

Incremental Shaft Encoders

Industrial types

Type RI 58-D

Hollow shaft



- Flexible hollow shaft design up to diameter 14 mm
- Short overall length
- Easy installation by means of clamping shaft or blind shaft
- Application e.g.:
 - actuators
 - length measuring machines
 - motors
- Operating temperature up to 100 °C (RI 58 TD)
- Various shaft versions:
 - Mounting code E = Blind shaft (not through)
 - Mounting code F = Clamping shaft (not through)
 - Mounting code D = Clamping shaft (solid shaft)

NUMBER OF PULSES

RI 58-D

1 / 2 / 3 / 4 / 5 / 10 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / **2500** / 3000 / 3480 / **3600** / 4000 / **4096** / **5000**

RI 58 TD

(high temperature) as above, but only for the range from 4 ... 2500 pulses
Other number of pulses on request
Preferably available versions are printed in bold type.

TECHNICAL DATA mechanical

Mounting	Synchro flange with clamping shaft or blind shaft
Shaft diameter	Hollow shaft 10 mm, hollow shaft 12 mm, hollow shaft 14 mm (not through)
Required dimensions of mounting shaft	Ø 10 mm, tolerance g8 (-0.005...-0.027 mm) Ø 12/14 mm, tolerance g8 (-0.006...-0.033 mm)
Absolute max. speed	E, F: max. 6 000 min ⁻¹ ; D: max 4 000 min ⁻¹
Torque	≤ 1 Ncm with non-through shaft (E, F) ≤ 2 Ncm with through shaft (D)
Moment of inertia	F: approx. 35 gcm ² (clamping non through shaft) E: approx. 20 gcm ² (end shaft) D: approx. 60 gcm ² (clamping through shaft)
Protection class (EN 60529)	E, F: housing IP65, bearings IP64 D: housing IP64, bearings IP64
Operating temperature	-10 ... +70 °C, Option: -25 ...+100°C
Storage temperature	-25 ... +85 °C
Vibration resistance (IEC 68-2-6)	10 g = 100 m/s ² (10 ... 2 000 Hz)
Shock resistance (IEC 68-2-27)	100 g = 1 000 m/s ² (6 ms)
Connection	1.5 m cable ¹ or connector, radial
Housing	Aluminium
Weight approx.	E, F: 170 g; D: 190 g

¹ Other cable length on request

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TECHNICAL DATA electrical

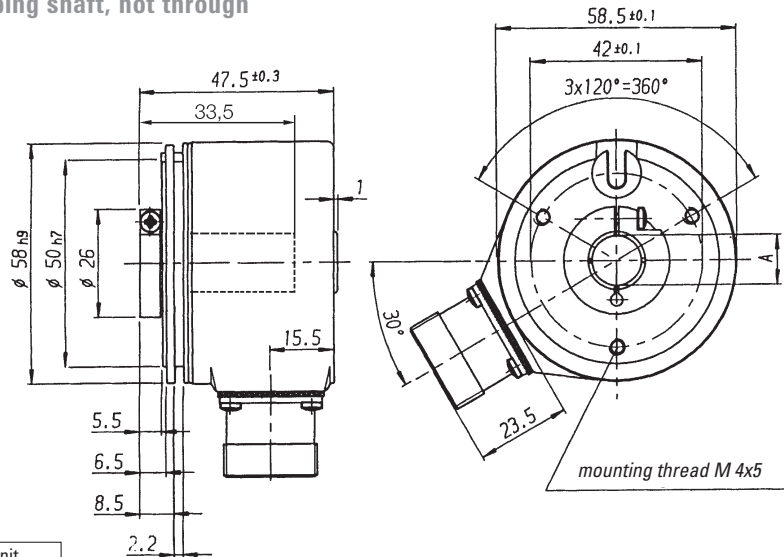
General design	as per DIN VDE 0160, protection class III, contamination level 2, overvoltage class II	
Supply voltage (SELV)	with RS 422 + Sense (T):	DC 5 V ± 10 %
	with RS 422 + Alarm (R):	DC 5 V ± 10 % oder DC 10 - 30 V ¹
	with push-pull (K, I):	DC 10 - 30 V ¹
Max. current w/o load	40 mA (5 VDC), 60 mA (10 VDC), 30 mA (24 VDC)	
Standard output versions ²	RS 422 (R):	A, B, N, \overline{A} , \overline{B} , \overline{N} , $\overline{\text{Alarm}}$
	RS 422 (T):	A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense
	push-pull (K):	A, B, N, $\overline{\text{Alarm}}$
	push-pull complementary (I):	A, B, N, \overline{A} , \overline{B} , \overline{N} , $\overline{\text{Alarm}}$

¹ Pole protection with supply voltage DC 10 - 30 V

² Output description and technical data see chapter "Technical basics"

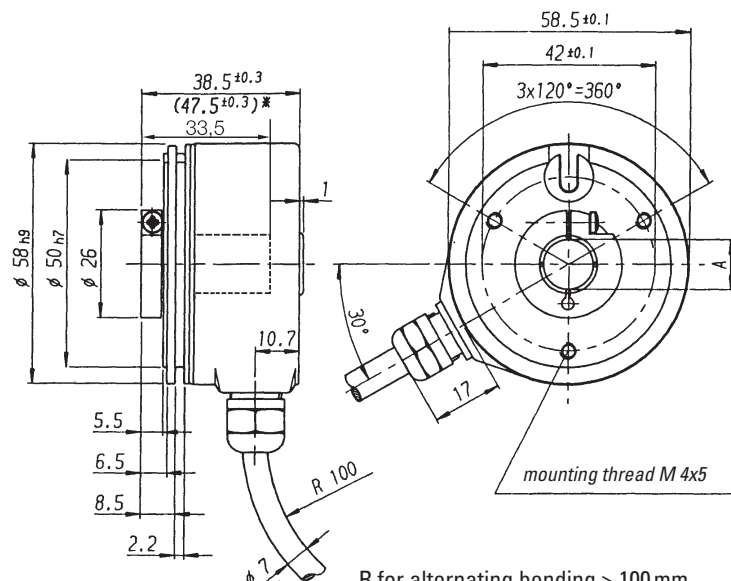
DIMENSIONAL DRAWINGS

Mounting = F: clamping shaft, not through



Dim.:	Hollow shaft Ø			Unit
A	10 ^{H7}	12 ^{H7}	14 ^{H7}	mm
A*	10 _{g8}	12 _{g8}	14 _{g8}	mm

A* = Diameter of connection shaft



Dimensions in mm

* with version 10-30 V RS 422

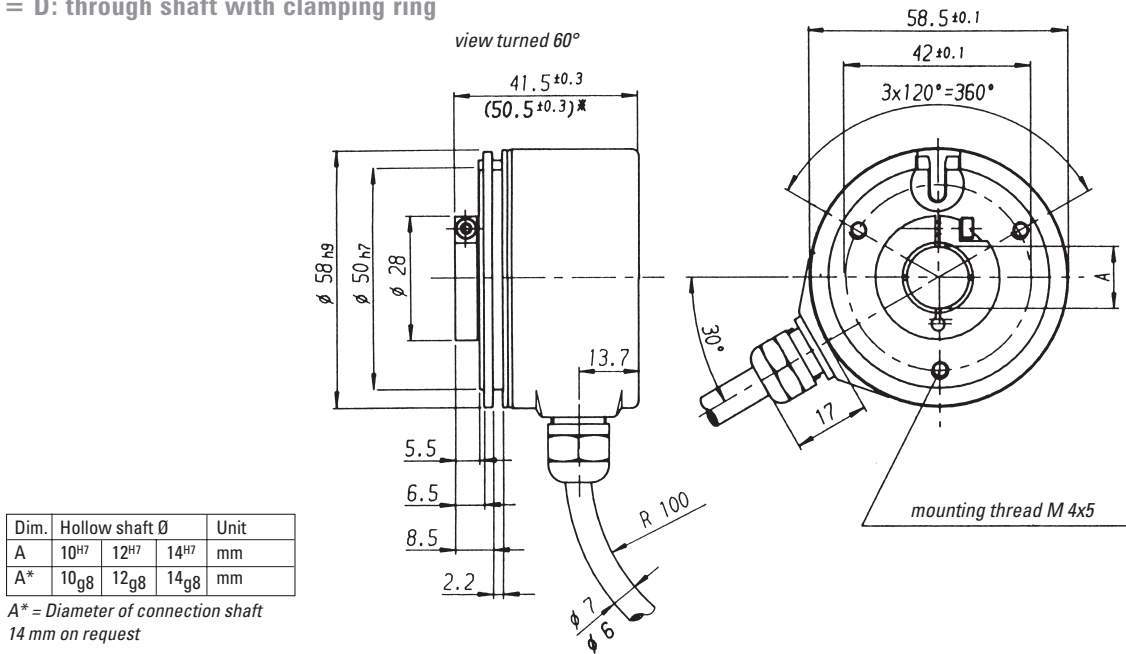
R for alternating bending > 100 mm
R for permanent bending > 40 mm

Incremental Shaft Encoders Industrial types

Type RI 58-D Hollow shaft

DIMENSIONAL DRAWINGS

Mounting = D: through shaft with clamping ring

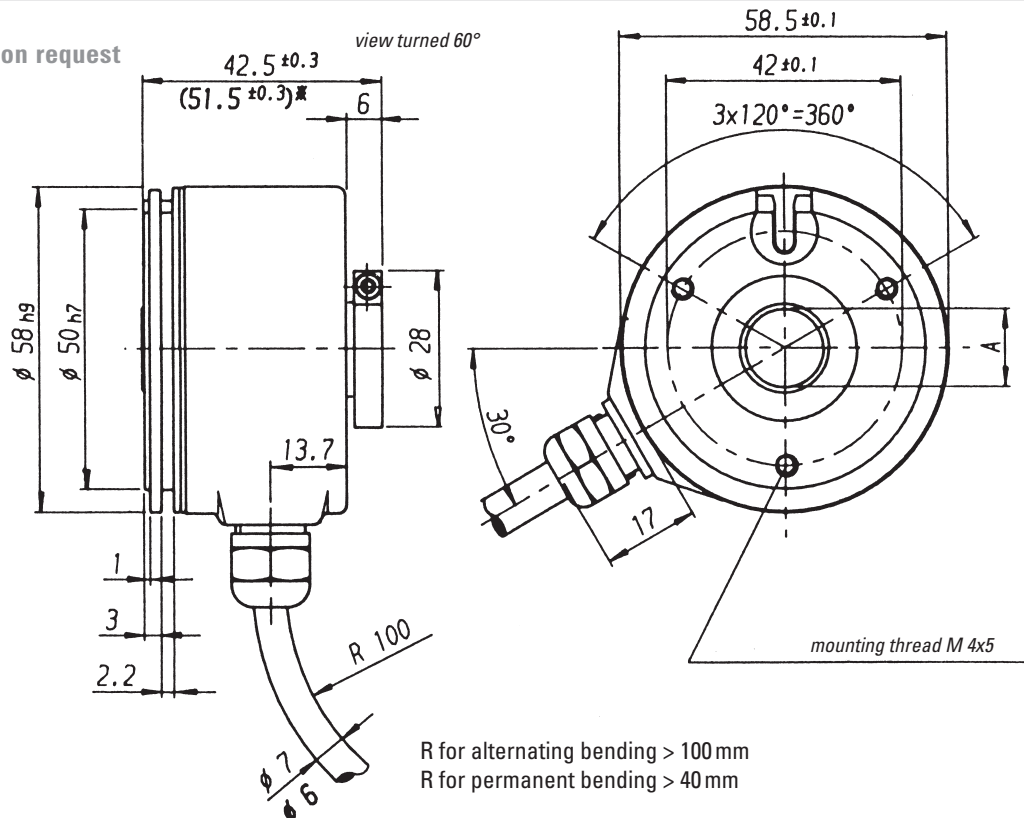


* with Version 10-30 V RS 422

Dimensions in mm

R for alternating bending > 100 mm
R for permanent bending > 40 mm

H optional:
Clamping ring at rear on request



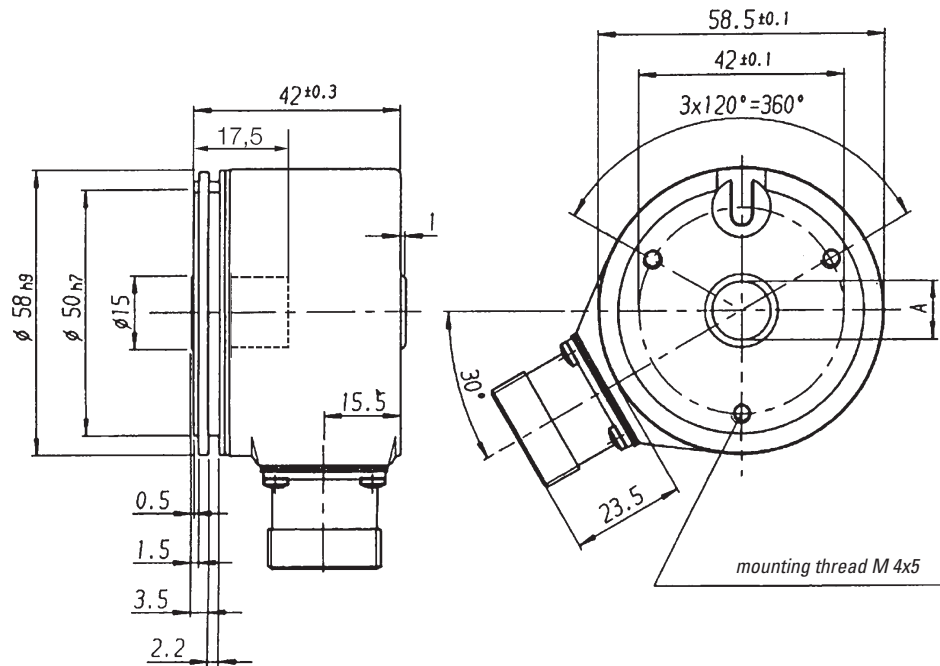
Dimensions in mm

Incremental Shaft Encoders Industrial types

Type RI 58-D Hollow shaft

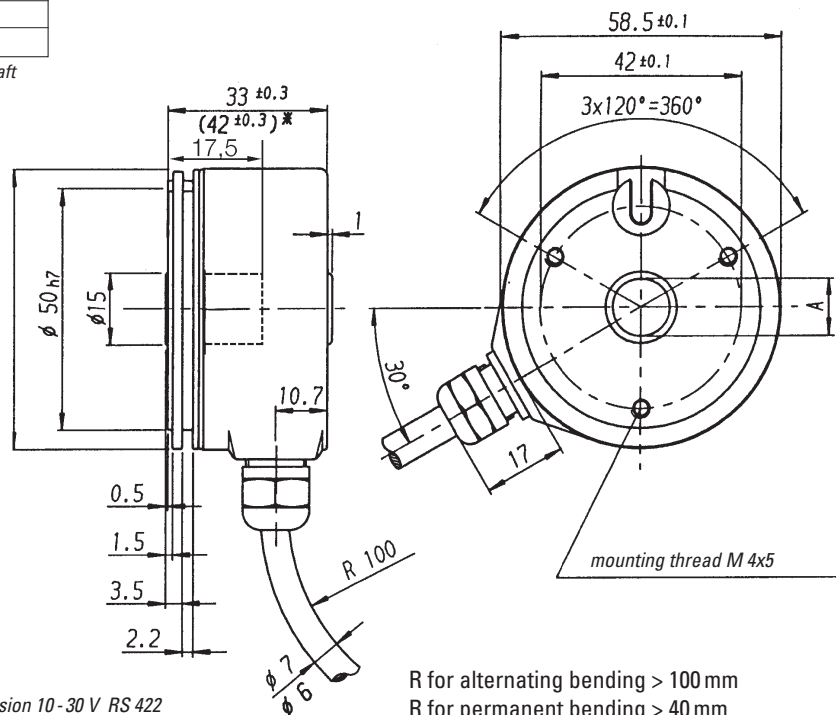
DIMENSIONAL DRAWINGS

Mounting = E, blind shaft (not through)



Dim.	Hollow shaft Ø			Unit
A	10 ^{H7}	12 ^{H7}	14 ^{H7}	mm
A*	10 ^{g8}	12 ^{g8}	14 ^{g8}	mm

A* = Diameter of connection shaft



* with Version 10-30 V RS 422

R for alternating bending > 100 mm
R for permanent bending > 40 mm

Dimensions in mm

Incremental Shaft Encoders

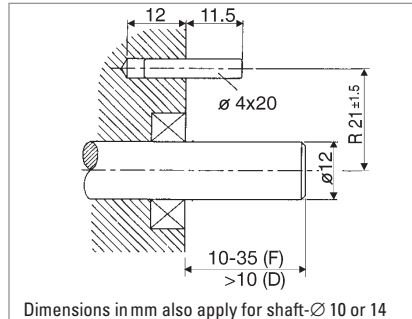
Industrial types

Type RI 58-D

Hollow shaft

MOUNTING NECESSITIES

In order to be able to compensate an axial and radial misalignment of the shaft, the encoder flange must not be fixed rigidly. Fix the flanges by means of a stator coupling (e.g. hubshaft with tether) as torque support (see "Accessories") or by means of a cylindrical pin:



Mounting = D, F (Clamping shaft)

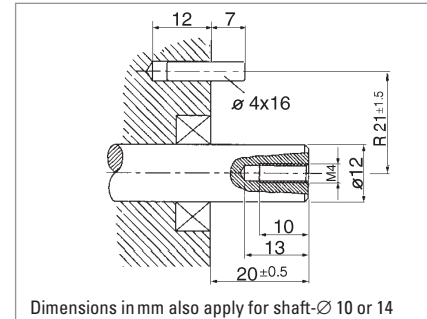
Preparation of the machine flange ¹

(all mounting versions):

In the machine flange a straight pin must be installed (diameter 4x16 resp. 4x20, DIN 6325).

This pin is required as a torque support.

¹ Or as an option: stator coupling as torque support



Mounting = E (Blind shaft)

Preparation of the drive shaft

(only in mounting = E):

The drive shaft must be provided with a threaded bore M 4 x 10:

This bore accepts the fastening screw of the shaft encoder.

PIN ASSIGNMENT

Cable PVC

Cable	Output circuit			
	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
white	Channel A	Channel A	Channel A	Channel A
white/brown	Channel \bar{A}	Channel \bar{A}		Channel \bar{A}
green	Channel B	Channel B	Channel B	Channel B
green/brown	Channel \bar{B}	Channel \bar{B}		Channel \bar{B}
yellow	Channel N	Channel N	Channel N	Channel N
yellow/brown	Channel \bar{N}	Channel \bar{N}		Channel \bar{N}
yellow/black	Sense GND	Alarm	Alarm	Alarm
yellow/red	Sense V _{CC}	Sense V _{CC}		Sense V _{CC}
red	DC 5 V	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

PIN ASSIGNMENT

Cable TPE

Cable	Output circuit			
	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
brown	Channel A	Channel A	Channel A	Channel A
green	Channel \bar{A}	Channel \bar{A}		Channel \bar{A}
grey	Channel B	Channel B	Channel B	Channel B
pink	Channel \bar{B}	Channel \bar{B}		Channel \bar{B}
red	Channel N	Channel N	Channel N	Channel N
black	Channel \bar{N}	Channel \bar{N}		Channel \bar{N}
violet (white) ²	Sense GND	Alarm	Alarm	Alarm
blue	Sense V _{CC}	Sense V _{CC}		Sense V _{CC}
brown/green	DC 5 V	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
white/green	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹

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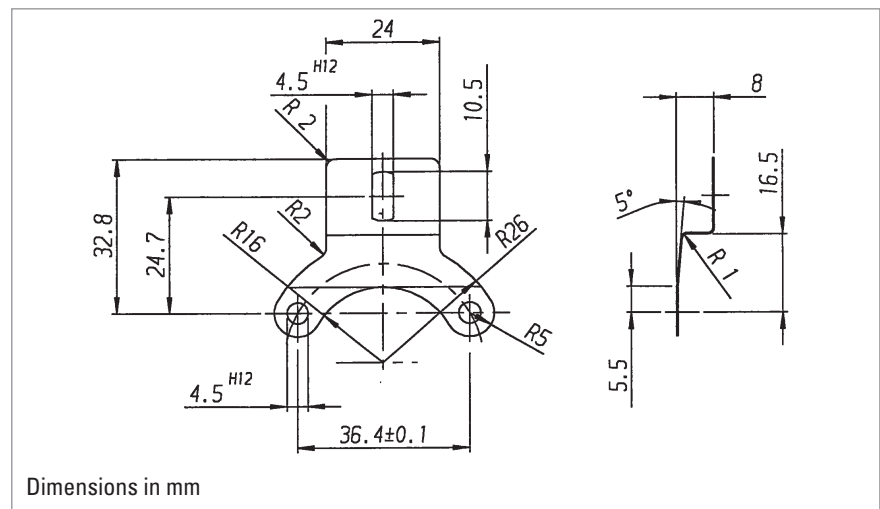
PIN ASSIGNMENT Connector (CONIN)

Pin	RS 422 + Sense (T)	RS 422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2	Sense V_{CC}	Sense V_{CC}	N.C.	Sense V_{CC}
3	Channel N	Channel N	Channel N	Channel N
4	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	Channel A	Channel A	Channel A	Channel A
6	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7	N.C.	Alarm	Alarm	Alarm
8	Channel B	Channel B	Channel B	Channel B
9	N.C. ¹	N.C. ¹	N.C. ¹	N.C. ¹
10	GND	GND	GND	GND
11	Sense GND	N.C.	N.C.	N.C.
12	DC 5 V	DC 5/10 - 30 V	DC 10 - 30 V	DC 10 - 30 V

¹ screen for cable with CONIN connector

ACCESSORIES

Hubshaft with tether as stator coupling: ordering code 1531 162



ORDERING INFORMATION

Type	Model	Number of pulses	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-	D Hollow shaft TD Hollow shaft 100 °C	1 ... 5 000	A DC 5 V ⁴ E DC10 - 30 V ⁵ (only with push-pull)	E.42 Blind shaft ¹ , IP64/64, 10 mm E.47 Blind shaft ¹ , IP64/64, 12 mm E.49 Blind shaft ¹ , IP64/64, 14 mm F.42 Blind shaft ¹ , IP64/64, 10 mm F.47 Blind shaft ¹ , IP64/64, 12 mm F.49 Blind shaft ¹ , IP64/64, 14 mm D.32 Clamping shaft front ² , IP64/64, 10 mm D.37 Clamping shaft front ² , IP64/64, 12 mm	K push-pull T RS 422 + Sense R RS 422 + Alarm I push-pull complementary	B PVC cable radial F TPE cable radial D CONIN radial, cw ³ H CONIN radial, ccw ³

¹ Mounting E, F: no through shaft (blind hole)

² through shaft, only connection cable

³ only with mounting E or F (no through shaft)

⁴ with output T, R

⁵ with output K, I, R

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