

2-channel speed sensor

▶ GEL 2477

Sensor with pulse multiplier

SENSORLINE

▶ **LENORD+BAUER**

Technical information

Version 05.09



Description

- ▶ Speed sensor based on magnetic measurement principle
- ▶ Maintenance- and wear-free operation due to non-contact measurement of rotation
- ▶ Suitable for ferromagnetic target wheels
- ▶ Safe detection of slow rotation from 0 Hz without pulse loss and for high-speed rotation up to 25 kHz
- ▶ Two channels shifted by 90° provide the direction of rotation
- ▶ Robust and compact stainless steel housing suitable for harsh application
- ▶ Simple flange mounting
- ▶ Customized cable fittings

Features

- ▶ Measuring range 0 Hz to 25 kHz
- ▶ High resolution due to pulse multiplier
- ▶ Temperature range -40 °C to +120 °C
- ▶ Protection class IP 68
- ▶ Type test according to EN 50155

Fields of application

- ▶ Rail vehicles
 - Traction control
 - Anti-slip
 - Motor speed
- ▶ Automation
 - Measurement of speed and positions at gears, motors and roller

Output signals

- ▶ 2-channel square-wave signals, 90°-shifted, inversed signals

Technical data

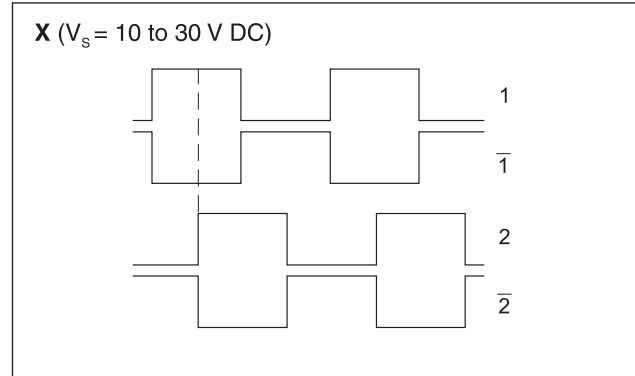
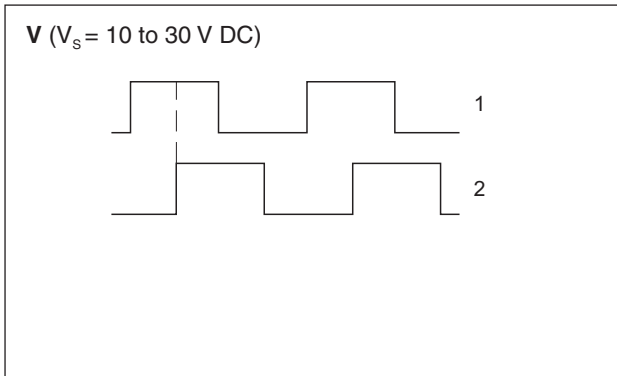
Signal pattern	V	X
Electrical data		
Supply voltage V_S (reverse polarity protected)	10 to 30 V DC	
Current consumption per channel I_S (without load)	≤ 50 mA	
Output signal (short circuit-proof)	square-wave signals	
Output signal level high ⁽¹⁾	$\geq V_S - 0.8$ V	
Output signal level low ⁽¹⁾	≤ 0.5 V	
Output current per channel	≤ 20 mA	
Input frequency target wheel	0 to 25 kHz	
Output frequency ⁽²⁾	0 to 50 kHz / 0 to 100 kHz / 0 to 200 kHz	
Duty (depends on measuring scale and air gap)	50% \pm 30 %	
Phase shift	typ. 90°	
Slew rate (2 m cable)	≥ 10 V/ μ s	
Electromagnetic compatibility	rail vehicles (EN 50121-3-2) industrial applications (EN 61000-6-1 to 4)	
Insulation	500 V AC (EN 60439-1)	
Mechanical data		
Module m target wheel	1.00 (D.P. = 25.4)	
Permissible air gap	0,8 mm (0,4...1,0 mm)	
Width of target wheel	≥ 10 mm (smaller ones on request)	
Form of target wheel	involute gear as per DIN 867, slotted disk (on request)	
Material of target wheel	ferromagnetic steel	
Operating and ambient temperature	-40°C to +120 °C	
Storage temperature	-40°C to +120 °C	
Protection class	IP 68	
Vibration resistance	EN 61373 cat. 3	
Shock resistance	EN 61373 cat. 3	
Typ test	EN 50155	
Housing material sensor	stainless steel	
Weight sensor (2 m cable)	approx. 650 g	
Cable		
Electrical connection	Cable halogen free and screened (specification on request) cable outlet straight or on the side	
Cable length	≤ 100 m	
Cable diameter	8.2 mm	
Cable cross section	6 x 1.0 mm ²	
Cable type	LK1069	
Bending radius static / dynamic	24 mm / 41mm	

(1) Output signal level depends on output current and the temperature

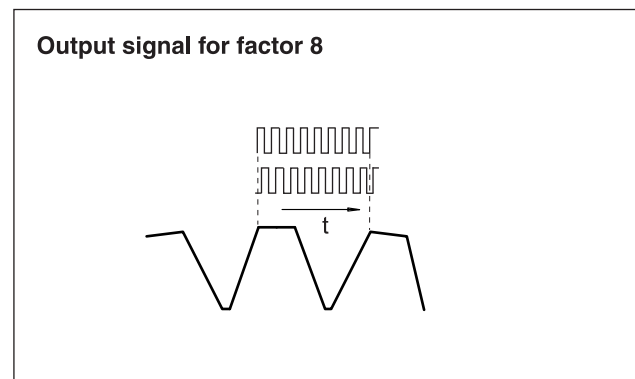
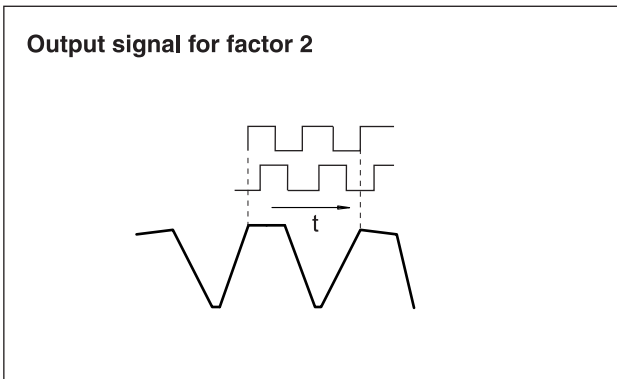
(2) Max. value of output frequency belongs to multiplication factor (2x, 4x, 8x) and is also dependent von cable length, load and temperature.

Signal pattern, Output signals Signal level, Electrical connection

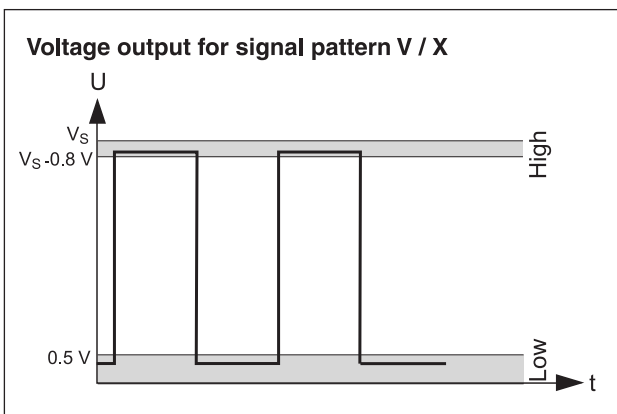
Signal pattern



Output signals



Signal level



Electrical connection

Electrical connection for signal pattern V / X

Signal pattern	V	X
channel 1	yellow	yellow
channel 2	white	white
channel $\bar{1}$		black
channel $\bar{2}$		brown
GND (0 V)	blue	blue
+ V_S (10 to 30 V DC)	red	red
Cable / screen	1 / 1	1 / 1

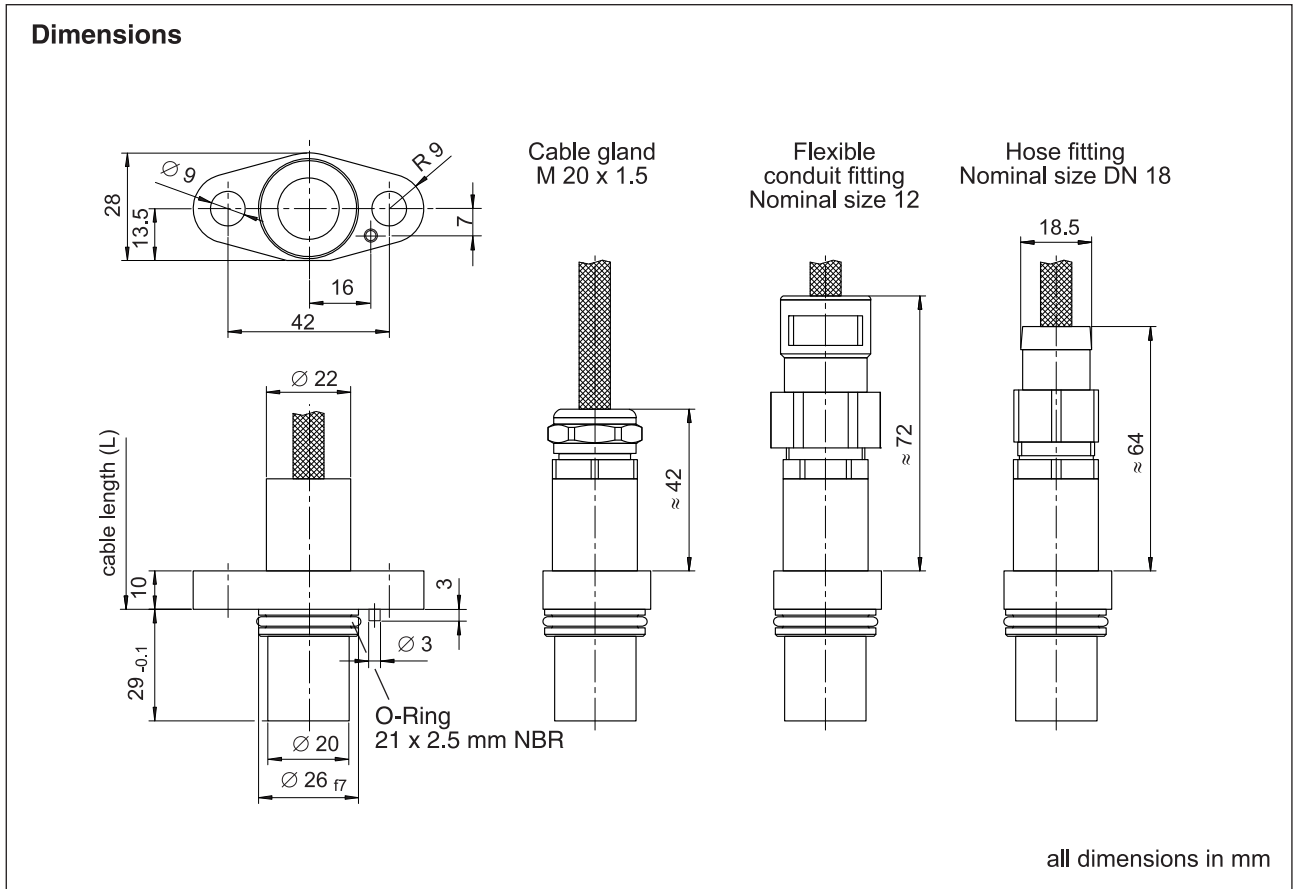
Explanations:

1, 2 = channel 1, channel 2

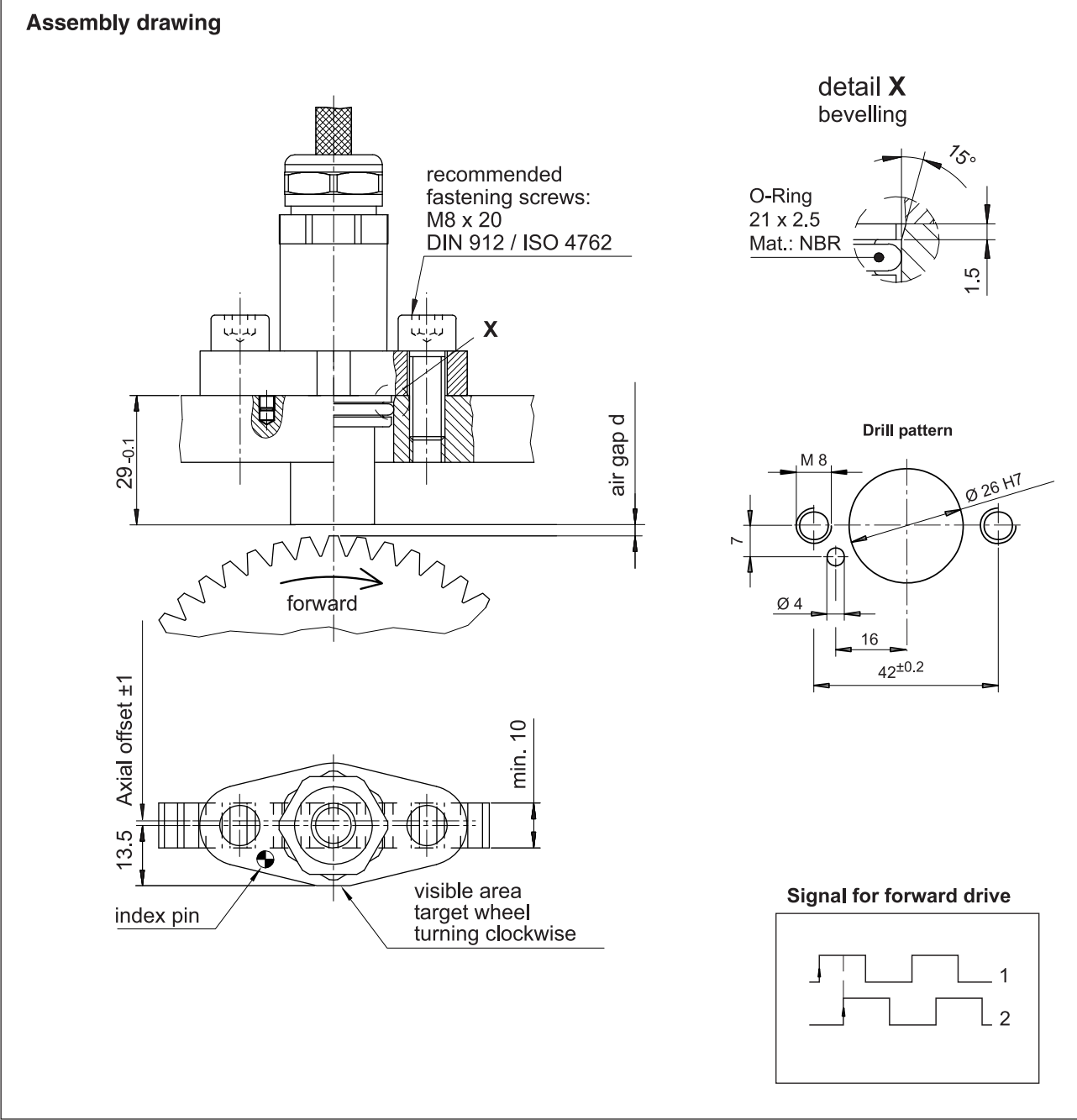
$\bar{1}$, $\bar{2}$ = invers channel 1, invers channel 2

V_S = supply voltage

Dimensions



Assembly drawing



Please observe the EMC-reference into the operating instruction!

Type code

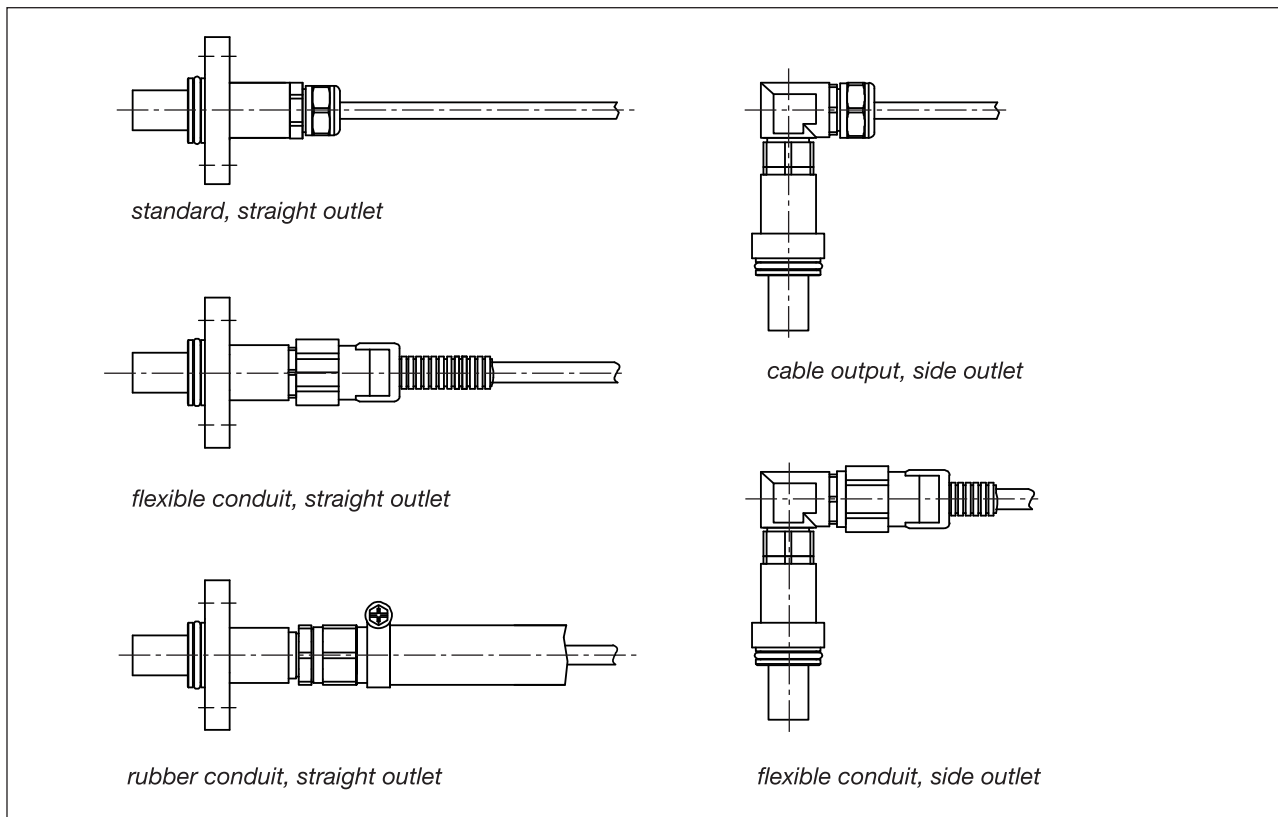
Type code GEL 2477

		Signal pattern	
		V	2-channel square-wave signals shifted by 90°
		X	2-channel square-wave signals shifted by 90° and their inversed signals
		Module m	
100		module 1.00	
		Cable screen	
		L	connected to sensor housing
		P	not connected to sensor housing
		Factor	
		02	Multiplication factor 2
		04	Multiplication factor 4
		08	Multiplication factor 8
		Cable outlet	
		K	cable gland
		W	flexible conduit fitting
		G	hose fitting
		Cable length L	
		000	cable length in cm
		Customising	
		N	standard version
		S	special version
2477	---	---	---

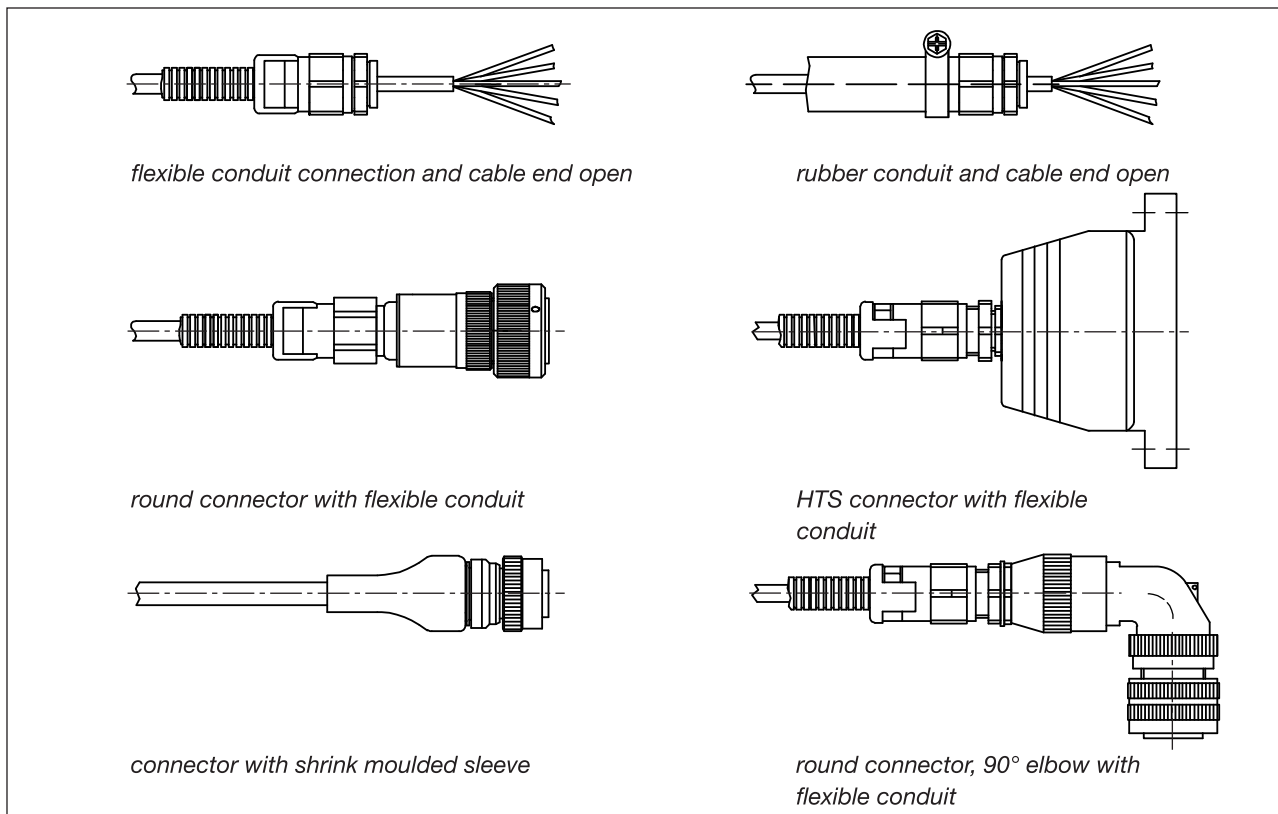
Notes: For a special customized version a Y-No. will be created. A special version 2477Yxxx is manufactured according to a drawing or application description and could differ from the technical standard specification.

Example for customized cable connections

Encoder end



Cable end



We have agencies in:

Austria
Belgium
Canada
China
Czech Republic
Denmark
Finland
France
Germany
Great Britain
Israel
Italy
Korea
Malaysia
Netherlands
Norway
Portugal
Sweden
Switzerland
Spain
Turkey
USA



... automates motion.

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Subject to technical modifications and typographical errors.
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