 Safety information concerning transport



CAUTION!

Material damage caused by improper transport!

Observe the symbols and information on the packaging:

- Do not throw - risk of breakage
- Keep dry
- Do not expose to heat above 40 °C or direct sunlight.

6.2 Goods inward inspection

Check the delivery immediately upon receipt for transit damage or short delivery.

Inform the carrier immediately on receipt if you determine that damage has occurred during transit (take photos as proof).

6.3 Packaging (disposal)

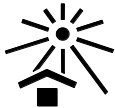
The packaging is not taken back; dispose of according to the respective valid statutory provisions and local regulations.

6.4 Storing packages (devices)



Keep dry

Keep packages dry and free from dust; protect from moisture.



Protect against heat

Protect packages from heat above 40 °C and direct sunlight.

If you intend to store the device for a longer period of time (> 6 months) we recommend you use protective packaging (with desiccant).

6.5 Returning devices (repairs/goodwill/warranty)

Devices that have come into contact with radioactive radiation or radioactive materials are not taken back.

Decontaminate devices that have may come into contact with harmful chemical or biological substances before returning.

They must also be accompanied by a safety clearance certificate.


6.6 Disposal

The manufacturer is not obliged to take back the device.

The device is classed as electronic equipment and subject to the WEEE Directive; observe local, country-specific laws when disposing of the device.

For information on environmentally sound disposal please contact your local authority or a specialist disposal company.

7 Declaration of Conformity/Certificate

	<p align="center">EG-Konformitätserklärung (EG-Richtlinie 2006/42/EG + 2014/35/EU + 2014/30/EU)</p> <p align="center">EC-Declaration of Conformity (EC-Directive 2006/42/EG + 2014/35/EU + 2014/30/EU)</p>
<p>Hersteller / Manufacturer: Johannes Hübner Fabrik elektrischer Maschinen GmbH</p> <p>Anschrift / Address: 35394 Giessen, Siemensstrasse 7</p> <p>Produktbezeichnung / Product designation:</p> <p>U-One 41 mit Modulen UO-EM-D41 und UO-EM-EGS41 U-One 41 with modules UO-EM-D41 and UO-EM-EGS41</p> <hr/> <p>Die bezeichnenden Produkte stimmen in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein: The products described above in the form as placed on the market are in conformity with the provisions of the following European Directive:</p> <p>2006/42/EG (Ausgabe / Version 2006-06-09) Richtlinie des Europäischen Parlaments und des Rates vom 17. Mai 2006 über Maschinen und zur Änderung der Richtlinie 95/16/EG (Neufassung) – ABL C 348 der 28.11.2013 Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) - OJ C 348 of 28/11/2013</p> <p>2014/35/EU (Ausgabe / Version 2014-02-26) Richtlinie des Europäischen Parlamentes und des Rates vom 26. Februar 1024 zur Harmonisierung der Rechtsvorschriften der Mitgliedsstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt. Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.</p> <p>2014/30/EU (Ausgabe / Version 2014-02-26) Richtlinie des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility</p> <p>2006/42/EG: Folgende harmonisierende Normen wurden angewandt: 2006/42/EC: Following harmonised standards have been applied:</p> <p>DIN EN ISO 12100 (Ausgabe / Version 2013-08) Sicherheit von Maschinen Safety of machinery</p> <p>EN ISO 13849-1 (Ausgabe / Version 2008-12) Sicherheit von Maschinen -. Sicherheitsbezogene Teile von Steuerungen – Teil 1: Allgemeine Gestaltungsleitsätze Safety of machinery – Safety related parts of control systems – Part 1: General principles of design</p>	

EN ISO 13849-2 (Ausgabe / Version 2013-02)

Sicherheit von Maschinen -. Sicherheitsbezogene Teile von Steuerungen – Teil 2: Validierung

Safety of machinery – Safety related parts of control systems – Part 2: Validation

2014/35/EU: Folgende harmonisierende Normen wurden angewandt:

2014/35/EU: Following harmonised standards have been applied:

DIN EN 50178 (Ausgabe / Version 1998-04)

Ausrüstung von Starkstromanlagen mit elektronischen Betriebsmitteln

Electronic equipment for use in power installations

2014/30/EU: Folgende harmonisierende Normen wurden angewandt:

2014/30/EU: Following harmonised standards have been applied:

DIN EN 55011 (Ausgabe / Version 2011-04) Industrielle, wissenschaftliche und medizinische Geräte - Funkstörungen - Grenzwerte und Messverfahren

Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement

DIN EN 61326-1 (Ausgabe / Version 2006-10)

Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen

Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements

Dieses Gerät ist zertifiziert nach Anhang IX der Richtlinie 2006/42/EG.

This device is certified according to appendix IX of the directive 2006/42/EG

Zertifikatsnummer / certification number: 4420514153104

Benannte Stelle / notified body:

TÜV Nord CERT GmbH

Division Technology

Langemarckstraße 20
45141 Essen, Germany

Unterschrift:



Frank Tscherney
(Geschäftsführer / General manager)

Gießen, 29.02.2016



ZERTIFIKAT CERTIFICATE

Hiermit wird bescheinigt, dass die Firma / This certifies, that the company

Johannes Hübner GmbH
Siemensstraße 7
35394 Gießen
Deutschland

berechtigt ist, das unten genannte Produkt mit dem abgebildeten Zeichen zu kennzeichnen.
is authorized to provide the product mentioned below with the mark as illustrated.

Fertigungsstätte:
Manufacturing plant:

Johannes Hübner GmbH
Siemensstraße 7
35394 Gießen
Deutschland

Beschreibung des Produktes:
(Details s. Anlage 1)
Description of product:
(Details see Annex 1)

**Basisgeräte UOM 41L-1212, UOMH 41L-1212 LWL-
Decoder UO-EM-D41**
Basic Unit UOM 41L-1212, UOMH 41L-1212
Fiber Optic Decoder UO-EM-D41



Geprüft nach:
Tested in accordance with:

EN ISO 13849-1:2008, PL 'd'
EN 61508:2010, SIL 2

Registrier-Nr. / Registration No. 44 207 14153102
Prüfbericht Nr. / Test Report No. 3515 1124 / 09 207 370556
Aktenzeichen / File reference 8000441058

Gültigkeit / Validity
von / from 2015-10-15
bis / until 2020-10-14

Zertifizierungsstelle der
TUV NORD CERT GmbH

TUV NORD CERT GmbH Langemarkstraße 20 45141 Essen

Essen, 2015-10-15

www.tuev-nord-cert.de technology@tuev-nord.de

Bitte beachten Sie auch die umseitigen Hinweise
Please also pay attention to the information stated overleaf