

# Rexroth ROV Encoder Junction for Servo-Systems

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Edition 01

Project Planning Manual



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*This documentation is used:* This documentation serves

- to introduce the encoder junction,
- to assist in the selection of the correct encoder junction,
- to assist in ordering the junction,
- and to assist in mounting and installing the encoder junction.

*Change procedures*

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# 1. Introducing the ROV Encoder Junction

**Application** Numerically-controlled machines are equipped with position measuring systems. Depending on the drive concept of such machines, the actual position value of a machine axis has to be evaluated by either a drive controller and an NC control unit or other, additional drive controllers.

**Signal origin** In the case of incremental position measuring systems, the actual position value is detected by an incremental encoder (signal origin) which has been mounted to the motor. It can also be calculated by the controller based on the known rotor position, and then relayed to the control unit in the form of an incremental encoder compatible signal. The ROV encoder junction makes it possible to use the isolated incremental encoder signal, and to do so in two ways.

**Example** It is possible to synchronize spindle drives on machine tools by branching the incremental encoder signals. The incremental encoder signal of the spindle position, which is generated by the controller of the master drive, can be simultaneously branched to the controller of the slave drive and the CNC control unit.

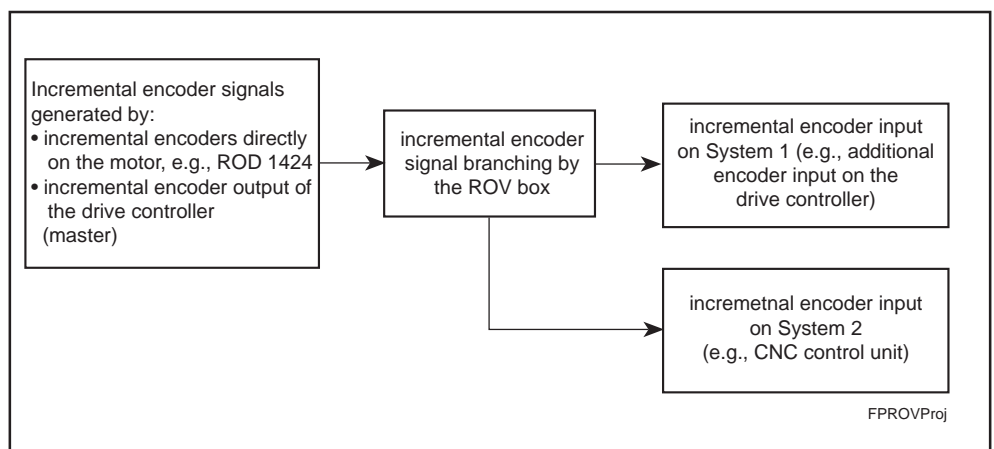


Figure 1.1: The basic principle of branching the ROV encoder signals

**Pre-requisite** The ROV encoder junction can only process incremental encoder signals generated by

- ROD incremental encoders and
- drive controllers with incremental encoder outputs.

**Features** The following are features of the ROV encoder junction:

- it is looped into the feedback cable (e.g., motor feedback),
- isolated incremental encoder signal branching,
- there is no reduction in the maximum cable length between encoder and receiver assembly group and,
- installation is simple because of the plug-in connectors and terminal strips.

## 2. Technical Data

### 2.1. Electrical Data

*Block diagram* The block diagram found in Figure 2.1 is schematic. It renders a general overview of the electrical connections required to implement the ROV encoder junction.

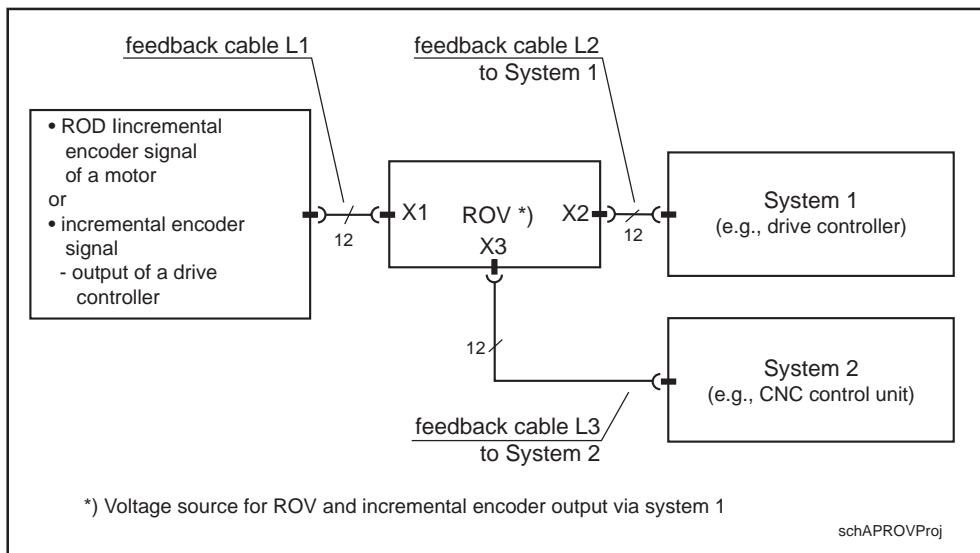


Figure 2.1: Schematic terminal diagram of an ROV encoder junction

Figure 2.2 or Figure 2.3 (plug or terminal connector) depict the allocation of the ROV encoder junction connections.

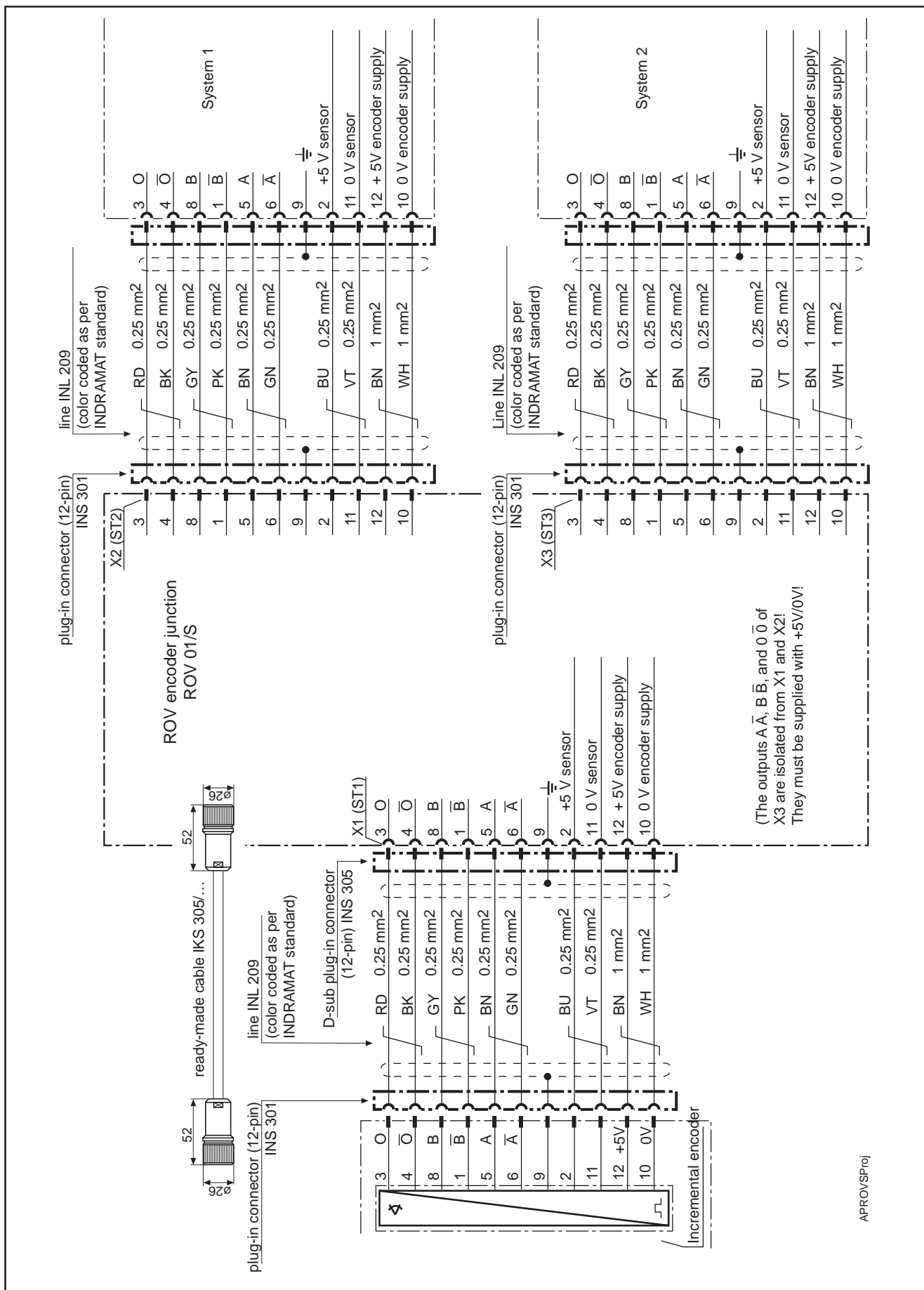
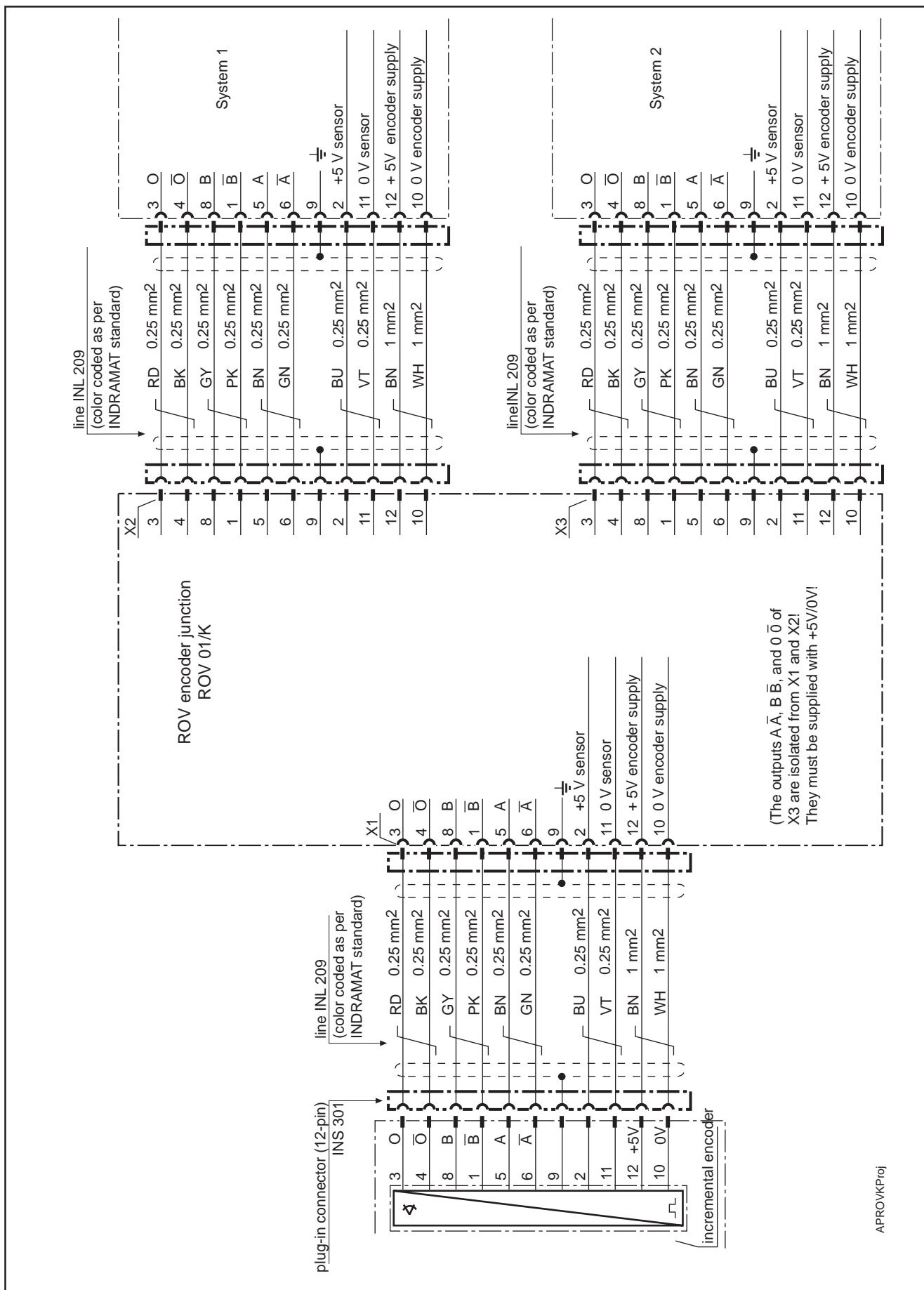


Figure 2.2: Terminal diagram of ROV encoder junction ROV01/S (plug connections)



APROVKProj

Figure 2.3: Terminal diagram of ROV oder junction ROV01/K (terminal connections)



## 2.2. Mechanical Data

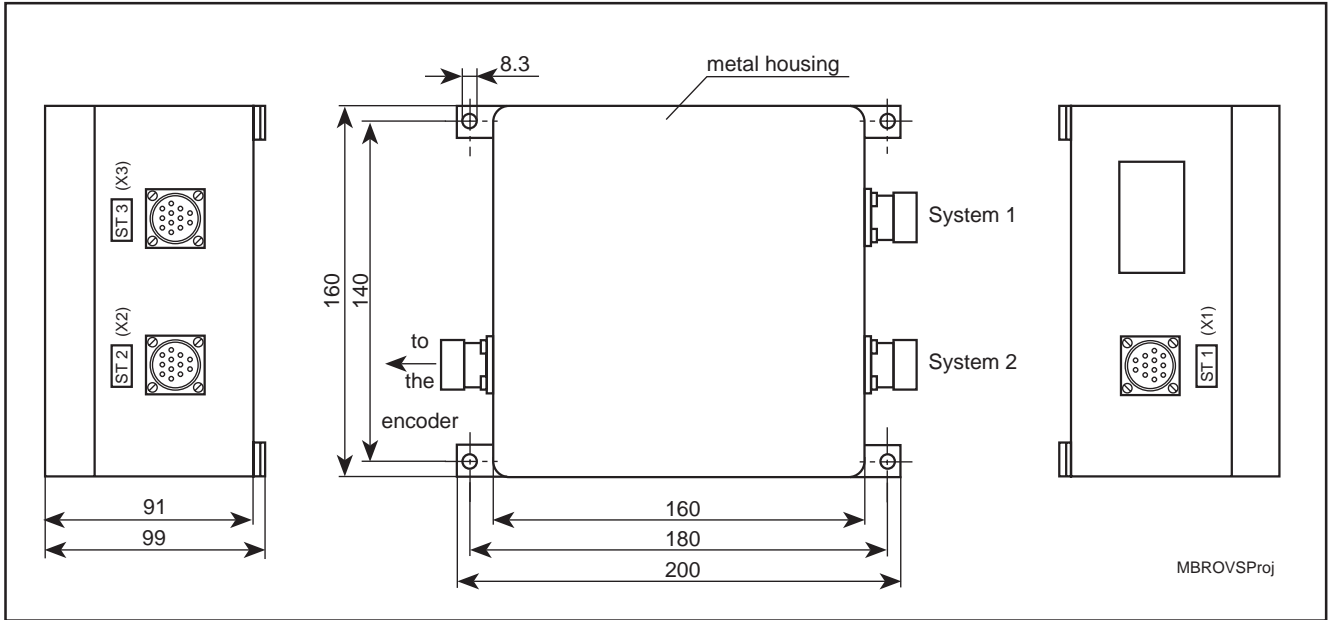


Figure 2.4: ROV 01/S with plug-in connections - dimensional data

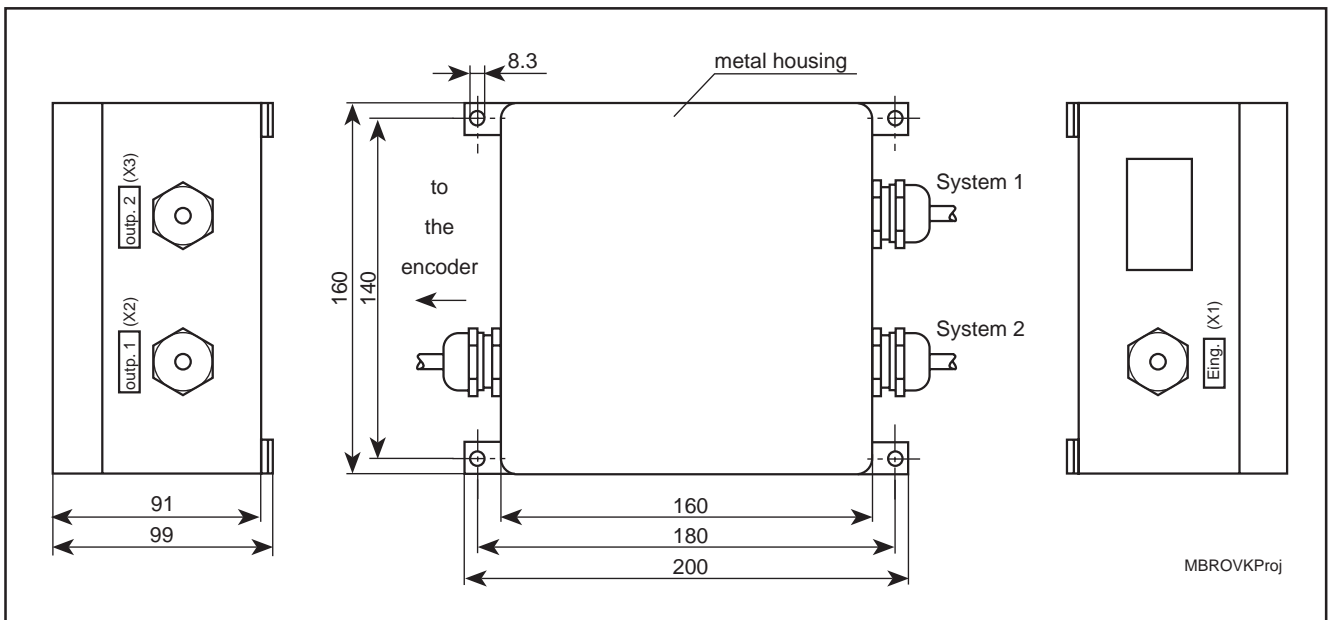


Figure 2.5: ROV 01/K with terminal connections and PG leadthrough

### 2.3. Technical Data

Technical data

Supply source	X2	U = DC +5 V ± 5% I = 130 mA + enc. current
	X3	U = DC +5 V ± 5% I = 90 mA
Input resistance	inverting inputs $\bar{A}$ , $\bar{B}$ , $\bar{O}$	min. 3.6 kΩ
	non-inverting inputs A, B, O	min. 1.5 kΩ
Signal level of the outputs	TTL: (LOW)	U <sub>out</sub> = 0...+0.4 V I = 32 mA
	TTL: (HIGH)	U <sub>out</sub> = +1.8 to +2.4 V I = 0.8 to 40 mA
Cable length (see Figure 2.1)	L1 + L2	≤ 30 m
	L3	≤ 50 m
Temperature range	0° to 55°	
Frequency range	0 to 300 kHz	
Protection category	IP 65	
Weight	approx. 2 kg	
Time lapse between input and output signals	≤ 0.5 μs	

Figure 2.6: Technical data of the ROV encoder junction

### 2.4. Available versions

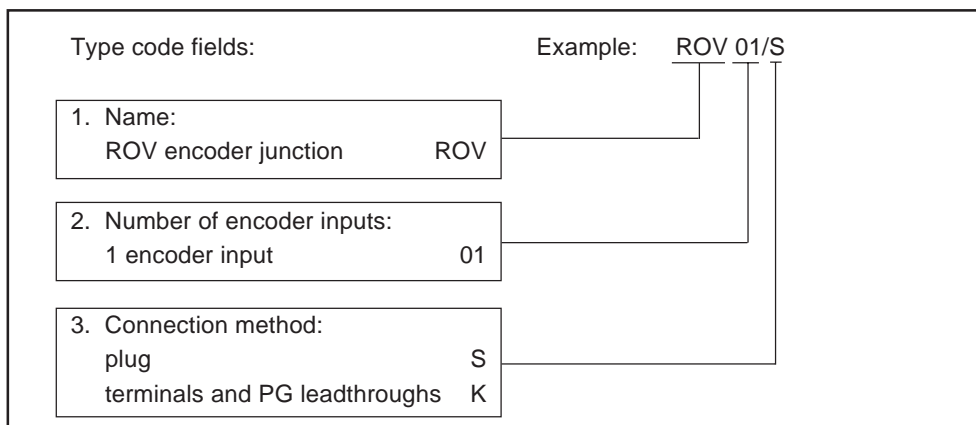


Figure 2.7: Available versions of the ROV encoder junction rendered with the use of type codes

## 2.5. Connecting Accessories

*ROV 01/S  
(with plug)*



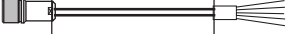

Interfaces	Ready-made cables	Construction of the cable		
		on the ROV	line	
X1 (ST 1)	IKS 305 	INS 305 	INK 209	INS 301
X2 (ST 2)	---	INS 301 	INK 209	-
X3 (ST 3)	---	INS 301 	INK 209	-

Figure 2.8: ROV 01/S - electrical connections

*ROV 01/K  
(with terminals)*

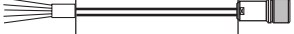


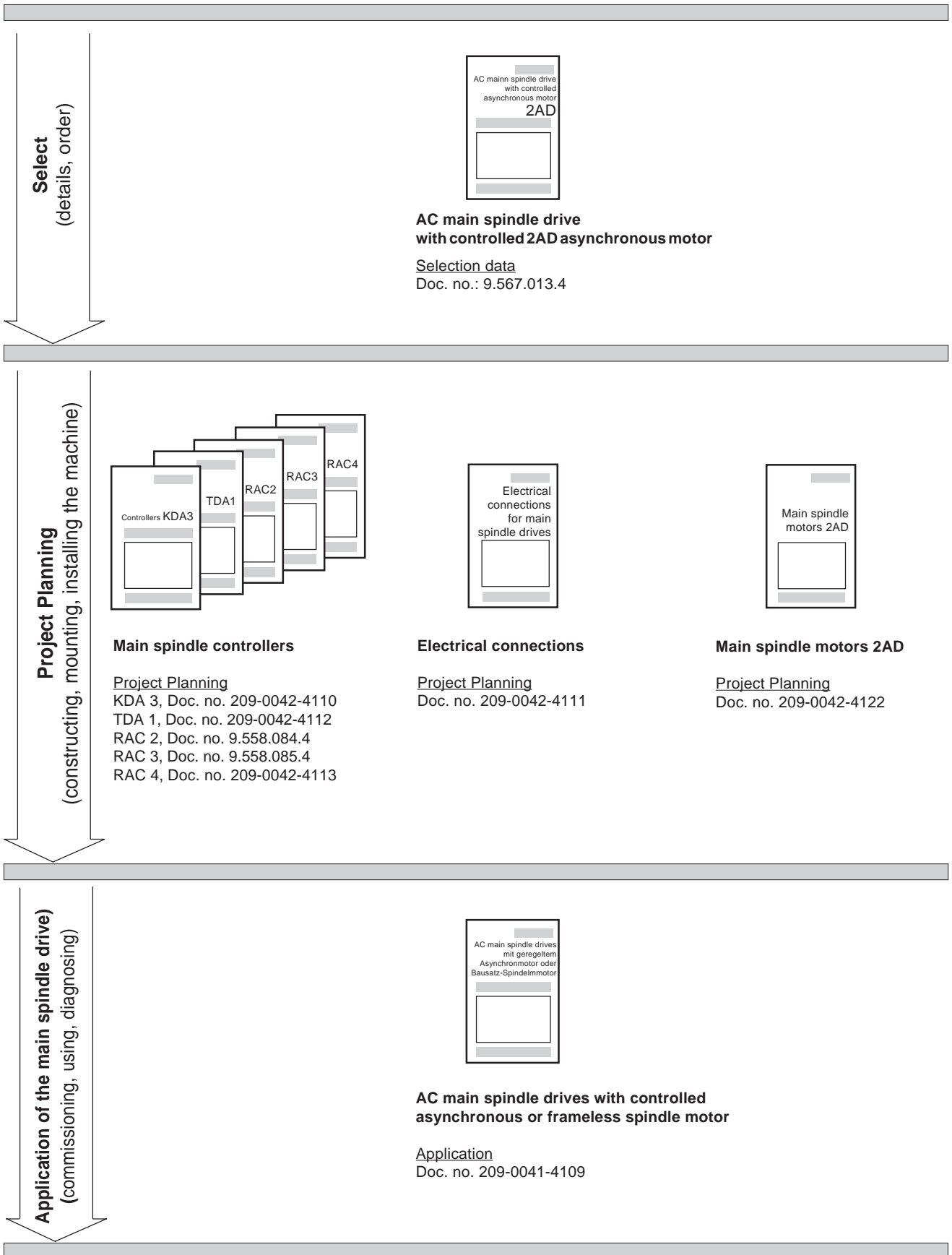
Interfaces	Ready-made cables	Construction of the Cable		
		on the ROV	line	
X1	---	--- 	INK 209	INS 301
X2	---	--- 	INK 209	-
X3	---	--- 	INK 209	-

Figure 2.9: ROV 01/K - electrical connections

Other types of plugs and connectors (e.g., angle connectors, plug-in types, etc.) are available from INDRAMAT upon request.

### 3. Supplementary documentation



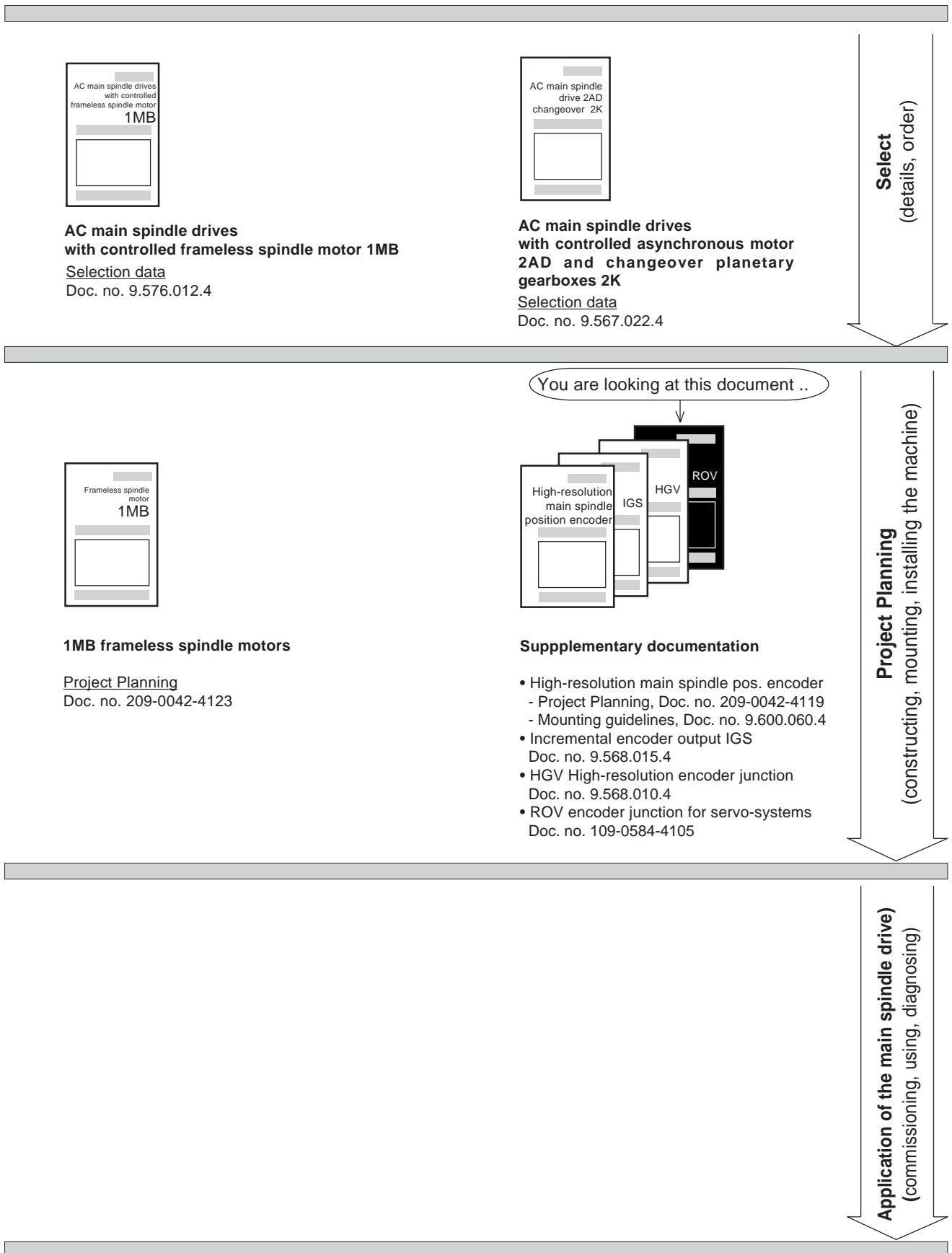


Figure 3.1: Supplementary documentation on "AC main spindle drives or 2AD main spindle motors and 1MB frameless spindle motor"

Bosch Rexroth AG  
Electric Drives and Controls  
P.O. Box 13 57  
97803 Lohr, Germany  
Bgm.-Dr.-Nebel-Str. 2  
97816 Lohr, Germany  
Phone +49 (0)93 52-40-50 60  
Fax +49 (0)93 52-40-49 41  
service.svc@boschrexroth.de  
www.boschrexroth.com



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