

LME620-AI/-AN (Contra) Electrical Linear Actuator



For continuous positioning,
Rated force 4 kN (900 lbf),
With integrated electronics or for use with separate
electronic unit

Electrical actuator for continuous positioning or step
control

Stallproof without the need of position or torque
dependent switch-off

Sturdy gear unit with highly efficient design

Internal rotary-linear conversion

Hand wheel for emergency operation

Integrated sensors for position and temperature

Voltage supply 115 V AC or 230 V AC only via special
power electronics

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1 Concept

Compact actuator for the operation of final control elements with preferably linear movement. The actuator thrust rod transfers the force directly to the final control element.

A continuous power electronic unit controls the actuator. The electronic unit serves as the interface between actuator and control system.

During continuous positioning the power electronic unit varies the motor torque steplessly until the actuator force and the restoring process forces are balanced. High response sensitivity and high positioning accuracy with short positioning time ensure an excellent control quality and a long actuator life.



Note

The ANSI information appears in parentheses after the SI information.

2 Technical data

2.1 Actuator

| Model | LME620-AN; LME620-AI |
|---|---|
| Rated force | 4 kN (900 lbf), adjustable to 0.5 / 0.75 or 1x rated force |
| Starting force | 1.2 x rated force (break-away torque in end positions for short time 2 x rated force) |
| Rated speed | 2 mm/s (12.7 s/inch) (adjustable from 0.1 mm/s (254 s/inch) to 2 mm/s (12.7 s/inch)) |
| Stroke | Min. 0 ... 12 mm (0 ... 0.47 inch) Max. 0 ... 60 mm (0 ... 2.36 inch) |
| Associated electronic unit (data sheet) | LME620-AI: integrated electronic unit LME620-AN: Designed for field installation: EAN823 (10/68-8.26-DE) Designed for rack installation: EAS822 (10/68-8.23-DE) |
| Motor | 24 V 3~ asynchronous motor for operation with electronic unit EAN823 or EAS822 |
| Sensors | Position and temperature sensor always available |

2.2 Electronic unit

(for LME620-AI only)

2.2.1 Supply

| | |
|---|--|
| Supply voltage | 115 V AC (94 V ... 130 V) or 230 V AC (190 V ... 260 V); 47.5 ... 63 Hz; 1Ph |
| Current (electronic unit) (115 V AC / 230 V AC) max [A] (positioning) | 1.0 / 0.5 (approx. 40 ... 50% of I_{max}) |
| Actuators in low temperature design | 1.4 / 0.7 (approx. 40 ... 50% of I_{max}) |
| External fuse | 16 A; time-lag |

2.2.2 Conventional communication

| | |
|---|---|
| Analog input | 0 / 4 ... 20 mA |
| Analog output | 0 / 4 ... 20 mA, galvanically isolated |
| 3 digital inputs, BE 1 ... BE 3 (DI 1 ... DI 3) | Digital 0: -3 ... 5 V or open, galvanically isolated Digital 1: 12 V ... 35 V, galvanically isolated |
| 3 digital outputs, BA 1... BA 3 (DO 1 ... DO 3) | Potential free relay contact, max. 60 V, 150 mA |
| Digital communication | RS 232 for commissioning and service, with optional FSK / HART® or PROFIBUS DP |
| Default settings | Behavior in 0/100% end position: hold with rated force set point function: linear, setpoint = position value set point input: 4 ... 20 mA function selection: positioner, parameter: setpoint actual value: 4 ... 20 mA digital input: BE 1 (DI 1) M/A selection; BE 2 / BE 3 (DI 2 / DI 3) manual intervention +/- digital output: BA 1 (DO 1) ready for operation; BA 2 / BA 3 (DO 2 / DO 3) end position signal 0 / 100% |
| Voltage output U_V | 24 V, 15 mA, galvanically isolated ; e.g., for scanning external contacts |
| Transmitter connection (optional) | Supply for 2-wire transmitter with activated process controller in Contrac |
| Individual settings | See data sheet 10/68-2.40 or upon request |

2.3 PROFIBUS DP communication

| | |
|--|--|
| PNO ID no. | 0x9655 Actuators with DP/V0 communication (cyclical data traffic) 0x09EC Actuators with DP/V1 communication (cyclical and acyclical data traffic) |
| Communications protocol | Profibus PA profile V3.0 Class B acc. to IEC 50170 / EN 50170 (DIN 19245) |
| Bus cable | Twisted, shielded copper wire acc. to IEC 50170 / EN 50170 |
| Interface | EIA-485 (RS485) acc. to IEC 50170 / EN 50170 |
| Permissible baud rates | - 93.75 kbit/s - 187,5 kbit/s - 500 kbit/s - 1500 kbit/s Automatic baud rate detection |
| Bus address | 0 ... 126, default address 126 Set Slave Address service is supported |
| Bus termination | Connectable active bus termination. Voltage supply from power electronic unit |
| Block types | 1 AO Functional block 1 Transducer block 1 Physical block |
| Fail Save | Failsafe function is supported. Configurable function for downtime of bus communication - Lock in last position - Drive to safety position - Rules with last effective setpoint Adjustable time delay. |
| Modules for cyclical communication | 8 standards-compliant modules and 2 manufacturer-specific modules are available.* SP (Short) SP (Long) RCAS_IN+RCAS_OUT SP+READBACK+POS_D SP+CHECKBACK SP+READBACK+POS_D+CHECKBACK RCAS_IN+RCAS_OUT+CHECKBACK SP+RCAS_IN+READBACK+RCAS_OUT+POS_D+ CHECKBACK STANDARD SP+RB+MESSEING |
| Acyclical communication | Full parametrization and configurability via Master Class 2 and DTM |
| Default settings | Behavior in 0/100% end position: Hold with rated torque / force Setpoint function: Linear, setpoint = position value Setpoint input: Digital Function selection: Positioner, parameter: setpoint Actual value: Digital |
| Digital outputs, BA 1 and BA 2 (DO 1 and DO 2) | In addition to the Profibus communication, there are 2 digital outputs. Potential free relay contact, max. 60 V, 150 mA Default settings: BA 1 (DO 1) end position signal 0% BA 2 (DO 2) ready for operation 100% |
| Individual settings | See data sheet 10/68-2.40 or upon request |

*Full description of communication modules, see parametrization and configuration instructions 45/68-10 EN

2.4 General information

| | LME620-AI (integrated electronic unit) | LME620-AN (separate electronic unit) |
|--|--|---|
| Operating mode | S9 - 100%; stallproof acc. to IEC 60034-1 / EN 60034-1 | |
| Protection Class | IP 66 | |
| Humidity | ≤ 95% average; condensation not permitted | |
| Ambient temperature | -10 ... 55 °C (15 ... 130 °F) -25 ... 55 °C (-15 ... 130 °F) | -10 ... 65 °C (15 ... 150 °F) -25 ... 55 °C (-15 ... 130 °F) |
| Mounting position | any position; preferably IMB 3 acc. to IEC 60034-7 / EN 60034-7 | |
| Coating | 2-layer component epoxy (RAL 9005, black) | |
| Anti-condensation heater | - | Optional, separate power supply or power feed from Contrac electronic unit |
| Power supply for motor and sensors | Only via Contrac electronic unit (refer to the data sheet for the electronic unit) | |
| Cable between actuator and electronic unit | - | Select from 5 m (16 ft), 10 m (32 ft) or 20 m (65 ft) max. 30 m (98 ft) for electronic unit EAN823 max. 480 m (1575 ft) for electronic unit EAS822 (read the data sheet for the electronic unit) |
| Weight; approx. | approx. 24 kg (53 lbs) | approx. 20 kg (44 lbs) |

2.5 24-pole plug on the actuator

| | | Crimp pins | Terminals (Option) |
|-----------|-----------------|--|--|
| LME620-AN | Cable gauge | Motor, heater: 1.5 mm ² (16 AWG) Signals: 0.5 mm ² (20 AWG) | Motor, heater: 2.5 mm ² (14 AWG) Signals: 2.5 mm ² (14 AWG) |
| | Contact surface | Gold-plated | Motor, signal: Gold-plated Heater: Silver-plated |
| LME620-AI | Cable gauge | Mains: 2.5 mm ² (14 AWG) Signals: 0.5 mm ² (20 AWG) | Mains: 2.5 mm ² (14 AWG) Signals: 2.5 mm ² (14 AWG) |
| | Contact surface | Gold-plated | Mains: Silver-plated Signals: Gold-plated |

2.6 Tapped holes for cable glands

| Tapped holes for cables | optional adapters* | |
|--------------------------------|---------------------------|--------------|
| M20 x 1.5 (2x) | PG 16 (2x) | NPT ½" (2 x) |
| M25 x 1.5 (1 x) | PG 21 (2x) | NPT ¾" (1 x) |

* Adapter for PG or NPT thread must be ordered separately

3 Electrical connection

3.1 LME620-AI (integrated electronic unit)

3.1.1 Analog / digital



Note

The electrical connection is provided by a 24-pole plug on the actuator.

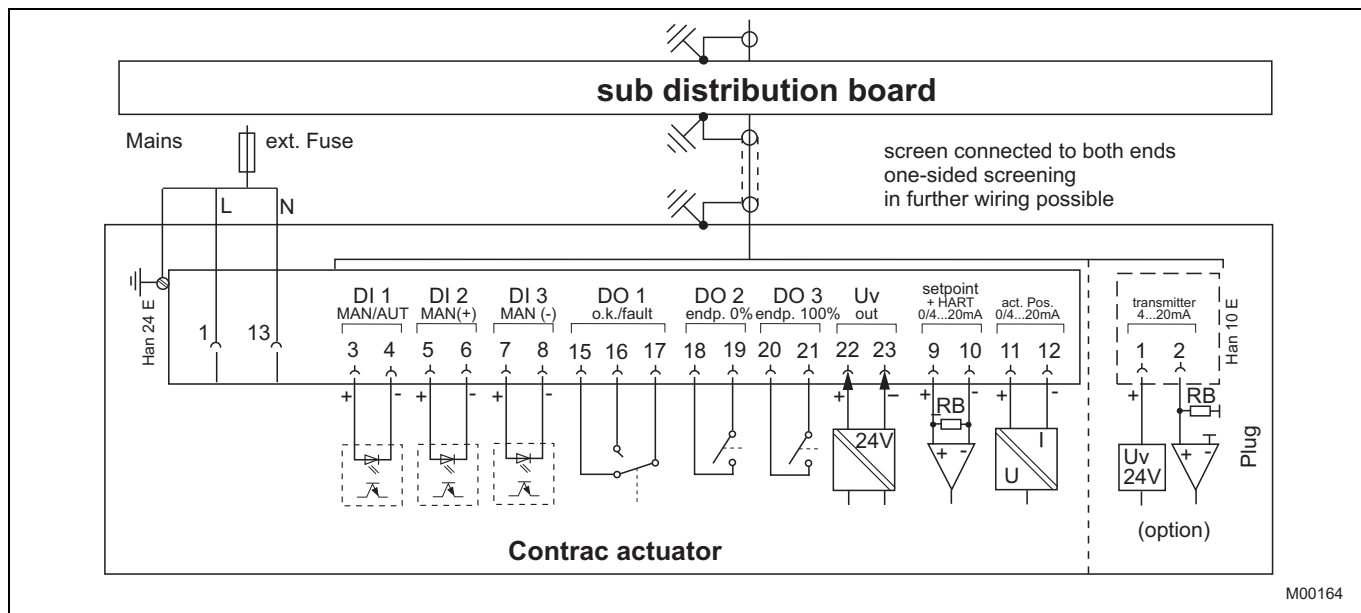


Fig. 1

3.1.2 PROFIBUS DP

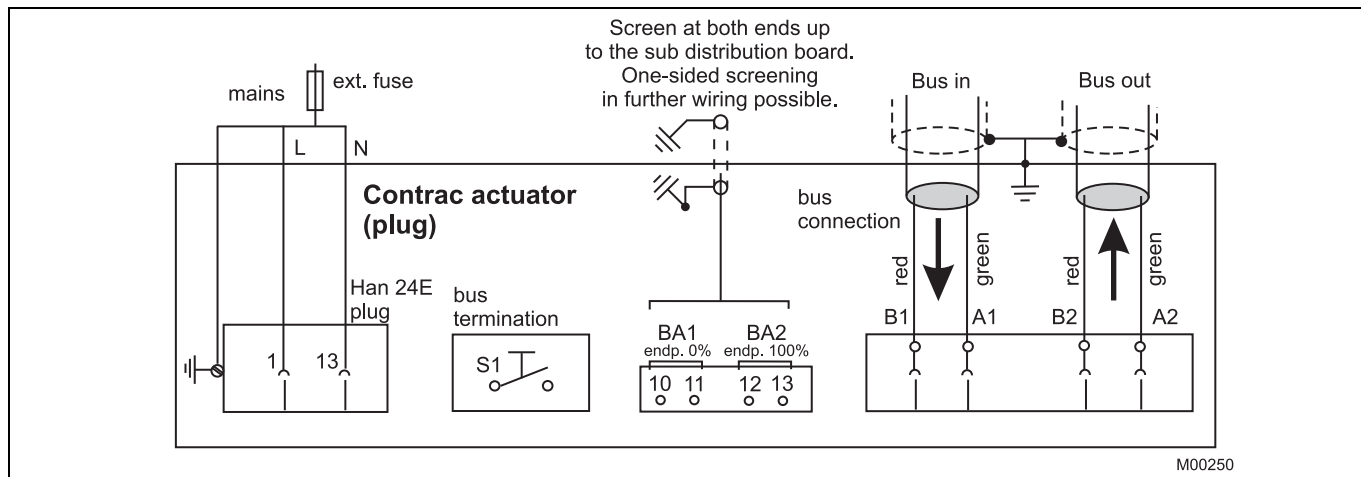


Fig. 2

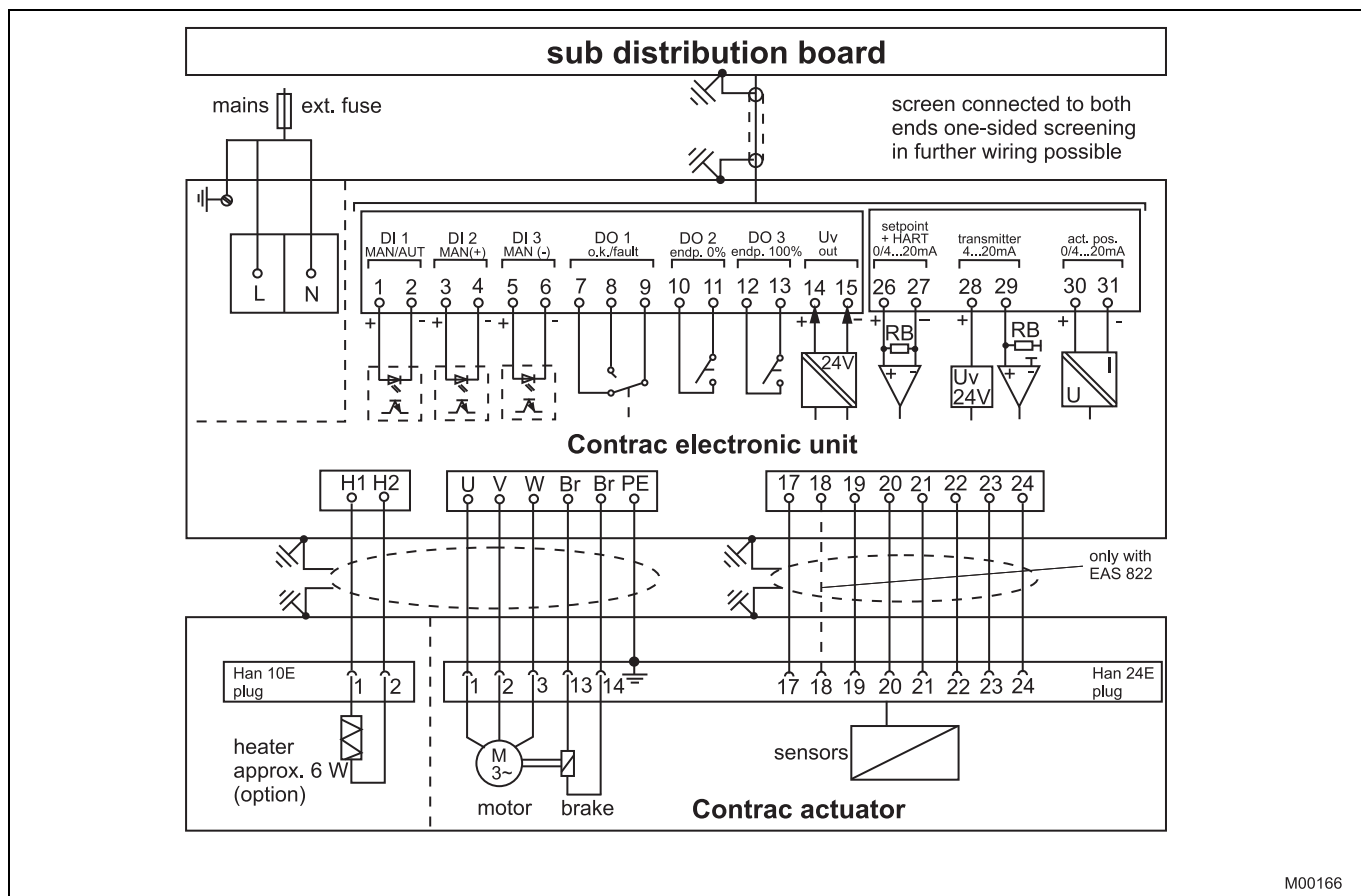
3.2 LME620-AN with power electronic unit EAN823 (Contrac)

3.2.1 Analog / digital



Note

The electrical connection is provided by a plug on the actuator and terminals on the electronic unit.



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Fig. 3

3.2.2 PROFIBUS DP

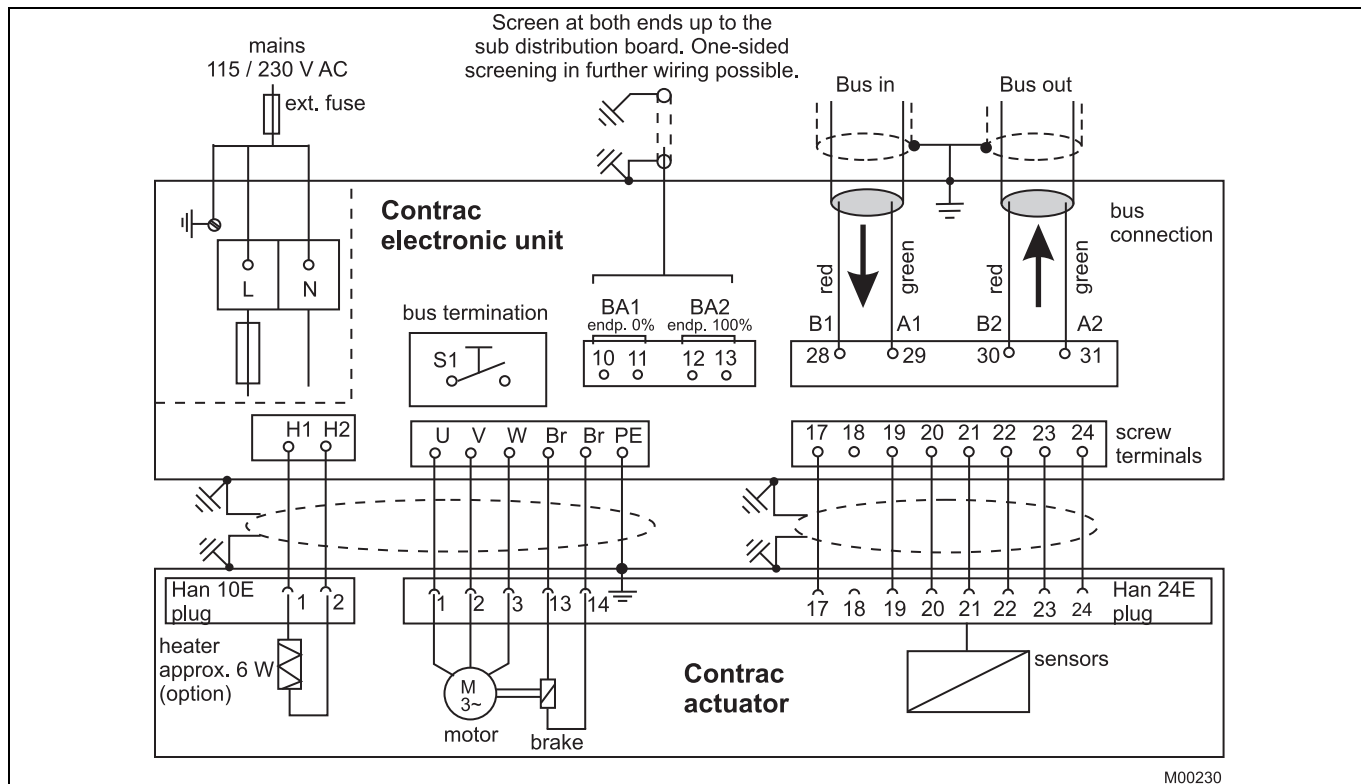


Fig. 4

M00230

3.3 LME620-AN with power electronic unit EAS822 (Contrac)

3.3.1 Analog / digital



Note

The electrical connection is provided by a plug on the actuator and the terminals on the electronic unit.

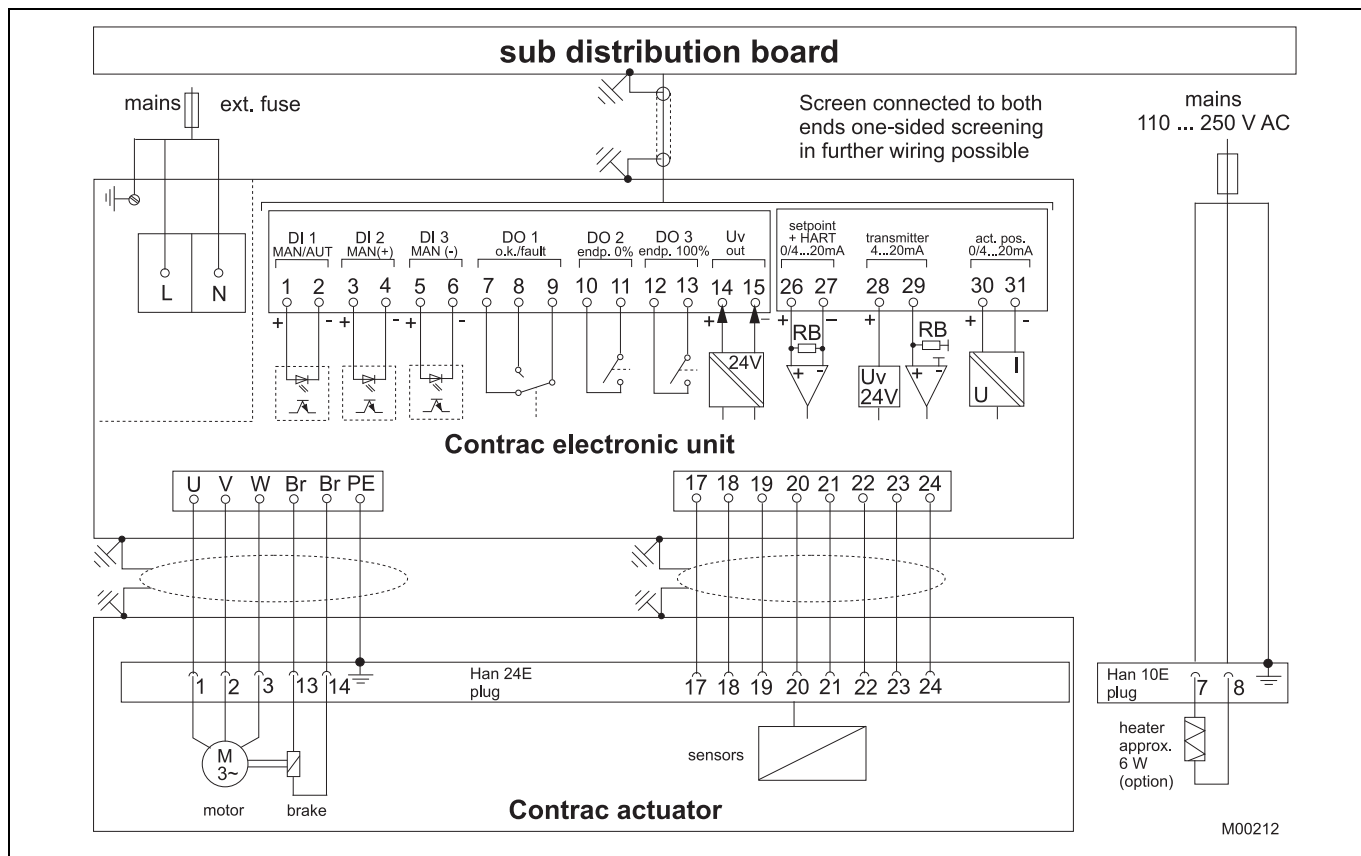


Fig. 5

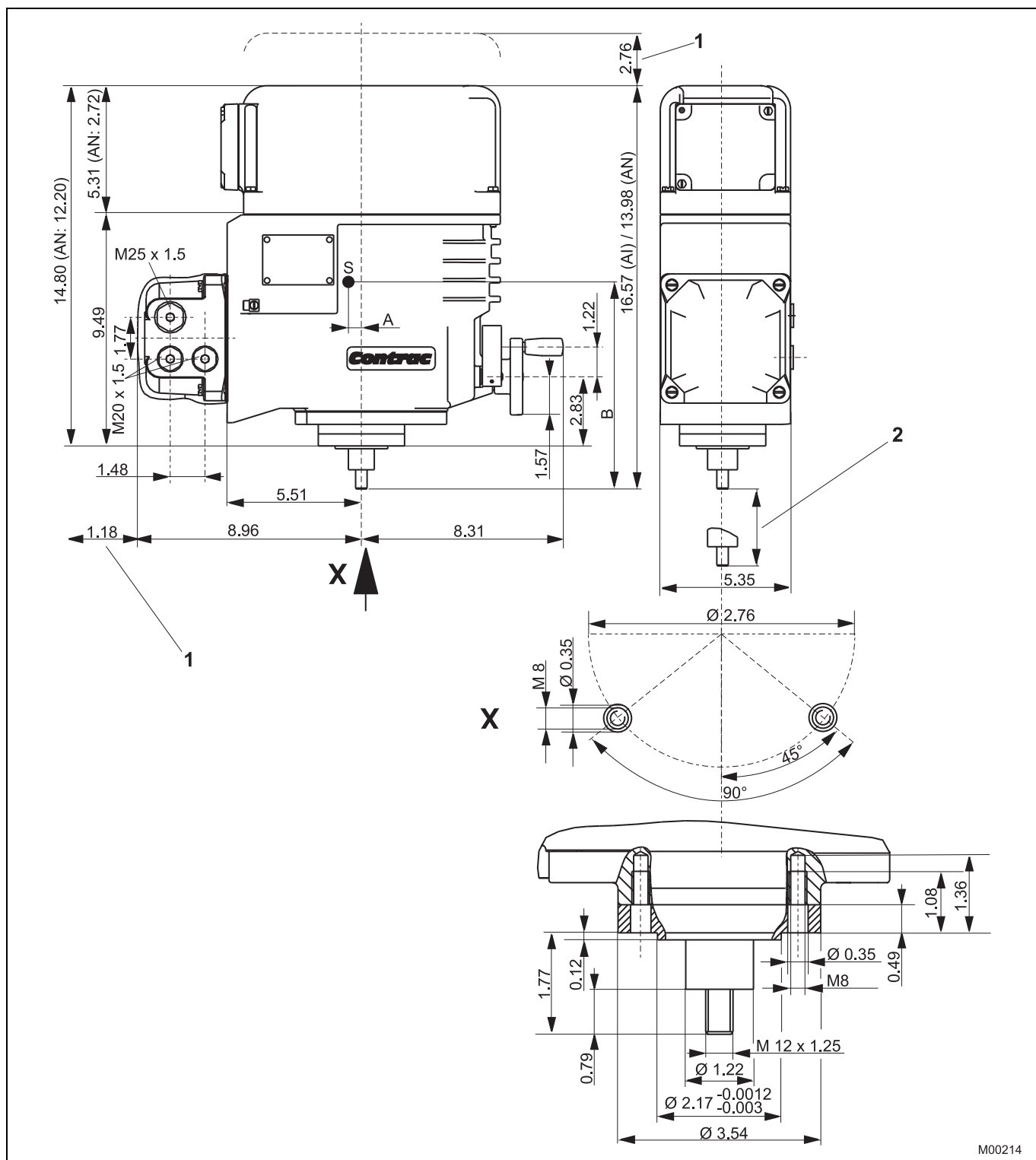


Fig. 7 Dimensions in mm

1 Space for removal

2 Max. 2.36 inch stroke

S = Center of gravity

| | LME620-AI | LME620-AN |
|---|-----------|-----------|
| A | 0.12 inch | 0 inch |
| B | 6.22 inch | 5.16 inch |

5 Ordering information

5.1 LME620-AI (integrated electronic unit)

| | | | | | | | | | | | | |
|---------------------------------------|---|----------------------------------|-------------|-----------------|---------------|----|----|----|------|--|--|--|
| Linear Actuator | | Variant digit No. | | 1 - 8 | 9 | 10 | 11 | 12 | Code | | | |
| LME620-AI | | Catalog No. | | V68622A- | | | | | | | | |
| Rated force | 4 kN (900 lbs) | (adjustable to 50%/75%/100%) | | | | | | | | | | |
| Rated speed | 2.0 mm/s (12.7s/in) | (adjustable to 2.0 ... 0.1 mm/s) | | | | | | | | | | |
| Special actuator features | | | | | | | | | | | | |
| Select at least one feature per group | | | | | | | | | | | | |
| adjusted to: | kN | (lbf) | mm/s | s/60 mm | (s/in) | | | | | | | |
| | 4 | 900 | 2.0 | 30 | 12.7 | | | | 320 | | | |
| | 4 | 900 | 1.0 | 60 | 25.4 | | | | 321 | | | |
| | 4 | 900 | 0.5 | 120 | 50.8 | | | | 322 | | | |
| Electrical connection | plug (24-pole) complete, crimped | | | | | | | | 277 | | | |
| | plug (24-pole) complete, terminals | | | | | | | | 278 | | | |
| Supply voltage | 230 V AC 1 Ph | | | | | | | | 380 | | | |
| | 115 V AC 1 Ph | | | | | | | | 381 | | | |
| Frequency | 50 Hz | | | | | | | | 382 | | | |
| | 60 Hz | | | | | | | | 383 | | | |
| Digital communication | RS 232 | | | | | | | | 384 | | | |
| | RS 232 + HART | | | | | | | | 385 | | | |
| | PROFIBUS DP (cyclic communication) | | | | | | | | 386 | | | |
| | PROFIBUS DPV1 (cyclic and acyclic communication) | | | | | | | | 387 | | | |
| Settings of electronic unit | Standard settings (see techn. data) | | | | | | | | 390 | | | |
| | Customer specific settings (see data sheet 10/68-2.40 EN) | | | | | | | | 391 | | | |
| Ambient temperature range | -10 ... 55 °C (15 ... 130 °F) | | | | | | | | 342 | | | |
| | -25 ... 55 °C (-15 ... 130 °F) | | | | | | | | 343 | | | |

| | | | | | | | | | | | | |
|---|--|-------------------------------|--|--|--|--|--|-----|------|--|--|--|
| Additional ordering information | | | | | | | | | | | | |
| | | | | | | | | | Code | | | |
| Electrical connection thread | Set NPT adapter (junction metric / NPT thread) | | | | | | | | 680 | | | |
| | Set PG adapter (junction metric / PG thread) | | | | | | | | 681 | | | |
| Identification on data label | (alphanumeric, max. 32 characters) | | | | | | | | 294 | | | |
| Data label with US units | | | | | | | | | 253 | | | |
| Accessories | cover for male plug (24 pole) | | | | | | | | 337 | | | |
| Accessories | plug holder | | | | | | | | 338 | | | |
| Factory certificate 2.1 acc. to EN 10204 | | | | | | | | | 291 | | | |
| Certificate B acc. to EN 10204 | | | | | | | | | 292 | | | |
| Assembly with valve at ABB | (order and pos. no. of valve required) | | | | | | | | 480 | | | |
| Operating instruction | (specify total quantity required, 1 copy without extra charge) | | | | | | | | | | | |
| | German | (no specification for 1 copy) | | | | | | Z1D | | | | |
| | English | (always state Code-No.) | | | | | | Z1E | | | | |

Note: Delivery time for max. 2 pcs. For 3 pcs. or more delivery time on request.

5.2 LME620-AN (separate electronic unit)

| | | | | | | | | | | | |
|---------------------------------------|--|----------------------------------|-----------------|---|----|----|----|------|--|--|--|
| Linear Actuator | | Variant digit No. | 1 - 8 | 9 | 10 | 11 | 12 | Code | | | |
| LME620-AN | | Catalog No. | V68620A- | | | | | | | | |
| Rated force | 4 kN (900 lbs) | (adjustable to 50%/75%/100%) | | | | | | | | | |
| Rated speed | 2.0 mm/s (12.7 s/in) | (adjustable to 2.0 ... 0.1 mm/s) | | 0 | 0 | 0 | 0 | | | | |
| Special actuator features | | | | | | | | | | | |
| Select at least one feature per group | | | | | | | | | | | |
| Electrical connection | plug (24-pole) complete, crimped | | | | | | | 277 | | | |
| | plug (24-pole) complete, terminals | | | | | | | 278 | | | |
| | plug bottom part covered | | | | | | 1) | 279 | | | |
| Connection to electronic unit | EAN820, EAN823 (supply voltage 230 V AC) | | | | | | | 280 | | | |
| | EAN820, EAN823 (supply voltage 115 V AC) | | | | | | | 281 | | | |
| | EAS822 (supply voltage 230 V AC) | | | | | | | 282 | | | |
| | EAS822 (supply voltage 115 V AC) | | | | | | | 283 | | | |
| Ambient temperature range | -10 ... 60 °C (15 ... 150 °F) | | | | | | | 344 | | | |
| | -25 ... 55 °C (-15 ... 130 °F) | | | | | | | 343 | | | |

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|------|--|--|--|
| Additional ordering information | | | | | | | | | | | |
| Electrical connection thread | | | | | | | | Code | | | |
| Set NPT adapter (joint metric / NPT thread) | | | | | | | | 680 | | | |
| Set PG adapter (joint metric / PG thread) | | | | | | | | 681 | | | |
| Anti condensation heater | | | | | | | | 360 | | | |
| Identification on data label | | | | | | | | 294 | | | |
| (alphanumeric, max. 32 characters) | | | | | | | | | | | |
| Data label with US units | | | | | | | | 253 | | | |
| Accessories | | | | | | | | 337 | | | |
| cover for male plug (24 pole) | | | | | | | | | | | |
| Accessories | | | | | | | | 338 | | | |
| plug holder | | | | | | | | | | | |
| Factory certificate 2.1 acc. to EN 10204 | | | | | | | | 291 | | | |
| Certificate B acc. to EN 10204 | | | | | | | | 292 | | | |
| Assembly with valve at ABB | | | | | | | | 480 | | | |
| (order and pos. no. of valve required) | | | | | | | | | | | |
| Operating instruction | | | | | | | | | | | |
| (specify total quantity required, 1 copy without extra charge) | | | | | | | | | | | |
| German | | | | | | | | Z1D | | | |
| (no specification for 1 copy) | | | | | | | | | | | |
| English | | | | | | | | Z1E | | | |
| (always state Code-No.) | | | | | | | | | | | |

1) female plug with cables to be ordered with electronic unit

Attention!

Electronic unit to be ordered separately

Note: Delivery time for max. 2 pcs. For 3 pcs. or more delivery time on request.

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