



Operating instructions
Absolute encoders with SSI interface

GB

**RN6065
RN6066**

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1 Symbols used

- ✓ Requirement
- Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

2 Safety instructions

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Intended use).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.

3 Intended use

The encoder converts rotary movements into digital numerical values. Each revolution and each angular position of the revolutions is provided as a numerical value.

These values allow angular movements to be measured and positions and number of revolutions to be determined.

Supply voltage and resolution according to the type label.



This is a class A product. This product may cause radio interference in domestic areas.

► If required, take appropriate EMC screening measures.

4 Installation

- ▶ Disconnect power. Do not start the drive during installation.
- ▶ Fix the encoder in the desired position at the drill holes in the flange.
- ▶ Do not hit the shaft; do not use a file or similar tool on the shaft: risk of destruction.
- ▶ Avoid damage to the shaft and the bearing.
- ▶ Connect encoder and drive by means of a flexible coupling.
- ▶ In case of linear measurement with a measuring wheel, encoder and measuring wheel should be mounted on the end of a flexible arm.

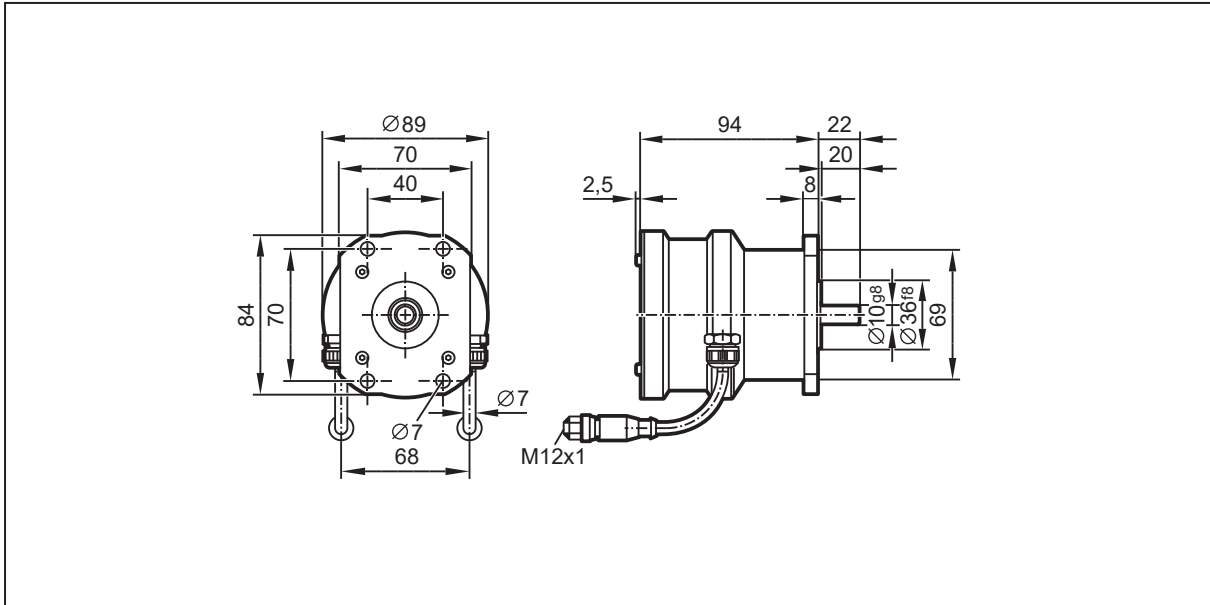


Fig. 1: Scale drawing RN6065

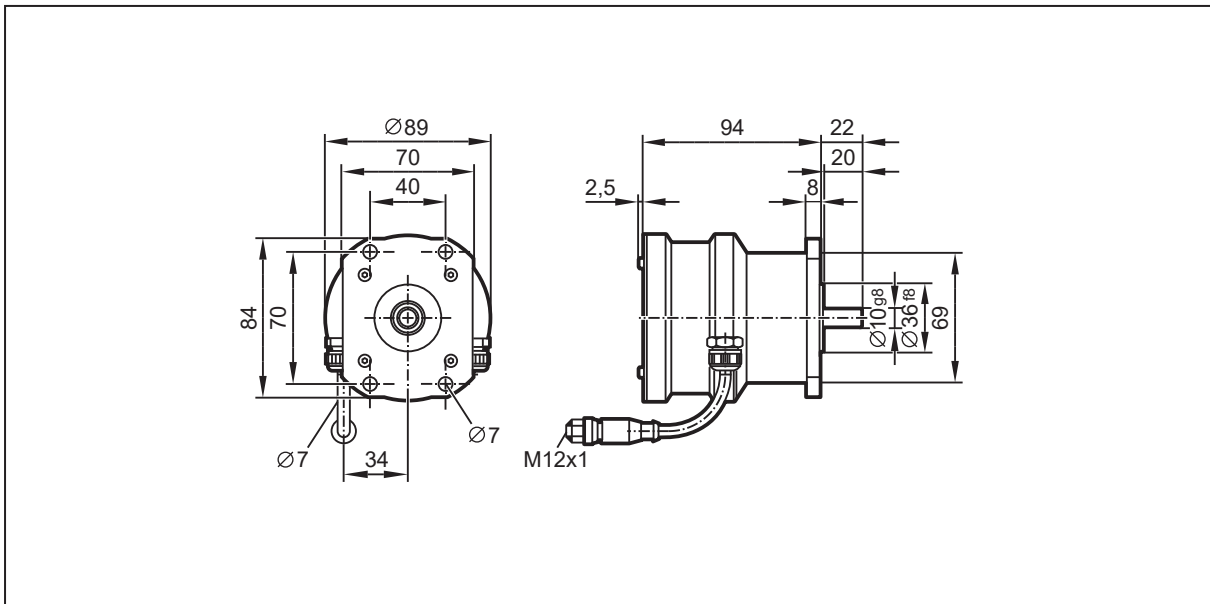


Fig. 2: Scale drawing RN6066

5 Electrical connection



The unit must be connected by a qualified electrician.

- ▶ Observe the national and international regulations for the installation of electrical equipment.
- ▶ Disconnect power.
- ▶ Connect the device according to the indications on the type label.

5.1 Cable connection

Extension by means of a shielded extension cable; max. length 100 m.

- ▶ Install the unit separately from interfering sources (minimum distance 0.2 m).
- ▶ Connect the encoder housing, the connector / terminal box and the evaluation electronics via the screen.

5.2 Wiring with standard configuration

Pin 1:	Reversal of the direction of rotation ccw = permanently active HIGH signal when the shaft stands still
Pin 2:	Reset to zero For a reset to zero, connect pin 8 and pin 2 for 30 seconds
Pin 3:	Data activated: HIGH > 0.7 x L+ deactivated: LOW < 0.3 x L+
Pin 4:	Data (inv.)
Pin 5:	0 V
Pin 6:	Clock (inv.)
Pin 7:	Clock Monoflop starts with negative edge
Pin 8:	L+
Screen:	Housing

6 Operation

6.1 Data signals

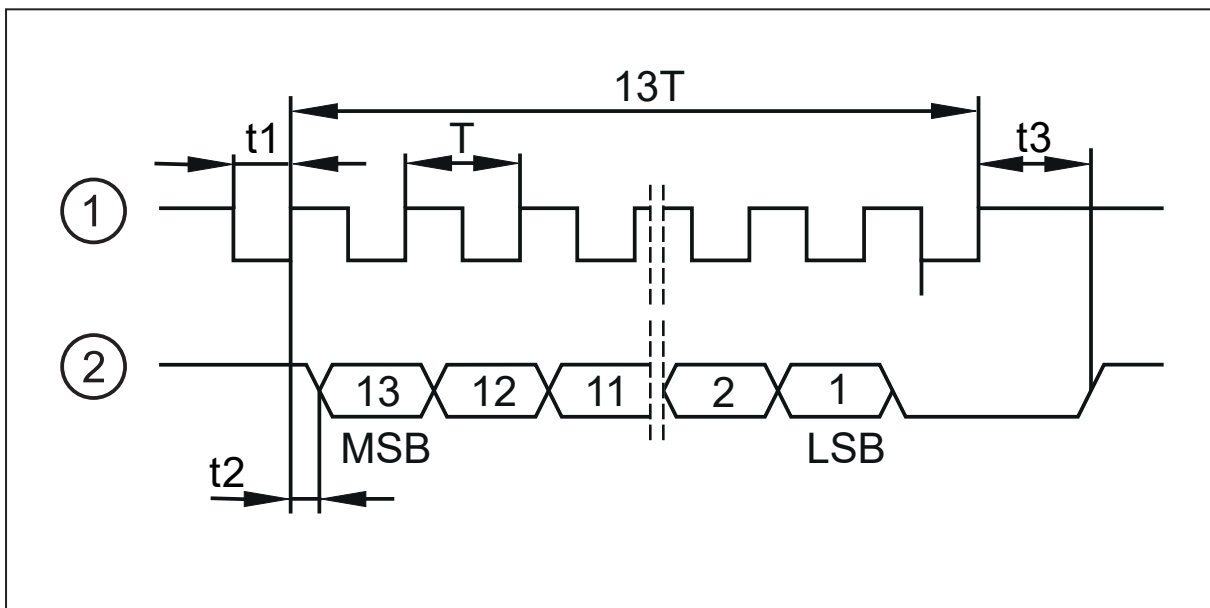
Code signal data input:

TTL compatible signals, clock and clock (inv.) from driver to RS 422

Code signal data output:

Synchronous serial, TTL compatible signals data and data (inv.)

6.1.1 Triggering of a data word



1: Clock

2: Data

$T = 1 \dots 10 \mu\text{s}$ / $t_1 \leq 0,5 \mu\text{s}$ / $t_2 < 0,4 \mu\text{s}$ / $t_3 \ 13 \dots 20 \mu\text{s}$

In quiescent condition the clock and data lines are "high". The current measured value is stored with the first falling clock edge. Data transfer begins with the first rising clock edge.

After transfer of a complete data word the data output remains low during the time t_2 , only then is the encoder ready to transmit the next measured value. If during this time there is a new request for data output (clock), the data which have already been provided are provided again.

In this case the data output is "low" between LSB (Least Significant Bit) of the first transfer and MSB (Most Significant Bit) of the second transfer.

If the data output is interrupted ($\leq t_2$), a new measured value is stored with the next clock edge. The external electronics reads the data with the rising clock edge.

6.1.2 Level of the control inputs

When the control inputs Reset to zero and Reversal of the direction of rotation are used, the following requirements for the signal levels have to be adhered to:

Inactive: $\text{LOW} < 0,25 \times U_b$ / Active: $\text{HIGH} > 0,6 \times U_b$

Switching time: min. $> 1 \text{ ms}$

Reversal of direction of rotation

By permanent application of L+ to pin 1, the direction of rotation for increasing position values is reversed.

Reset to zero

To use the function Reset to zero, the shaft has to be stopped. A reset to zero when the shaft is rotating can lead to incorrect position values. By application of L+ to pin 2 for at least 30 s, the current position value is set to zero.

7 Maintenance, repair and disposal

The unit is maintenance-free.

- ▶ Contact ifm in case of malfunction.
- ▶ Do not open the housing as the unit does not contain any components which can be maintained by the user. The unit must only be repaired by the manufacturer.
- ▶ Clean the device using a dry cloth.
- ▶ Dispose of the unit in accordance with the national environmental regulations.