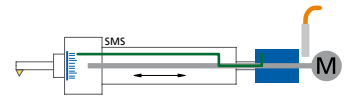




KOMET KomTronic[®]

For special purpose machines:
Facing heads with integrated measuring system and
KomTronic[®] U-axis systems for spindle integration



Produce turning contours economically when working with a stationary workpiece

- Facing heads with direct encoder on the slide
- KomTronic® systems for spindle integration with own drive

Based on decades of experience producing facing heads for special purpose machines, KOMET® is expanding its product range to include KomTronic® systems for spindle integration for different installation and usage requirements for facing heads.

Conventional facing heads with direct encoder (SMS)

KomDrive facing heads fitted with measuring system are conventionally operated with a drawbar. A high-resolution measuring system attached directly on the slide increases the level of positioning accuracy. Mechanical tolerances of the drive elements and the temperature range can be compensated. This results in machining accuracy that cannot be achieved with facing heads without measuring system.

BENEFITS for you:

- Direct measuring system on slide increases positioning accuracy and thus machining quality
- Suppression of backlash, even in the case of wear-related change
- Reduced influence of wear on machining quality
- Possible to compensate for heat cycle of draw bar drive
- Process capability is improved

Direct KomTronic® encoding in drawbar-actuated facing heads

For the first time, the slide movement in the facing head can be measured directly and therefore controlled directly. The slide in the facing head is moved with draw and push bar via a drive on the machine side. The measuring signals are transmitted through contact-free power and data transfer at the spindle end. Signal lines must be fed through the spindle body to connect the sensors in the facing head.

Facing heads with direct positioning measuring system (optional with MQL)

Prior to integration in the machine tool, the following points must be clarified with the machine tool manufacturer:

- Housing of electronic components
- Integrating the electronics carrier and fitting the stator
- Feeding of cables through the spindle from the facing head to the electronics carrier
- Lubrication type and connection
- Setting of NC axis parameters and connection of position feedback system to the NC

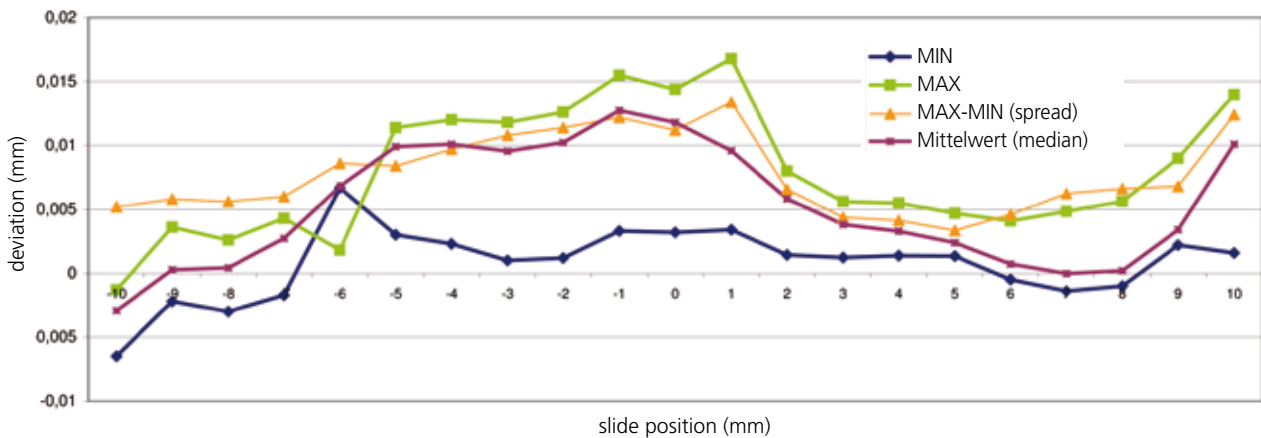
The facing heads can be customised for special machining tasks. The details concerning technical data for draw bar tools that can be integrated into a spindle differ depending on the combination selected. This is therefore not covered at this point. Planning for draw bar tools that can be integrated into a spindle is carried out in close coordination between machine manufacturer, spindle manufacturer and KOMET®.

Adaption into machine tool control and spindle see page 6.

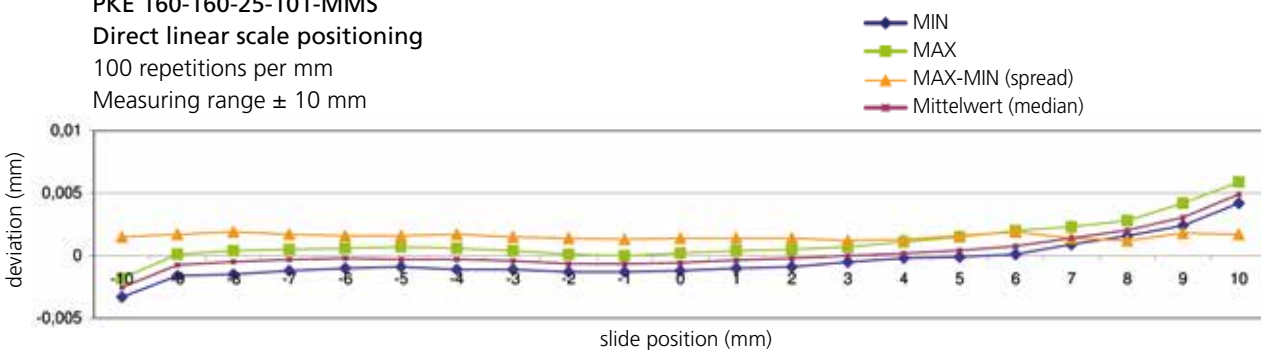


Example:

PKE 160-160-25-101-MMS
Motor-encoder positioning
 100 repetitions per mm
 Measuring range ± 10 mm



PKE 160-160-25-101-MMS
Direct linear scale positioning
 100 repetitions per mm
 Measuring range ± 10 mm



KOMET KomTronic® UAC

U Axis Cartridge



KomTronic® U-axis systems for spindle integration

KomTronic® systems are typically used as exchangeable U-axis systems on machining centres. The modular design of these systems enable it to be integrated in special purpose machine spindles. With this solution, the KomTronic® facing head drive is integrated in/fitted on the machine spindle. This drive rotates with the spindle. As a result, drive elements through the machine spindle are not required.

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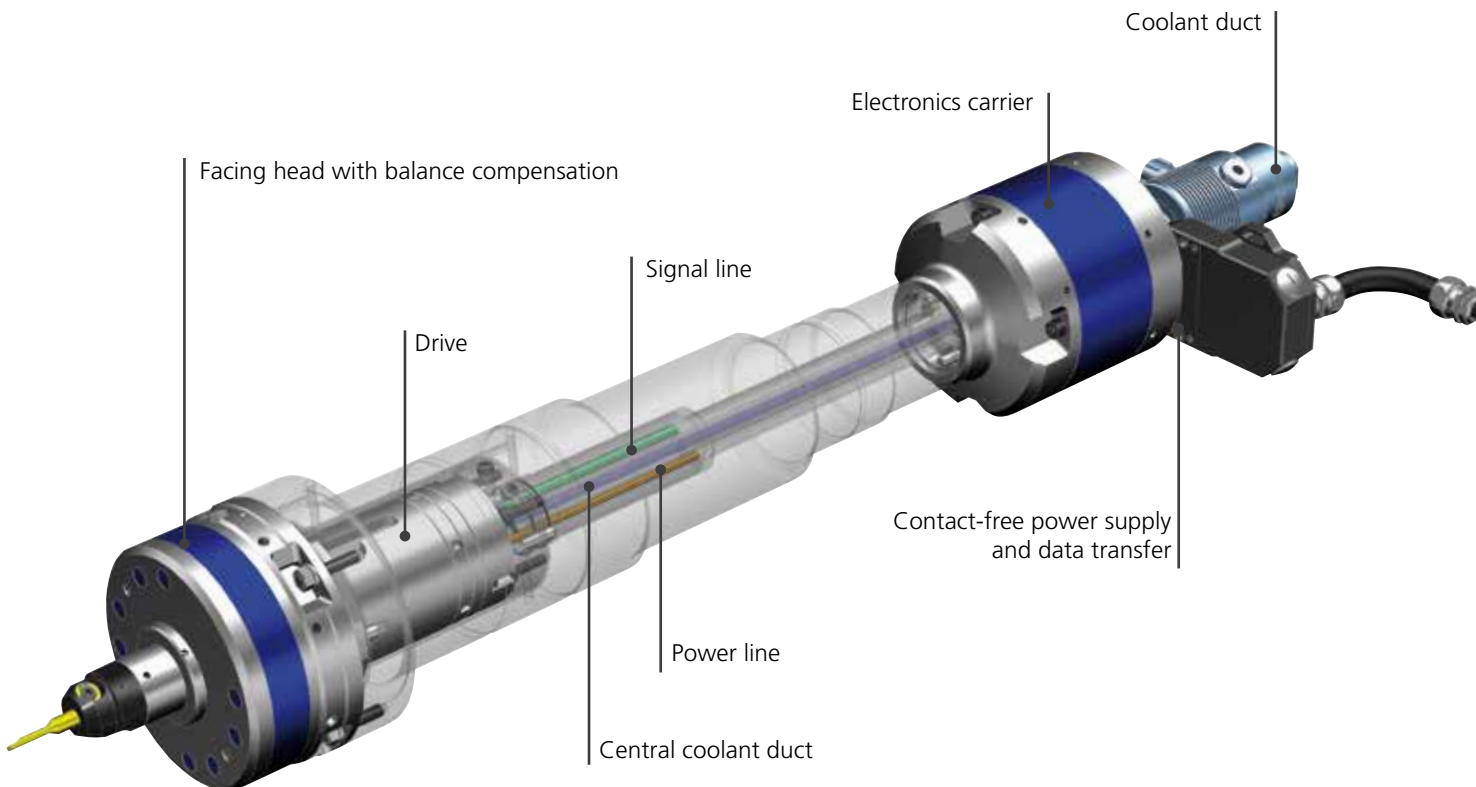
KomTronic® UAC system for spindle integration

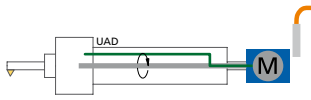
In the KomTronic® UAC system, the drive is combined with a draw bar tool. Here, the servo motor projects into the matched internal contour of the machine spindle.

BENEFITS for you:

- KomTronic® drive on the facing head integrated in the front side of the spindle
- No drive elements through the spindle (hollow centre, makes it easier for the media, e.g. MQL, to flow through), as a result bearing points are also not required.
- Short projection, maximum rigidity, special spindle design (bearings)
- Optionally available with direct encoder on the slide for increased accuracy requirements
- Simple installation of the draw bar tool with drive unit
- Suitable for higher speeds (for facing heads with balancing compensation)
- No positioning movement is introduced into the rotating spindle from outside, therefore there is no additional stress on spindle connection design

Adaption into machine tool control and spindle see page 7.





KOMET KomTronic® UAD

U Axis Drive

KomTronic® UAD system for spindle integration

In the KomTronic® UAD system, the drive sits in the rotating KomTronic® electronics carrier at the spindle end. The draw bar tool is fitted on the front side of the spindle.

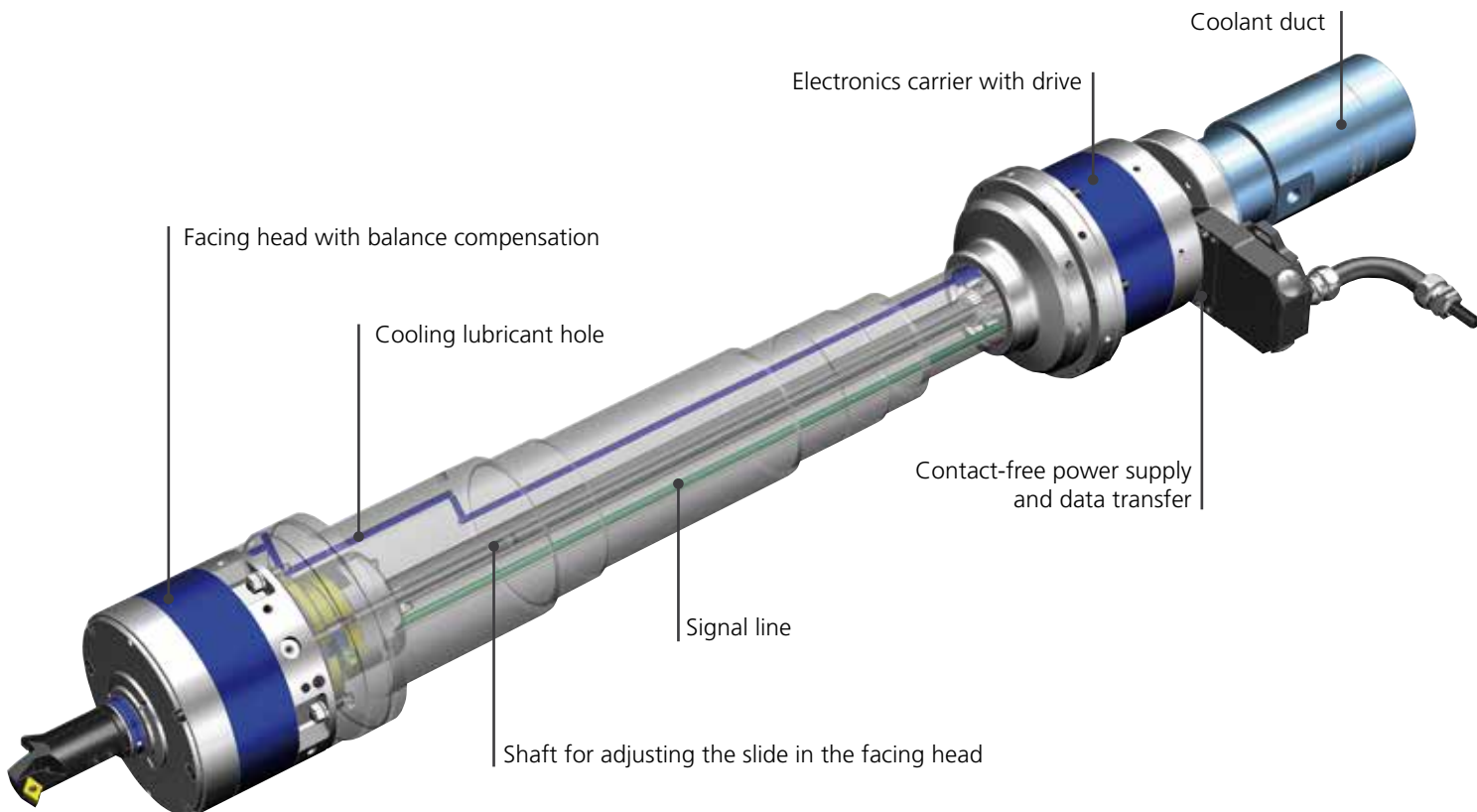
The movement is transferred into the facing head using a rotating shaft in the spindle centre. Referencing is carried out using a reference switch in the facing head.

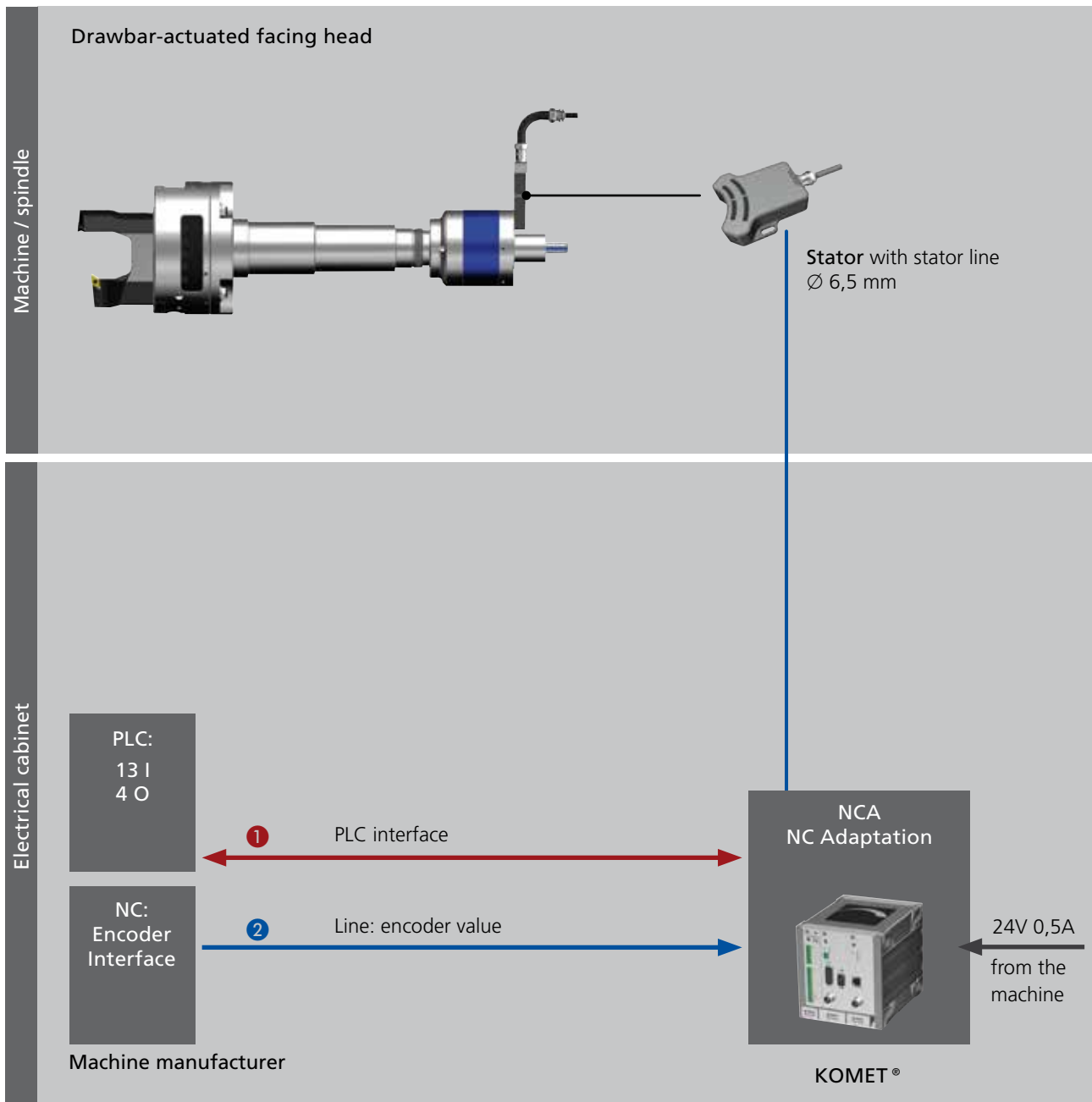
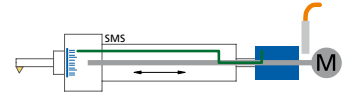
The required signal lines are fed through the spindle. Depending on the facing head/draw bar tool used, a direct encoder can also be installed on the slide.

BENEFITS for you:

- Electronics carrier with integrated servo motor (also rotating on the spindle end)
- No adjustment movements introduced into the spindle from outside. As a result, loads on the spindle system are reduced. The integrated electric servo drive on the spindle end also rotates and is supplied with electrical energy via a transformer that is also rotating. The data is also exchanged contact-free via the transformer that is also rotating.
- Well suited for "slide boring bars". The rotation of the shaft is converted in the slide boring bar into a translational movement.
- Optionally available with direct encoder on the slide for increased accuracy requirements
- Only a signal line through the machine spindle is required
- Small spindle bearing diameter possible

Adaption into machine tool control and spindle see page 7.





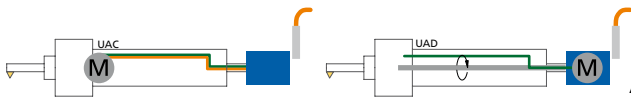
1 PLC connection

13 inputs and 4 outputs are required on the PLC.
3 M-codes are necessary for activation, deactivating and status information.

2 Incremental actual position value

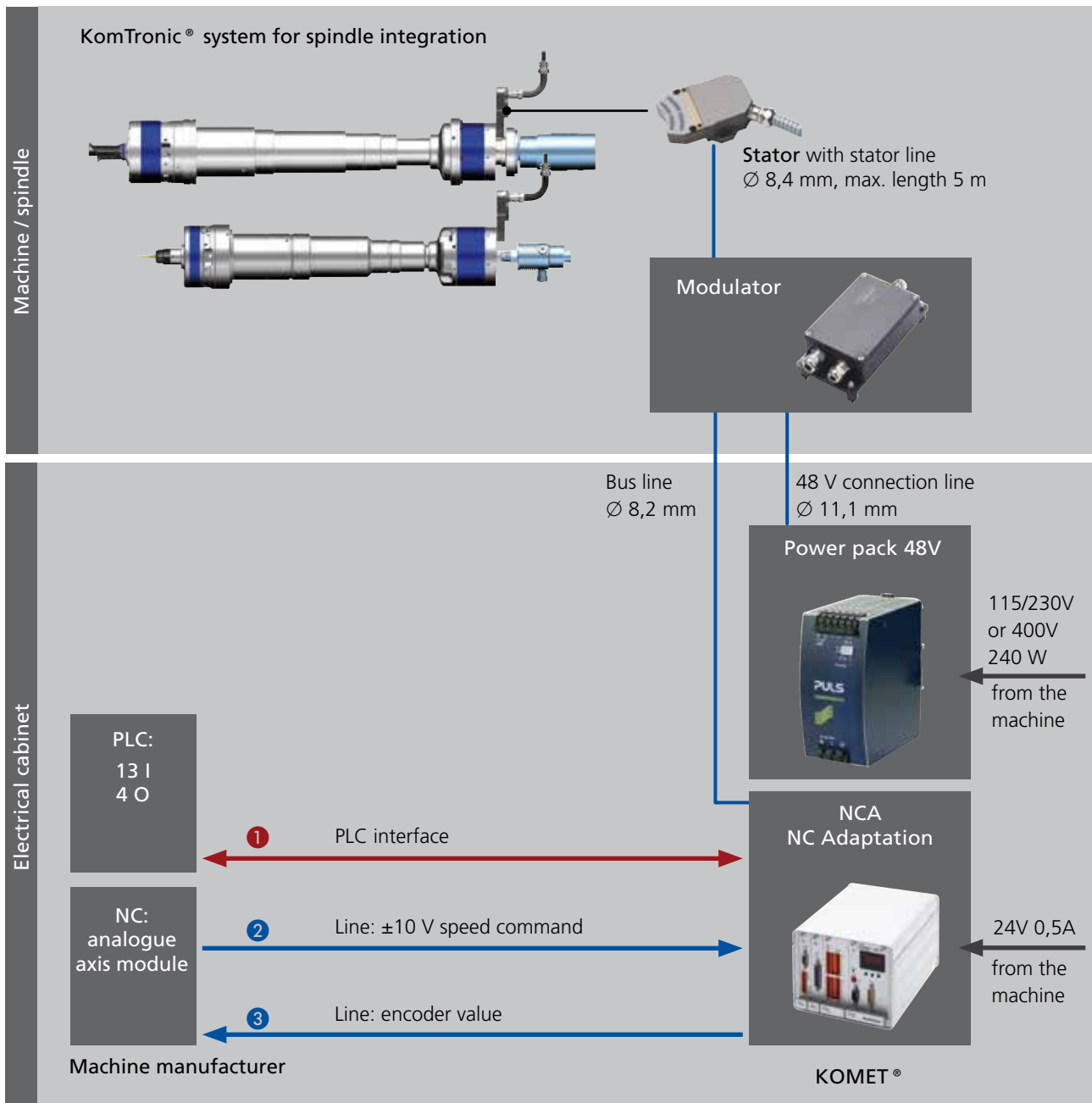
The current position is transmitted from the KOMET® NCA to the position feed back interface for the NC control. The following signal forms are available

- TTL level in acc. with RS 422, interpolated
- 1 Vpp (1 V peak to peak)



KOMET KomTronic® UAC, UAD

Adaption into machine tool control and spindle



- 1 PLC connection**
 13 inputs and 4 outputs are required on the PLC.
 3 M-commands are required for selecting U-Axis functions.
- 2 Nominal value requirement**
 ±10 V nominal speed value from analogue axis module of NC control to the KOMET® NCA.
- 3 Incremental actual position value**
 The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available

 - TTL level in acc. with RS 422, interpolated, square signal form
 - 1 Vpp (1 V peak to peak), sine signal form

The KomTronic® U-Axis system does not need a power unit on the NC control.

GERMANY

KOMET GROUP GmbH
Zeppelinstraße 3 · 74354 Besigheim
Tel. +49 7143 3730 · Fax +49 7143 373233 · info@kometgroup.com

KOMET GROUP GmbH · Werk Stuttgart
Ruppmannstraße 32 · 70565 Stuttgart-Vaihingen
Tel. +49 711 788910 · Fax +49 711 7889111

FRANCE

KOMET S.à.r.l.
46-48 Chemin de la Bruyère · 69574 Dardilly CEDEX
Tel. +33(0) 4 37 46 09 00 · Fax +33(0) 4 78 35 36 57 · info.fr@kometgroup.com

GREAT BRITAIN

KOMET (UK) Ltd.
4 Hamel House · Calico Business Park · Tamworth · B77 4BF
Tel. +44(0)1827.302518 · Fax +44(0)1827.300486 · info.uk@kometgroup.com

ITALY

KOMET Utensili S.R.L.
Via Massimo Gorki n. 11 · 20098 S. Giuliano Mil.
Tel. +39 02 98 40 28 1 · Fax +39 02 98 44 96 2 · info.it@kometgroup.com

AUSTRIA

KOMET GROUP GmbH
Zeppelinstraße 3 · D-74354 Besigheim
Tel. +43 512 28355932 · Fax +43 512 28355999 · info.at@kometgroup.com

POLAND

KOMET-URPOL Sp. z o.o.
ul. Przyjaźni 47 b · PL 47-225 Kędzierzyn-Koźle
Tel. +48 77 405 31 00 · Fax +48 77 405 31 10 · info.pl@kometgroup.com

RUSSIA

KOMET GROUP GmbH
ul. M.Salimganova 2V · 420107, Kazan
Tel. +7 843 5704345 · Fax +7 843 2917543 · info.ru@kometgroup.com

SWITZERLAND

KOMET GROUP GmbH
Zeppelinstraße 3 · D-74354 Besigheim
Tel. +49 7143 3730 · Fax +49 7143 373233 · info@kometgroup.com

SPAIN

KOMET IBERICA TOOLS S.L.
Av. Corts Catalanes 9-11 · Planta baja, local 6B · 08173 Sant Cugat Del Valles
Tel. +34 93 5839620 · Fax +34 93 5839612 · info.es@kometgroup.com

SWEDEN · DENMARK · NORWAY

KOMET Scandinavia AB
Box 9177 · SE-200 39 Malmö
Tel. +46 40 49 28 40 · Fax +46 40 49 19 95 · scandinavia@kometgroup.com

CZECH REPUBLIC

KOMET GROUP CZ s.r.o.
Na Hůrce 1041/2, 160 00 Praha 6
Tel. +420 235010010 · Fax +420 235311890 · info.cz@kometgroup.com

TURKEY

KOMET KESICI TAKIMLAR SAN VE TIC LTD STI
Yenikoy Mahallesi Koybasi cad. · Akbas Sokak no 7 Sariyer ISTANBUL
Tel. +90 212 346 01 34 · Tel. +90 212 346 01 70 · Fax +90 212 346 01 64 · info.tr@kometgroup.com

USA

KOMET of America, Inc.
2050 Mitchell Blvd. · Schaumburg · IL 60193-4544
Tel. +1 (8 47) 9 23 / 84 00 · +1 (8 47) 9 23 / 84 80
Fax +1 (8 00) 8 65 / 66 38
customerservice.us@kometgroup.com

CANADA

KOMET of CANADA Tooling Solutions ULC
250 Harry Walker Parkway N · Unit 6B,
Newmarket, Ontario, L3Y 7B4
Tel. +1 905 9540466 · Fax +1 905 9541068
customerservice.ca@kometgroup.com

MEXICO

KOMET de México S. de R. L. de C.V
Acceso 1 Nave 8 No. 116 · Fraccionamiento Industrial La Montaña
Querétaro, Qro. C.P 76150 México
Tel. +52 442 2109020 · Fax +52 442 2182077
customerservice.mx@kometgroup.com

BRAZIL

KOMET do Brasil Ltda.
Rua Brasileira, 439 · 07043-010 Guarulhos - São Paulo
Tel. +55 11 24235502 · Fax +55 11 24220069
info.br@kometgroup.com

CHINA

KOMET GROUP Precision Tools (Taicang) Co.,Ltd.
No. 5 Schaeffler Road Taicang, Jiangsu Province, PRC 215400
Tel. +86 512 53575758 · Fax +86 512 53575759
info.cn@kometgroup.com

JAPAN

KOMET GROUP KK
180-0006 · 1-22-2 Naka-cho Musashino-shi
Tokyo Japan · Grand Preo Musashino 203
Tel. +81(0)422 50 0682 · Fax +81(0)422 50 0683
info.jp@kometgroup.com

KOREA

KOMET Korea Co.,Ltd.
#201,Lotte IT Castle-2, 98, Gasan digital 2-ro,
Geumcheon-gu, Seoul, Korea 153-768
Tel. +82(0)2.2082-6300 · Fax +82(0)2.2082-6309
info.kr@kometkorea.com

INDIA

KOMET Precision Tools India Pvt. Ltd.
16J, Attibele Industrial Area · BANGALORE - 562 107
Tel. +91 80 2807 8000 · Fax +91 80 2807 8100
info.in@kometgroup.com

SOUTHEAST ASIA

KOMET GROUP Precision Tools (Thailand) Co.,Ltd.
1558/61 BaanKlangKrung Village
Bangna-Trad Road, Bangna
Bangkok 10260 Thailand
Tel. +66 2-182-0556
info.sea@kometgroup.com

www.kometgroup.com