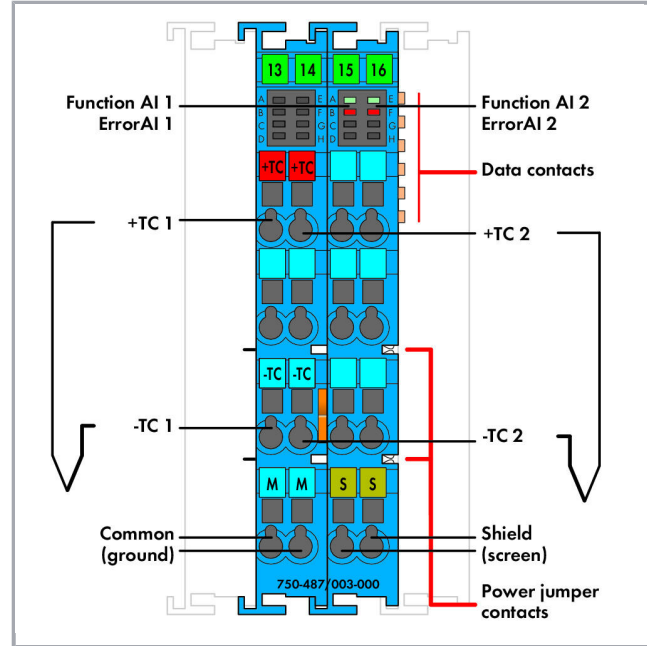
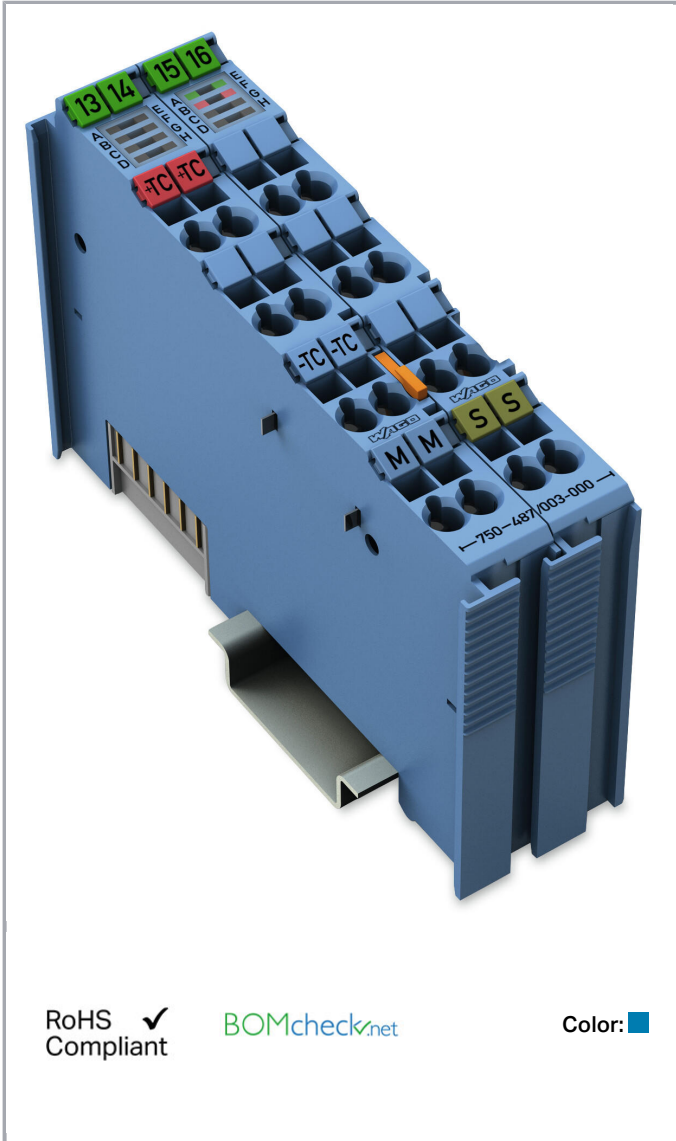


Data sheet | Item number: 750-487/003-000

2-channel analog input; Thermocouple; Intrinsically safe; blue

www.wago.com/750-487/003-000



RoHS Compliant

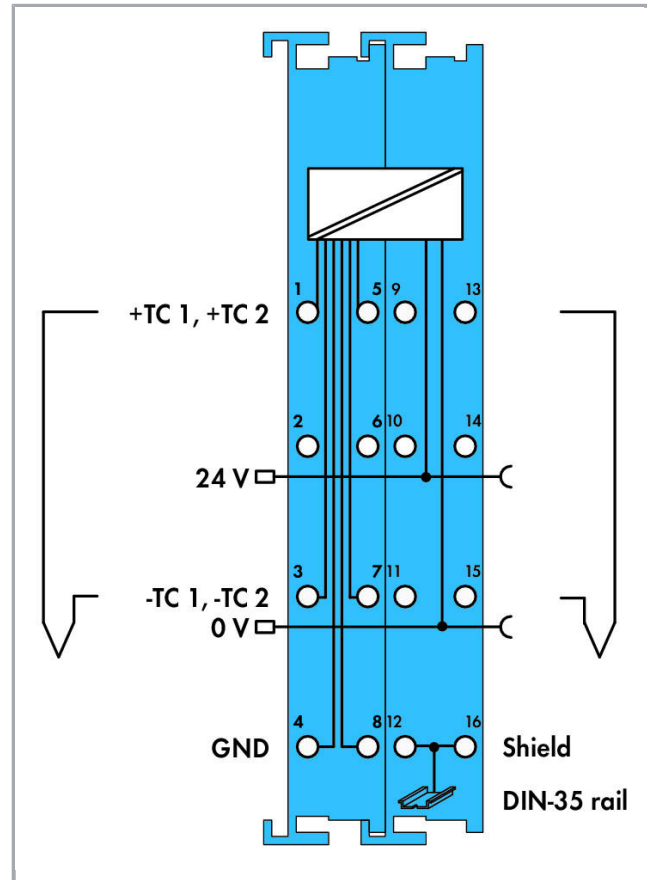
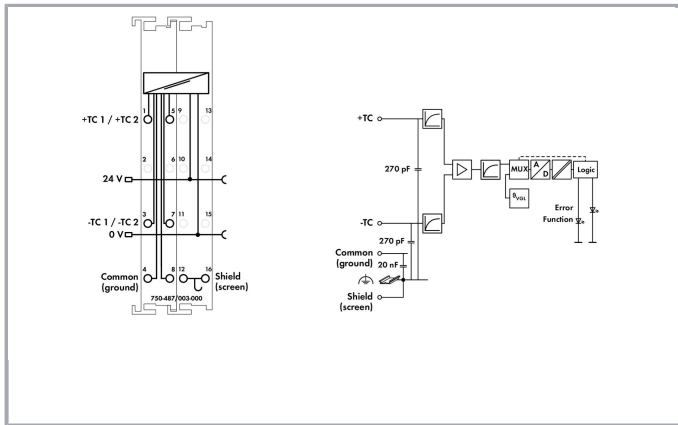
BOMcheck.net

Color: ■

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Item description

This analog input module directly connects two thermocouples operating in hazardous environments of Zones 0 and 1.

The WAGO I/O System 750 must be installed either in Zone 2 or in a non-hazardous area.

Internal electrical isolation allows operation of grounded sensors. The module automatically linearizes the entire temperature range. Cold junction compensation mitigates the clamping unit offset voltage over the 0–55°C operating range.

The 24 V supply is derived from the module's power jumper contacts.

Field and system levels are electrically isolated.

The module's operating mode is parameterized via the WAGO-I/O-CHECK software.

- Indicators: Green LED (availability ON/OFF)
- Red LED (wire breakage, measurement range overflow/underflow)

Note:

The analog output module must only be operated via 24 VDC Ex i!

Subject to changes. Please also observe the further product documentation!

General information (e.g., installation regulations) on explosion protection is available in the WAGO I/O System 750 manuals!

Data

Technical Data

Number of analog inputs	2
Total number of channels (module)	2
Type of signal	Thermocouple Low voltages
Configurable type of signal	yes
Sensor connection	2 x (2-wire)
Power consumption P_{max}	0.3 W
Bit width	2 x 16-bit data; 2 x 8-bit control/status (optional)
Internal resistance	1000 k Ω
Resolution (over entire range)	0.1 °C or 0.01 mV for voltage measurement
Conversion time (typ. \leq)	320 ms
Conversion time	\leq 320 ms (both channels)
Measuring error (25 °C)	$< \pm 6$ K (voltage input $< \pm 2$ K; cold junction compensation $< \pm 4$ K)
Temperature coefficient	$< \pm 0.2$ K / K of the largest output area (type K)
Intrinsic safety Ex i	yes
Sensor types	Thermocouple K; Configurable: J, B, E, L, N, R, S, T, U, C; Voltage sensor: ± 30 mV, ± 60 mV, ± 120 mV
Temperature range	Type-dependent from -100 to $+1.800$ °C
Measuring range	Thermocouples: Type B: $+600 \dots +1.800$ °C; Type E: $-100 \dots +1.000$ °C; Type J: $-100 \dots +1.200$ °C; Type K: $-100 \dots +1.370$ °C* *(default setting); Type L: $-100 \dots +900$ °C; Type N: $-100 \dots +1.300$ °C; Type R: $0 \dots +1.700$ °C; Type S: $-50 \dots +1.700$ °C; Type T: $-100 \dots +400$ °C; Type U: $-25 \dots +600$ °C; Voltage sensors: MB1: ± 30 mV; MB2: ± 60 mV; MB3: ± 120 mV
Cold junction compensation	internal; at each pair of terminal blocks
System supply voltage	DC 5 V; via data contacts
Current consumption, system supply (5 V)	13.5 mA
Field supply voltage	DC 24 V; (Ex i power supply: $U_O = \max. 27.3$ V); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Current consumption, field supply (module with no external load)	8.5 mA
Power loss P_V	0.3 W
Isolation	300 VAC system/field
Number of incoming power jumper contacts	2

Subject to changes. Please also observe the further product documentation!



Number of outgoing power jumper contacts	2
Ex guideline	EN/IEC 60079-0, -7, -11, -26, -31
Electric circuit, safety-relevant data	$U_o = 14.4 \text{ V}$; $I_o = 29.1 \text{ mA}$; $P_o = 52.4 \text{ mW}$; Linear characteristic curve
Reactances Ex ia IIC	$L_o = 52 \text{ mH}$; $C_o = 650 \text{ nF}$
Reactances Ex ia IIB	$L_o = 100 \text{ mH}$; $C_o = 4.0 \text{ }\mu\text{F}$
Ex ia IIA reactances	$L_o = 300 \text{ mH}$; $C_o = 15.8 \text{ }\mu\text{F}$
Reactances Ex ia I	$L_o = 400 \text{ mH}$; $C_o = 17.9 \text{ }\mu\text{F}$
Reactances	Reactances without accounting for the concurrence of L and C
Marking	ATEX, IECEx, INMETRO, Underwriters Laboratories Inc.

Connection data

Connection technology: In-/Outputs	16 x CAGE CLAMP®
Connection type (1)	Inputs/Outputs
Solid conductor	0,08 ... 2,5 mm ² / 28 ... 14 AWG
Fine-stranded conductor	0,08 ... 2,5 mm ² / 28 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch

Geometrical Data

Width	24 mm / 0.945 inch
Height	67,8 mm / 2.669 inch
Height from upper-edge of DIN-35 rail	60,6 mm / 2.386 inch
Depth	100 mm / 3.937 inch

Mechanical data

Type of mounting	DIN-35 rail
------------------	-------------

Material Data

Color	blue
Housing material	Polycarbonate, polyamide 6.6
Weight	90.5 g
Conformity marking	CE

Environmental Requirements

Surrounding air (operating) temperature	0 ... 55 °C
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Subject to changes. Please also observe the further product documentation!




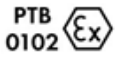
Surrounding air (storage) temperature	-40 ... 85 °C
Protection class	IP20
Degree of pollution (5)	2 per IEC 61131-2
Operating altitude	0 ... 2000 m
Mounting position	horizontal (standing/lying); vertical
Relative air humidity (no condensation)	95 %
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2, marine applications
EMC emission of interference	per EN 61000-6-3, marine applications
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible H ₂ S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO ₂ contaminant concentration at a relative humidity 75 %	25 ppm

Commercial data

Product Group	15 (Remote I/O)
Packaging type	BOX
Country of origin	DE
GTIN	4045454961893
Customs Tariff No.	85389099990

Approvals / Certificates

Ex-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	AEx UL International Germany GmbH	UL 60079	E480271
	ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_12_ATEX_106032X
	INMETRO TÜV Rheinland do Brasil Ltda.	-	TÜV_14.1911_X
	TUEV Nord TUEV Nord Cert GmbH	IEC 60079, IEC 60079-0	IECEx TUN 12.0039X

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UL
Underwriters Laboratories Inc. (HAZARDOUS
LOCATIONS)







UL 121201

E198726 Sec.1

Country specific Approvals

Logo	Approval	Additional Approval Text	Certificate name
	KC National Radio Research Agency	Article 58-2, Clause 3	MSIP- REM-W43- AIM750

Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name
	ABS American Bureau of Shipping	-	19- HG1821926
	BV Bureau Veritas S.A.	-	30389/B0 BV
	DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAA0000194
	LR Lloyds Register	-	02/20026 (E6)
	NK Nippon Kaiji Kyokai	-	TA17255M
	PRS Polski Rejestr Statków	-	TE/2236 /880590/19

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RINA
RINA Germany GmbH

ELE066419XG



UL-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	UL UL International Netherlands B.V. (ORDINARY LOCATIONS)	UL 508	E175199 Sec.1

Counterpart

Compatible products

Carrier rail

	Item no.: 210-112 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm	www.wago.com/210-112
	Item no.: 210-113 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715	www.wago.com/210-113
	Item no.: 210-114 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715	www.wago.com/210-114
	Item no.: 210-115 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm	www.wago.com/210-115
	Item no.: 210-118 Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715	www.wago.com/210-118
	Item no.: 210-196 Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored	www.wago.com/210-196
	Item no.: 210-197 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715	www.wago.com/210-197
	Item no.: 210-198 Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored	www.wago.com/210-198

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Item no.: 210-504 www.wago.com/210-504
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715

Item no.: 210-505 www.wago.com/210-505
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715

Item no.: 210-506 www.wago.com/210-506
Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715

Item no.: 210-508 www.wago.com/210-508
Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715

shield connection

Item no.: 790-108 www.wago.com/790-108
Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm

Item no.: 790-116 www.wago.com/790-116
Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm

Item no.: 790-124 www.wago.com/790-124
Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm

Item no.: 790-140 www.wago.com/790-140
Shield clamping saddle; diameter of compatible conductor



Item no.: 790-208 www.wago.com/790-208
Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm



Item no.: 790-216 www.wago.com/790-216
Shield clamping saddle; 21.8 mm wide; 6 ... 16 mm



Item no.: 790-220 www.wago.com/790-220
Shield clamping saddle; 30 mm wide; 6 ... 20 mm

Supply module



Item no.: 750-606 www.wago.com/750-606
Power Supply; 24 VDC; Diagnostics; Intrinsically safe; light gray



Item no.: 750-625/000-001 www.wago.com/750-625/000-001
Power Supply; 24 VDC; Intrinsically safe; light gray






Marking accessories

Item no.: 2009-145 www.wago.com/2009-145
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

Item no.: 2009-145/000-002 www.wago.com/2009-145/000-002
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

Item no.: 2009-145/000-005 www.wago.com/2009-145/000-005
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red

Subject to changes. Please also observe the further product documentation!

	<p>Item no.: 2009-145/000-006 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue</p>	<p>www.wago.com/2009-145/000-006</p>
	<p>Item no.: 2009-145/000-007 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white</p>	<p>www.wago.com/2009-145/000-007</p>
	<p>Item no.: 2009-145/000-012 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange</p>	<p>www.wago.com/2009-145/000-012</p>
	<p>Item no.: 2009-145/000-023 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green</p>	<p>www.wago.com/2009-145/000-023</p>
	<p>Item no.: 2009-145/000-024 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet</p>	<p>www.wago.com/2009-145/000-024</p>
	<p>Item no.: 248-501 Miniature WSB Quick marking system; plain; Marker width 5 mm; 10 strips with 10 markers per card</p>	<p>www.wago.com/248-501</p>
	<p>Item no.: 248-501/000-002 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow</p>	<p>www.wago.com/248-501/000-002</p>
	<p>Item no.: 248-501/000-005 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red</p>	<p>www.wago.com/248-501/000-005</p>
	<p>Item no.: 248-501/000-006 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue</p>	<p>www.wago.com/248-501/000-006</p>
	<p>Item no.: 248-501/000-007 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray</p>	<p>www.wago.com/248-501/000-007</p>
	<p>Item no.: 248-501/000-012 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange</p>	<p>www.wago.com/248-501/000-012</p>
	<p>Item no.: 248-501/000-017 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green</p>	<p>www.wago.com/248-501/000-017</p>
	<p>Item no.: 248-501/000-023 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green</p>	<p>www.wago.com/248-501/000-023</p>
	<p>Item no.: 248-501/000-024 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet</p>	<p>www.wago.com/248-501/000-024</p>

Subject to changes. Please also observe the further product documentation!



Item no.: 750-103
Group marker carrier; transparent

www.wago.com/750-103



Item no.: 750-107
Group marker carrier; transparent

www.wago.com/750-107

Downloads

Documentation

Data sheet

750-487/003-000, 2AI TC Ex i, data sheet	pdf	Download
	250.1 kB	

Manual

2-channel, Ex i thermocouples	V 1.2.0	pdf	Download
2-channel analog input module for thermocouples Ex i		2.8 MB	

Additional Information

Disposal; Electrical and electronic equipment, Packaging	V 1.0.0	pdf	Download
		265.8 kB	

System Description

Design Notes	V 2.0.0	pdf	Download
Basic conditions and recommendations for higher operational safety		1.5 MB	

750/753 Series I/O-System – General Product Information		pdf	Download
		1.7 MB	

Overview on WAGO-I/O-SYSTEM 750 approvals		pdf	Download
		780.2 kB	

Use in Hazardous Environments	V 1.0.0	pdf	Download
Term definition, marking and installation regulations		1.0 MB	

Ex i Overview		pdf	Download
		616.0 kB	

Application Notes

Application Note CoDeSys 2.3

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Application Note Library ModuleAccess_01	05.01.2016 Jan 29, 2016	zip 1.0 MB	Download
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These instructions describe the use of the ModuleAccess_01.lib library using 4 examples.

ModuleAccess_01.lib	1.8.7 Jan 27, 2020	zip 2.2 MB	Download
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The ModuleAccess_01 library provides both module configuration and access to its process data within a CoDeSys project without the use of WAGO I/O Check.

Libraries

Library

ModuleAccess_01.lib	1.8.7 Jan 27, 2020	zip 2.2 MB	Download
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The ModuleAccess_01 library provides both module configuration and access to its process data within a CoDeSys project without the use of WAGO I/O Check.

CAD/CAE-Data

CAD data

2D/3D Models 750-487/003-000	URL	Download
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CAE data

EPLAN Data Portal 750-487/003-000	URL	Download
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WSCAD Universe 750-487/003-000	URL	Download
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Device Files

Device Driver

WAGO USB Service Kabel Treiber / Serie 750 und 857	6.5.3.0 Sep 10, 2014	zip 4.8 MB	Download
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Installation Notes

Product family

750/753 Series – I/O System

[Show all products from the family](#)

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