## **DATASHEET - DILA-22(24VDC)**



## Contactor relay, 2N/0+2N/C, DC current

Part no. DILA-22(24VDC)
Catalog No. 276414
Eaton Catalog No. XTRE10B22TD
EL-Nummer 0004130211
(Norway)



#### **Delivery program**

Delivery program			
Product range			DILA relays
Application			Contactor relays
Description			Basic devices with positive operation contacts
Connection technique			Screw terminals
Rated operational current			
AC-15			
220 V 230 V 240 V	I <sub>e</sub>	Α	4
380 V 400 V 415 V	l <sub>e</sub>	Α	4
Contacts			
N/0 = Normally open			2 N/O
N/C = Normally closed			2 NC
Contact sequence			A1 13 21 31 43 A2 14 22 32 44
Code number and version of combination			
Distinctive number			22E
Can be combined with auxiliary contact module			DILA-XHI(V)
Actuating voltage			24 V DC
Voltage AC/DC			DC operation
Suppressor circuit			built-in
Connection to SmartWire-DT			yes in conjunction with DIL-SWD SmartWire DT contactor module
Instructions			Contact numbers to EN 50011 Coil terminal markings to EN 50005 built-in suppressor circuit'

#### **Technical data**

#### General

Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA
Lifespan, mechanical			
DC operated	Operations	x 10 <sup>6</sup>	20
Maximum operating frequency	Operations/h		9000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +60
Enclosed		°C	- 25 - 40
Ambient temperature, storage		°C	- 40 - 80
Mounting position			
Mounting position			30°
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			

Basic unit with auxiliary contact module   9   7   7   7   7   7   7   7   7   7	
NC contact Degree of Protection Protection against direct contact when actuated from front (EN 50274) Weight DC operated DC o	
Degree of Protoction           P20           P20           Protection against direct contact when actuated from front (EN 50274)           Finger and back-of-hand proof           Weight           Region   R	
Protection against direct contact when actuated from from (EN 50274)   Woight   Compared   Compa	
Weight         BC operated         kg         0.294           Terminal capacities         mm²         1x (0.75 - 41)           Screw terminals         mm²         1x (0.75 - 41)           Solid         mm²         1x (0.75 - 25)           Floxible with forrule         mm²         1x (0.75 - 25)           Solid or stranded         AWO         18 - 14           Stripping length         10         14           Terminal screw         M3.5         2           Pozidriv screwdriver         Sizo         2           Standard screwdriver         mm         0.8 x 5.5           Max tightening torque         0.0 mm         1.2           Contact         vac         wmm         0.8 x 5.5           Max tightening torque         vac         wmm         0.8 x 5.5           Max tightening torque         vac         wmm         0.8 x 5.5           Rated imputes withstand voltage         vac         wmm         0.8 x 5.5           Rated imputes withstand voltage         up         v.A.C         600           Rated imputes withstand voltage         up         v.A.C         600           Rated operational voltage         up         v.A.C         400           Bat	
DC operated	
Terminal capacities	
Scriew terminals   Solid   mm²   1 x (0,75 - 4)   2 x (0,75 - 2.5)	
Solid   mm²   1 x (0.75 - 4)   2 x (0.75 - 2.5)	
Flexible with ferrule	
Solid or stranded   Solid or stranded   Stripping length   Imm   10	
Stripping length	
Terminal screw  Pozidriv screwdriver Standard screwdriver  Standard screwdriver  Max. tightening torque  Max. tightening torque  Nax. tightening tor	
Pozidriv screwdriver   Size   2   Standard screwdriver   Standard	
Standard screwdriver         mm         0.8 x 5.5 1 x 6           Max. tightening torque         Nm         1.2           Contacts         Ves           Rated impulse withstand voltage         U <sub>imp</sub> V AC         6000           Overvoltage category/pollution degree         III/3         690           Rated perational voltage         U <sub>i</sub> V AC         690           Rated operational voltage         U <sub>e</sub> V AC         690           Safe isolation to EN 61140         V AC         400         690           between coil and auxiliary contacts         V AC         400         400           Rated operational current         A         I         I           Conventional free air thermal current, 1 pole         A         I         I           Open         I         A         I	
Nax tightening torque	
Positive operating contacts to ZH 1/457, including auxiliary contact module Rated impulse withstand voltage  Overvoltage category/pollution degree Rated insulation voltage Rated operational voltage Rated operational voltage  Ou  V AC  690  Rated operational voltage  Safe isolation to EN 61140  between coil and auxiliary contacts between the auxiliary contacts  V AC  Conventional free air thermal current, 1 pole  Open  at 60 °C  AC-15  220 V 230 V 240 V  380 V 400 V 415 V  Ie  A   16  A   15  DC current  Notes  DC LURS \$15 ms  Yes  Yes  400  6000  11/3  12/3  12/4  400  400  400  400  400  400  400	
Positive operating contacts to ZH 1/457, including auxiliary contact module Rated impulse withstand voltage Overvoltage category/pollution degree Rated insulation voltage Rated operational voltage Rated operational voltage Safe isolation to EN 61140 between coil and auxiliary contacts between the auxiliary contacts Conventional free air thermal current, 1 pole Open  AC-15  220 V 230 V 240 V  AC-380 V 400 V 415 V  BOUND AC-15  COUCUMENT AC-15	
Rated impulse withstand voltage         Uimpure withstand voltage category/pollution degree         V AC         6000           Rated insulation voltage         Uimpure with with with with stand woltage         III/3           Rated operational voltage         Ue W AC         690           Safe isolation to EN 61140         V AC         690           between coil and auxiliary contacts         V AC         400           between the auxiliary contacts         V AC         400           Rated operational current         A         A           Conventional free air thermal current, 1 pole         A         In the letter with the w	
Overvoltage category/pollution degree         Ui         V AC         690           Rated insulation voltage         Ue         V AC         690           Safe isolation to EN 61140         V AC         400           between coil and auxiliary contacts         V AC         400           between the auxiliary contacts         A         400           Rated operational current         A         400           Conventional free air thermal current, 1 pole         A         100           Open         Ihi = le         A         16           AC-15         In Ele         A         16           AC-15         A         4           220 V 230 V 240 V         Ie         A         4           380 V 400 V 415 V         Ie         A         4           500 V         Ie         A         1.5           DC current         Notes         Switch-on and switch-off conditions based on DC-13, time control         Switch-on and switch-off conditions based on DC-13, time control	
Rated insulation voltage       Ui       V AC       690         Rated operational voltage       Ue       V AC       690         Safe isolation to EN 61140       V AC       400         between coil and auxiliary contacts       V AC       400         Bated operational current       A       A         Conventional free air thermal current, 1 pole       A       Image: Conventional free air thermal current, 1 pole         Open       Image: Conventional free air thermal current, 1 pole       Image: Conventional free air thermal current, 1 pole       Image: Conventional free air thermal current, 1 pole         AC-15       Image: Conventional free air thermal current, 1 pole       Image: Conventional free air	
Rated operational voltage  Safe isolation to EN 61140  between coil and auxiliary contacts between the auxiliary contacts  Rated operational current  Conventional free air thermal current, 1 pole  Open  at 60 °C  AC-15  220 V 230 V 240 V  1e  A 90  1h = le  A 16  AC-15  220 V 230 V 240 V  1e  A 4  500 V  1e  A 1.5  DC current  Notes  DC L/R ≦ 15 ms	
Safe isolation to EN 61140 between coil and auxiliary contacts between the auxiliary contacts  Rated operational current Conventional free air thermal current, 1 pole Open at 60 °C AC-15  220 V 230 V 240 V 380 V 400 V 415 V 1e A 4  1.5  DC current Notes DC L/R ≦ 15 ms  V AC 400  400  400  400  400  400  400  40	
between coil and auxiliary contacts between the auxiliary contacts  Rated operational current Conventional free air thermal current, 1 pole Open at 60 °C AC-15  220 V 230 V 240 V 380 V 400 V 415 V 500 V DC current Notes DC L/R ≤ 15 ms  V AC 400  400  400  400  400  400  400  40	
between the auxiliary contacts         V AC         400           Rated operational current         A         A           Conventional free air thermal current, 1 pole         J         J           Open         J         J           at 60 °C         Ith=Ie         A         16           AC-15         J         J           220 V 230 V 240 V         Ie         A         4           380 V 400 V 415 V         Ie         A         4           500 V         Ie         A         1.5           DC current         Notes         Switch-on and switch-off conditions based on DC-13, time	
Rated operational current  Conventional free air thermal current, 1 pole  Open  at 60 °C  AC-15  220 V 230 V 240 V  380 V 400 V 415 V  500 V  DC current  Notes  DC L/R ≦ 15 ms  A  A  A  A  A  A  A  B  Conventional free air thermal current, 1 pole  Lehele A  A  4  4  500 V  Lehele A  4  500 V  Lehele A  500 V  Lehele A  4  500 V  Lehele A  500 V  Lehelele A  500 V  Lehelelelelelelelelelelelelelelelelelele	
Conventional free air thermal current, 1 pole       Ith = Ie       A       16         at 60 °C       Ith = Ie       A       16         AC-15       220 V 230 V 240 V       Ie       A       4         380 V 400 V 415 V       Ie       A       4         500 V       Ie       A       1.5         DC current       Notes       Switch-on and switch-off conditions based on DC-13, time co	
Open       Ith = Ie       A       16         AC-15       Ie       A       4         220 V 230 V 240 V       Ie       A       4         380 V 400 V 415 V       Ie       A       4         500 V       Ie       A       1.5         DC current       Notes       Switch-on and switch-off conditions based on DC-13, time conditions	
at 60 °C       Ith =Ie       A       16         AC-15       T       T         220 V 230 V 240 V       Ie       A       4         380 V 400 V 415 V       Ie       A       4         500 V       Ie       A       1.5         DC current       Notes       Switch-on and switch-off conditions based on DC-13, time conditions based on DC-13	
AC-15  220 V 230 V 240 V  1e A 4  380 V 400 V 415 V  1e A 4  500 V  1e A 1.5  DC current  Notes  DC L/R ≤ 15 ms  NO A  NO B	
220 V 230 V 240 V       I <sub>e</sub> A       4         380 V 400 V 415 V       I <sub>e</sub> A       4         500 V       I <sub>e</sub> A       1.5         DC current       Notes       Switch-on and switch-off conditions based on DC-13, time conditions	
380 V 400 V 415 V	
500 V I <sub>e</sub> A 1.5  DC current  Notes  DC L/R ≦ 15 ms  Notes  Notes  DC L/R ≤ 15 ms	
DC current  Notes  Switch-on and switch-off conditions based on DC-13, time conditions based	
Notes Switch-on and switch-off conditions based on DC-13, time conditions based on DC-13, tim	
DC L/R ≦ 15 ms	
	nstant as specified.
Contacts in series:	
1 24 V A 10	
1 60 V A 6	
2 60 V A 10	
1 110 V A 3	
3 110 V A 6	
1 220 V A 1	
3 220 V A 5	
DC L/R ≦ 50 ms	
Contacts in series:	
3 24 V A 4	
3 60 V A 4	
3 110 V A 2	
3 220 V A 1	
Control circuit reliability Failure rate $\lambda$ <10 <sup>-8</sup> , < one failure at 100 million operations (at $U_e = 24 \text{ V DC}$ , $U_{min} = 17 \text{ V}$ , $I_{min} = 5.4 \text{ mA}$ )	

Short-circuit rating without welding			
Maximum overcurrent protective device			
220 V 230 V 240 V		PKZM0	4
380 V 400 V 415 V		PKZM0	4
Short-circuit protection maximum fuse			
500 V		A gG/gL	10
Current heat loss at I <sub>th</sub>			
DC operated		W	0.85
Magnet systems			
Voltage tolerance			
DC operated			
Notes			Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification
Pick-up voltage			0.8 1.1
at 24 V: without auxiliary contact component (40 °C)	Pick-up	x U <sub>c</sub>	0.7 - 1.3
Power consumption			
DC operation			
DC operated	Pull-in = sealing	W	3
duty factor		% DF	100
Changeover time at 100 % U <sub>S</sub> (recommended value)			
DC operated closing delay		ms	
Switching times, DC operated, max. closing delay		ms	31
DC operated N/O contact opening delay		ms	
Switching times, DC actuated make contact Opening delay, max.		ms	12
Rating data for approved types			
Auxiliary contacts			
Dilat Dutu			

Auxiliary contacts			
Pilot Duty			
AC operated			A600
DC operated			P300
General Use			
AC	\	V	600
AC	A	A	15
DC	\	V	250
DC	Į.	A	1

#### **Design verification as per IEC/EN 61439**

besign verincation as per illo/liv 01755			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	15.5
Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	1
Equipment heat dissipation, current-dependent	$P_{\text{vid}}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	2.6
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
EC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.

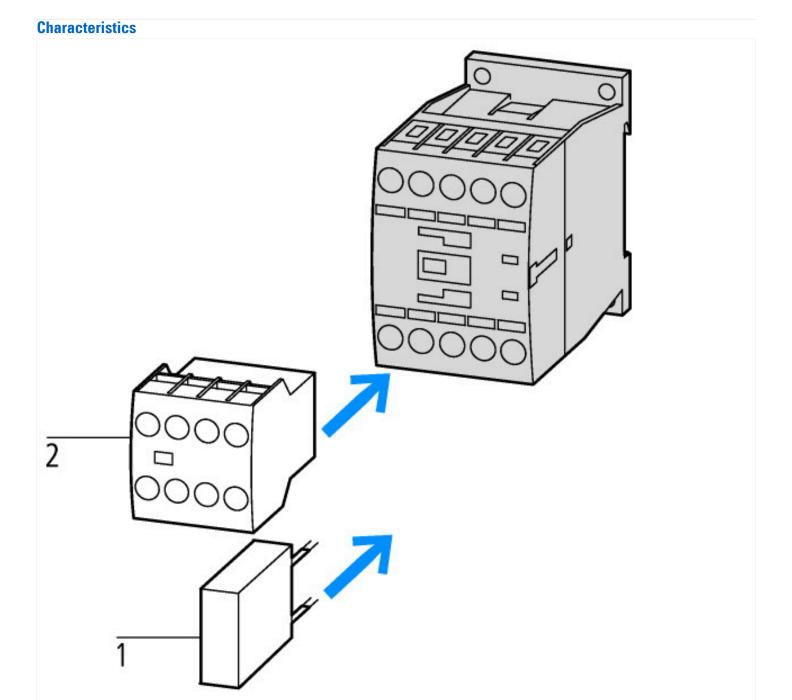
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9 Insulation properties	
10.9.2 Power-frequency electric strength	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## **Technical data ETIM 7.0**

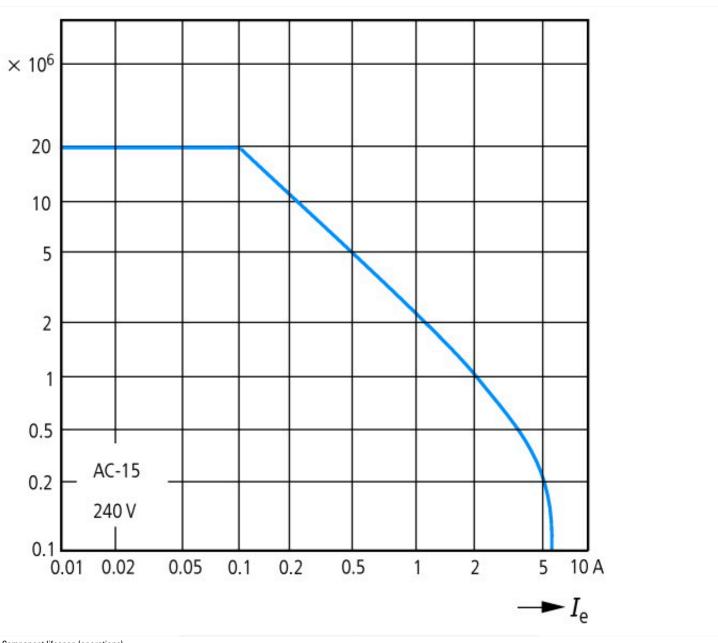
Low-voltage industrial components (EG000017) / Contactor relay (EC000196)				
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014])				
Rated control supply voltage Us at AC 50HZ		V	0 - 0	
Rated control supply voltage Us at AC 60HZ		V	0 - 0	
Rated control supply voltage Us at DC		٧	24 - 24	
Voltage type for actuating			DC	
Voltage type for actuating			DC	
Rated operation current le, 400 V		Α	4	
Connection type auxiliary circuit			Screw connection	
Mounting method			DIN-rail/screw	
Interface			No	
Number of auxiliary contacts as normally closed contact			2	
Number of auxiliary contacts as normally open contact			2	
Number of auxiliary contacts as normally closed contact, delayed switching			0	
Number of auxiliary contacts as normally open contact, leading			0	
With LED indication			No	
Number of auxiliary contacts as change-over contact			0	
Manual operation possible			No	

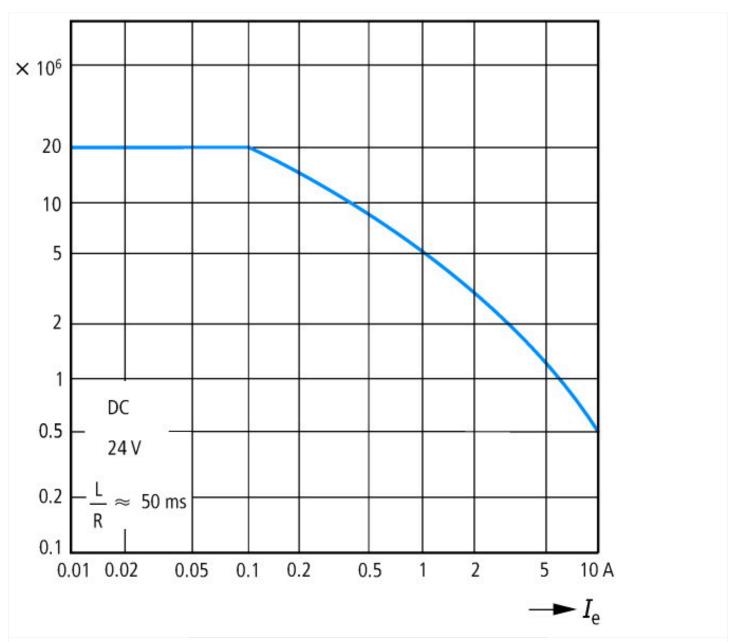
#### **Approvals**

• •	
Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29184
UL Category Control No.	NKCR
CSA File No.	012528
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Specially designed for North America	No



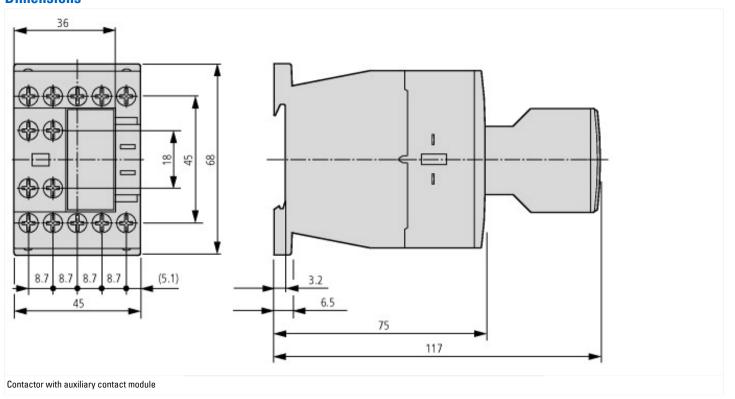
1: Suppressor 2: Auxiliary contact module

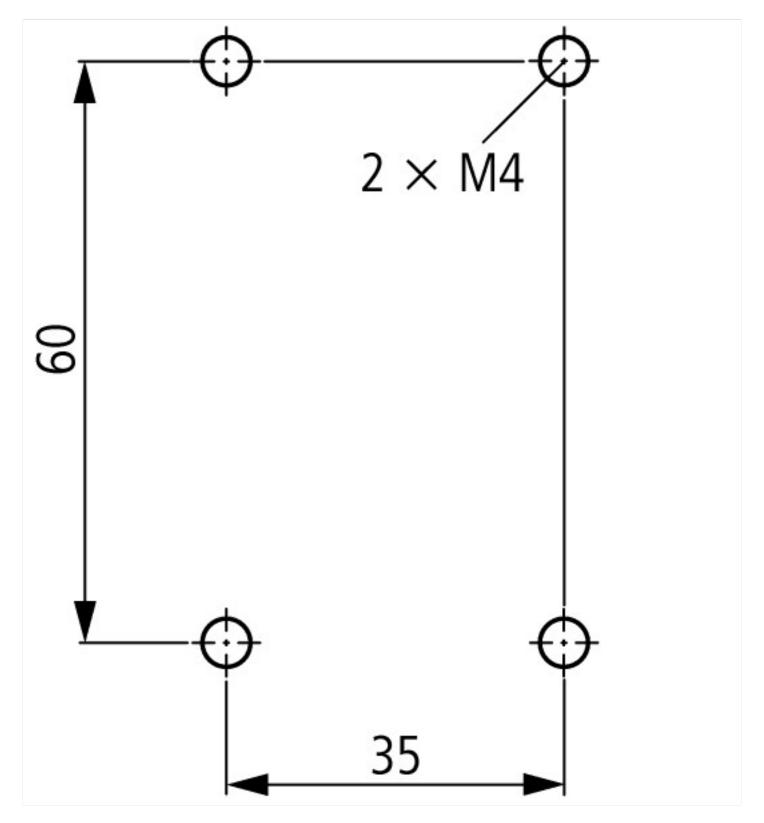




Component lifespan (operations)
I<sub>e</sub> = rated operational current
Three contacts in series

# **Dimensions**





#### **Additional product information (links)**

IL03407013Z (AWA2100-2126) Contactors

IL03407013Z (AWA2100-2126) Contactors

 $ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL03407013Z2018\_07.pdf$