200350-02-00-CN

Housing-Mounted Piezoelectric Accelerometer

B2 ASSOCIATION APTERPLC-CREATED PAGE - NOT A MANUFACTURER DOCUMENT

Purpose and evidence boundary

This page associates the exact ApterPLC model string with ordering-code definitions found across the cited official family documents. The manufacturer does not print the complete SKU as one continuous string on the selected pages. Verify the supplied-unit nameplate, markings, connected system length and installation geometry before ordering or replacement.

Exact-model association

200350	General-purpose case-mounted accelerometer family.
02	1/4-28 to M8 x 1.25 stainless-steel mounting stud.
00	100 mV/g nominal sensitivity, plus or minus 20 percent.
CN	China country-specific ordering option; verify delivered-unit markings.

Official manufacturer pages included

200350 and 200355 Accelerometers Datasheet, 164804 Rev. T - complete source pages 1-6, 9, 13.

Approvals Quick Reference Guide, 108M1756 Rev. AV - complete source pages 1, 10, 28.

Use this first page for document navigation only; manufacturer content starts on PDF page 2.

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200350 and 200355 Accelerometers

Datasheet

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164804 Rev. T



1.1 Description

The 200350 and 200355 Accelerometers are general purpose, case-mounted seismic transducers designed

for use with Trendmaster Pro Constant Current Direct Input Card, part number 149811-02 and the Seismic Direct Input Card, part number 164746-01.

The 200350 and 200355 Accelerometers are contained within a hermetically sealed, stainless steel case. The design provides an extremely rugged transducer, well suited for harsh industrial environments. Each transducer's top mounted, 2-pin connector (MIL-C-5015) allows for easy installation and removal of the interconnecting signal cable. A ¼-28 threaded hole on the bottom of the casing accommodates multiple mounting options.

The 200350 and 200355 Accelerometers contain a piezoelectric sensing device, which generates charge when subjected to vibration. This charge is then converted electronically to a differential voltage signal, which is proportional to the acceleration that is parallel to the sensitive axis of the transducer.

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Most common machine malfunctions (unbalance, misalignment, etc.) occur on the rotor and originate as an increase (or at least a change) in rotor vibration. For any individual casing measurement to be effective for overall machine protection, the system must continually transmit a significant amount of rotor vibration to the machine casing, or mounting location of the transducer.

In addition, be careful to install the accelerometer transducer on the bearing housing or machine casing. Improper installation may decrease the transducer amplitude and frequency response and/or generate false signals that do not represent actual vibration. Refer to the appropriate instruction manuals and Application Notes.

Upon request, Bently Nevada provides engineering services that can identify the appropriate machine housing measurements and installation assistance if needed.

1.2 Specifications

Parameters are specified from +20 to +30 °C (+68 to +86 °F) and 100 Hz unless otherwise indicated.

Safety Caution

Operation outside the specified limits will result in false readings or loss of machine monitoring.

Do not use sensor part number 200350 for negative excitation voltage (-Vex).

Electrical

	200350	200355
Sensitivity	100 mV/g ±20% (10.2 mV/m/s^2 ±20%)	100 mV/g ±5% (10.2 mV/m/s^2 ±5%)
Frequency Range (±3 dB)	30-600,000 cpm (0.5-10,000 Hz)	12-600,000 cpm (0.2-10,000 Hz)
Measurement Range	± 50 g	
Transverse Sensitivity	≤ 7%	≤ 5%
Amplitude Linearity	± 1%	
Mounted Resonant Frequency	1500 kcpm (25 kHz)	1250 kcpm (20.8 kHz)
Broadband Electrical Noise (1-10kHz)	350 µg (3,434 µm/s^2)	50 µg (491 µm/s^2)
Output Bias Voltage	8 to 12 VDC	
Excitation Voltage	18 to 28 VDC	
Constant Current Excitation	2 to 20 mA	

Settling Time (within 1% of bias)	≤ 2.0 sec	≤ 5.0 sec
Output Impedance	< 150 ohms	< 100 ohms
Discharge Time Constant	≥ 0.3 sec	≥ 0.8 sec
Electrical Isolation (Case)	> 10^8 ohms	

Environmental

Operating Temperature Range	-65°F to +250 °F (-54°C to +121 °C)
Shock Survivability	5,000 g pk
Relative Humidity	100% relative, condensing, non-submerged
Enclosure Rating	IP68

Physical

	200350	200355
Hex Size	11/16" (18 mm)	7/8" (22mm)
Height	1.65" (42.4 mm)	2.06" (52.3 mm)
Weight	1.8 oz (51 grams)	3.3 oz (94 grams)
Mounting Thread	1/4-28 Female	
Mounting Torque (Maximum)	2 to 5 ft-lb (2.7 to 6.8 N-m)	

Sensing Element	Ceramic
Sensing Geometry	Shear
Housing Material	Stainless Steel
Sealing	Welded Hermetic
Electrical Connector	2-Pin Mil-C-5015
Electrical Connection Position	Top
Recommended cable length (assuming max vibration of 50g, frequency 10 kHz, and cable capacitance 200 pf/m.) For longer lengths, contact Bently Nevada Tech Support.)	104 ft (31 m)

1.3 Compliance and Certifications

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

EMC Directive 2014/30/EU

RoHS

RoHS Directive 2011/65/EU

ATEX

60079-01

60079-07

60079-11

60079-15

ATEX Directive 2014/34/EU

1.4 Hazardous Area Approvals

For the detailed listing of country and product-specific approvals, refer to the *Approvals Quick Reference Guide (108M1756)*.

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

CSA/NRTL/C

For **200350**:

Intrinsically Safe	Ex ia IIC T4 Class I, Division 1, Groups A, B, C, D AEx ia IIC T4 Class I, Division 1, Groups A, B, C and D T4 @ -54 °C ≤ Ta ≤ +121 °C (-65.2 °F ≤ Ta ≤ 249.8 °F) Per drawing 175825
Intrinsically Safe and Non-Incendive	Ex nL IIC T4 Class I, Division 2, Groups A, B, C, D AEx nA T4 Class I, Division 2, Groups A, B, C and D T4 @ -54 °C ≤ Ta ≤ +121 °C (-65.2 °F ≤ Ta ≤ +249.8 °F) per drawing 17582

ATEX/IECEx

For **200350**:

Ex II 1 G
Ex ia IIC T4 Ga

Ex II 3 G
Ex nA IIC T4 Gc
Ex ec IIC T4 Gc

T4@ Ta = -54°C to 121°C

Entity Parameters:

Zone 0/1	Zone 2
Ui= 28V	Ui= 28V
Ii= 200mA	Ii= 200mA
Pi= 1W	Pi= 1W
Ci=16.2 nF	
Li= 0	

1.5 Hazardous Area Conditions of Safe Use

ATEX/IECEx

Zone 0/1:

Equipment must be connected to equipment, which meets the above listed entity parameters.

The cables type A or B (in compliance with EN 60079-25) must respect the cable parameters listed with the entity parameters.

Zone 2 :

The supply electrical parameters shall not exceed the values mentioned in the tables above.

2.1 Ordering Information

For the detailed listing of country and product-specific approvals, refer to the *Approvals Quick Reference Guide (108M1756)*.

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

200350 Accelerometer

200350 – AA - BB - CC

A: Mounting Stud	
00	¼-28 SS w/ Brass tip, 0.5”
01	¼-28 to M6 x 1.00 Stainless Steel
02	¼-28 to M8 x 1.25 Stainless Steel
09	No mounting stud
10	1/4 -28 Adhesive Stud Mount
11	M6x1 Adhesive Stud Mount
12	M8x1.25 Adhesive Stud Mount
13	Magnetic Base Kit
B: Tolerance	
00	100 mV/g ± 20% (10.2 mV/m/s^2 ±20%)
C: Approvals	
00	No Approvals
01	CSA, ATEX, IECEx

200355 Accelerometer

200355 – AA – BB - CC

A: Mounting Stud	
00	¼-28 SS w/ Brass tip, 0.5”
01	¼-28 to M6 x 1.00 BeCu
02	¼-28 to M8 x 1.25 BeCu
09	No mounting stud
10	1/4 - 28 Adhesive Stud Mount
11	M6x1 Adhesive Stud Mount
12	M8x1.25 Adhesive Stud Mount
13	Magnetic Base Kit
B: Tolerance	
00	100 mV/g ± 5% (10.2 mV/m/s^2 ±5%)
C: Approvals	
00	No Approvals

2.2 Accessories

168303	200350 and 200355 Accelerometer User Guide
162411	Trendmaster Pro System User Guide
149831	Trendmaster DSM Datasheet
149823	Trendmaster DSM User Guide

Mounting Studs

Dimensional diagrams of all available mounting studs are shown in Graphs and Figures

164373	¼-28 Mounting Stud
164372	M6x1 Mounting Stud
167559	M8X1.25 Mounting Stud

3. Graphs and Figures

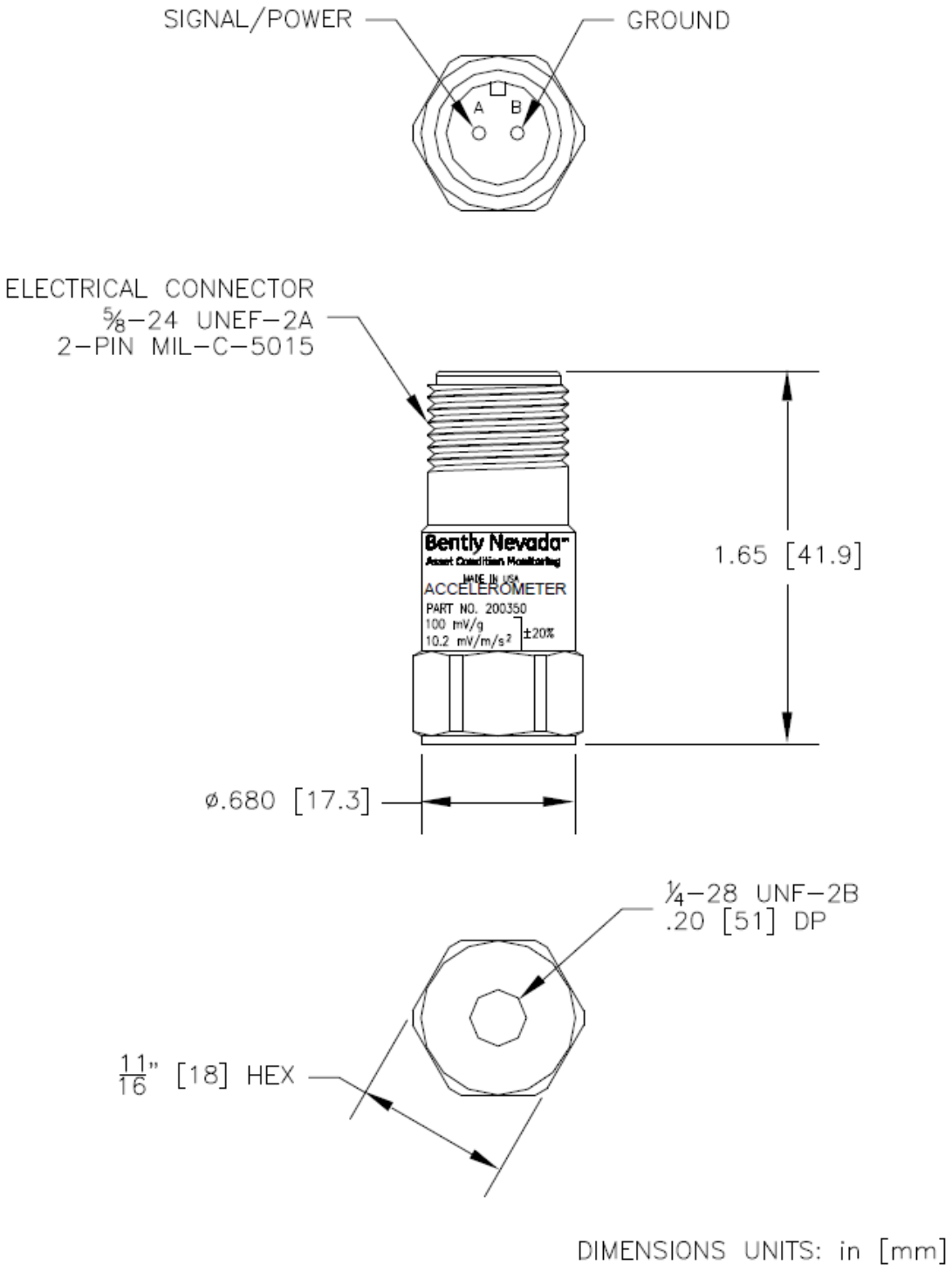


Figure 3 - 1: 200350 Accelerometer Dimensional Drawing

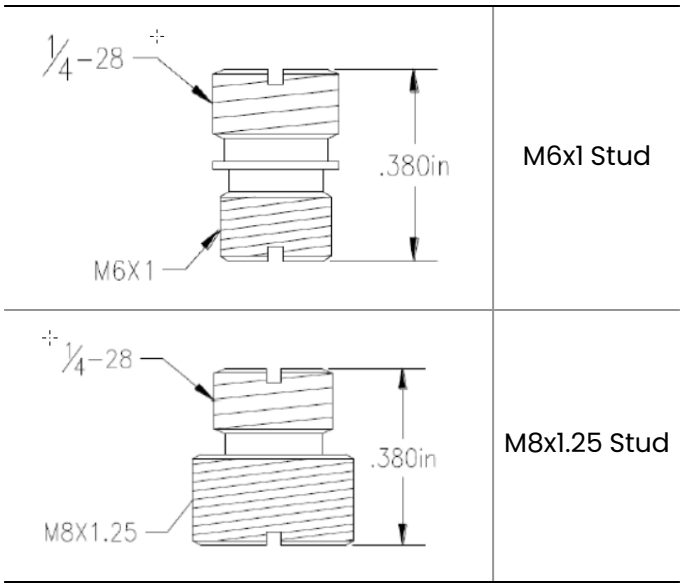


Figure 3 - 8: Mounting Stud Dimensional Drawings

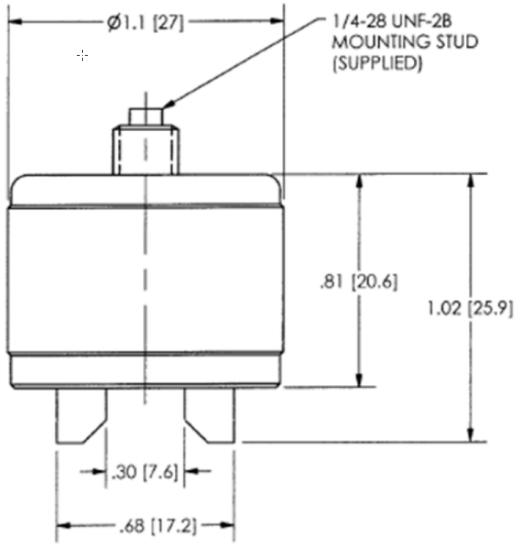


Figure 3 - 9: Magnetic Base Dimensional Drawing

Approvals Quick Reference Guide

Country Specific Ordering Options

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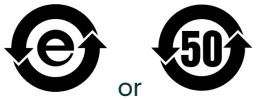
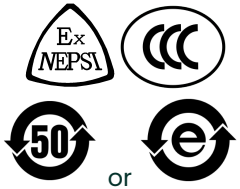
108M1756 Rev. AV

Document Summary

This reference guide represents an overview of all country-specific approvals available for customer order listed by product.

1. Approval Options in Use
   An overview of each country code option, with appropriate markings and requirements.
   - -00 approval option (No Approvals) on page 3.
   - -01 approval option ('NORTH AMERICA' or 'C/US' or 'cNRTLus' Approvals) on page 4.
   - -02, -05 approval option (Multi-Approvals) on page 5.
   - Country Specific Approvals on page 6.
2. Quick Reference by Product
   A quick reference table by product type and part number to identify which country-specific approvals are available to order.
   - Monitors
   - Portables
   - Radio Devices
   - Distributive
   - Transducers
   - Orbit60

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Region/Country	Area of Use	-Option	Country Specific Sample Marking	Description
China	**Safe Area**	**-CN0**	 or	Choose this approval option for safe area use when available. Covers the general requirements such as CN RoHS, EMC, LVD and Radio Type Approval as applicable. When not available/not applicable: - Choose -00 for safe area use Note: For Velomitors and Accelerometers where no "-CN0" option is available, choose "-CN" approval option as it provides necessary markings.
	Hazardous Area	**-CN**	 or	Choose this approval option for hazardous area use, covers the NEPSI/CCC requirements as applicable. Covers Radio Type Approval for wireless devices. Includes ATEX/IECEx hazardous area markings and rating on the product as applicable. Note: Choose this for any new 3500 product orders to China due to issues with the -00 label at customs clearance. This is valid until the product line goes to P3. Spares are not affected.
Guyana	**Safe or Hazardous Area**	**–GY**		Choose this approval option for safe area/hazardous area use when available. Covers Guyana Radio Type Approval and the general/hazardous area requirements as applicable. When not available/not applicable: - Choose -00 for safe area use - Choose -02 or -05 for hazardous area use
Indonesia	**Safe or Hazardous Area**	**–ID**	QR code and certificate information required	Choose this approval option for safe area/hazardous area use when available. Covers Indonesia Radio Type Approval and the general/hazardous area requirements as applicable. When not available/not applicable: - Choose -00 for safe area use - Choose -02 or -05 for hazardous area use

Proximity																													
P/N	00	01	02	05	AE	AE0	AU	AZ	AZ0	BR	BY	BY0	CN	IN	JP	K0	KR	KZ	MA	MA0	NZ	R0	RU	TW	U0	UA	UK	UZ	UZ0	ZA
330705	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
330706	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
330707	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
330708	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330709	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330710	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330780	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330850	✓	×	×	✓	✓	✓	×	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330851	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330876	✓	×	×	✓	✓	✓	×	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330878	✓	×	×	✓	✓	✓	×	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330901	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330902	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330903	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330904	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330905	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓
330906	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330907	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330908	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330909	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330910	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓
330980	✓	×	×	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓

Seismic Acceleration																																							
P/N	00	01	02	04	05	AE	AE0	AR	AU	AU/NZ	AZ	AZ0	BR	BY	BY0	CN	CN0	DZ	IN	JP	K0	KR	KR0	KZ	MA	MA0	NZ	OM	R0	RU	TH	TW	TZ	TZ0	U0	UA	UK	UZ	UZ0	ZA
200350	✓	✓	×	×	×	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	×	✓	✓	×	✓	×	✓

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