

Smart Wireless THUM™ Adapter

- 2- or 4-wire HART™ devices
- Flexibility to meet your most demanding applications
- Wireless output with >99% data reliability delivers rich HART data, protected by industry leading security
- Gain access to additional HART information, such as diagnostics or multivariable data
- Add wireless to almost any measurement point
- Smart Wireless capabilities extend the full benefits of PlantWeb® to previously inaccessible locations



WirelessHART

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IEC 62591 (WirelessHART™)... The Industry Standard

Self-Organizing, Adaptive Mesh Routing

- No wireless expertise required, devices automatically find the best communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion, and reconfiguration
- Supports both star and mesh topologies

Industry Standard Radio with Channel Hopping

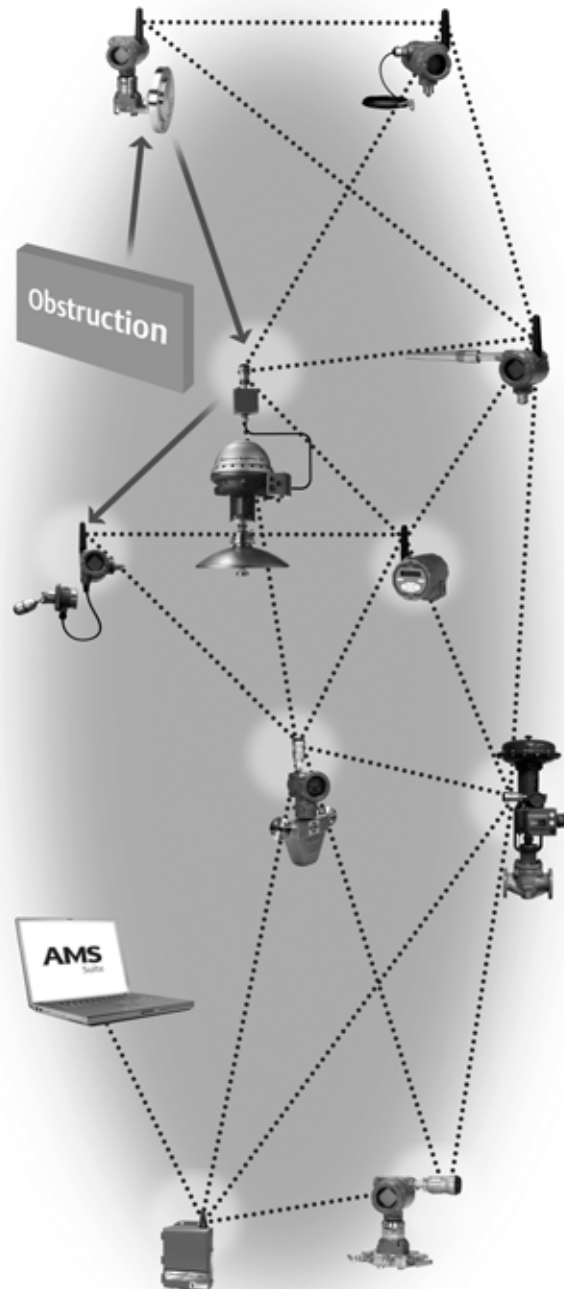
- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Direct Sequence Spread Spectrum (DSSS) technology delivers high reliability in challenging radio environment

Self-Healing Network

- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

Seamless Integration to Existing Hosts

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry protocols

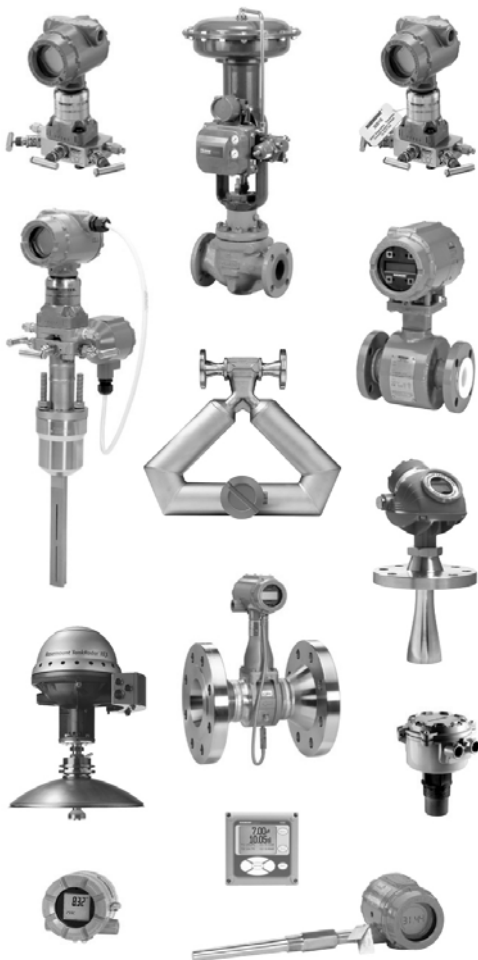


Smart Wireless THUM Adapter



Device Specifications

- Approvals: FM, CSA, ATEX, IECEx
- Input: Either 2- or 4-wire HART 5.0 device
- SmartPower™: Power scavenging technology (no battery required)



Enable Enhanced Valve Capabilities

- Online, in-service valve testing through AMS ValveLink SNAP-ON Application
- Monitor alerts such as travel deviation with AMS Device Manager, supply pressure, and electronics health
- Trend actual valve position

Gain Access to Advanced Instrument Diagnostics

- Rosemount 3051S with Advanced Process Diagnostics
- Micro Motion™ Coriolis Meter Verification with optional AMS Meter Verification SNAP-ON
- Rosemount Radar Echo Curve
- Rosemount Magnetic Flow Meter Verification™ with AMS Device Manager

Efficiently Gather Data from Multivariable Devices

- Rosemount 3051S MultiVariable™ Transmitter and 3095 Mass Flow Transmitters
- Rosemount 3300 and 5300 Radar Level Transmitters
- Micro Motion Coriolis Meters
- Rosemount TankRadar Rex and TankRadar Pro
- Rosemount Magnetic Flowmeter
- Rosemount MultiVariable Vortex Flowmeter

Make any HART Device Wireless to Enable New Measurement Points

- Level
- Flow
- Valves
- Liquid and Gas Analytical
- Pressure
- Temperature

Remotely Manage Devices and Monitor Health with AMS Device Manager

- Reduce troubleshooting time
- As found, as left data
- Calibration tracking

Ordering Information

Table 1. Smart Wireless THUM Adapter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
775	Smart Wireless THUM Adapter	
Output		
X	Wireless	
Housing		
Standard		Standard
D	Aluminum	★
Expanded		
E	SST	
Mounting Connection		
Standard		Standard
1	¹ / ₂ - 14 NPT	★
2	M20-Conduit Adapter	★
PlantWeb Functionality		
Standard		Standard
1	HART® Data	★
Certification		
Standard		Standard
NA	No Approval	★
I5	FM Intrinsically Safe, Non-incendive	★
I6	CSA Intrinsically Safe	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
I7	IECEX Intrinsic Safety	★
N7	IECEX Type n	★
I2	INMETRO Intrinsic Safety	★
N2	INMETRO Type n	★
I3	China Intrinsic Safety	★
IP	Korea (KOSHA) Intrinsic Safety	★
IW	India (CCOE) Intrinsic Safety	★
IM	GOST (Russia) Intrinsically Safe	★
Wireless Update Rate, Operating Frequency, and Protocol		
Standard		Standard
WA3	User Configurable Update Rate, 2.4 GHz DSSS, WirelessHART	★
Omnidirectional, Wireless Antenna and SmartPower™ Options		
Standard		Standard
WK9	Long range, Integral Antenna, Power Scavenging	★
Typical Model Number: 775XD11I5WA3WK9		

ACCESSORIES AND SPARE PARTS

Table 2. Accessories

Item Description	Part Number
Remote Mount Kit - AI	00775-9000-0001
Remote Mount Kit - SST	00775-9000-0011
M20-Conduit Adapter	00775-9001-0001

Specifications

Functional Specifications

Input

Any 2- or 4-wire HART powered device

Output

IEC 62591 (WirelessHART)

Humidity Limits

0–100% relative humidity

Update Rate

User selectable, 8 sec. to 60 min.

Physical Specifications

Electrical Connections

The THUM Adapter is connected into a powered 4–20 mA loop, powering itself by scavenging power. The THUM Adapter causes a voltage drop across the loop. The drop is linear from 2.25 V at 3.5 mA to 1.2 V at 25 mA, but does not effect the 4–20 mA signal on the loop. Under fault conditions, the maximum voltage drop is 2.5 V.

Power Supply

Minimum load on loop 250 Ohms

To maintain normal operating functions of the sub-device, the power in the loop must have at least a 2.5 V margin at a 250 Ω load.

Limit power supply to 0.5 Amps maximum.

Limit power supply to 55 Vdc maximum.

Field Communicator Connections

Utilize wired device HART connections.

Materials of Construction

Enclosure

Housing option D - Low-copper aluminum

Housing option E - 316 SST

Paint - Polyurethane

M20-Conduit Adapter - SST

M20-Conduit Adapter O-ring - Buna-n

Antenna

Poly butadine terephthalate (PBT) / Polycarbonate (PC) integrated omnidirectional antenna

Weight

THUM Adapter only AL - 0.65 lbs. (0.29 kg)

THUM Adapter only SST - 1.1 lbs. (0.5 kg)

AL THUM Adapter with AL remote kit - 3.2 lbs. (1.45 kg)

SST THUM Adapter with SST remote kit - 5.8 lbs. (2.65 kg)

AL THUM Adapter with M20 conduit adapter - 0.85 lbs. (.038 kg)

SST THUM Adapter with M20 conduit adapter - 1.3 lbs. (0.59 kg)

Enclosure Ratings

Housing option code D and remote mount kits are NEMA 4X and IP66.

Mounting

The THUM Adapter may be attached directly to the conduit of any 2- or 4-wire HART device or mounted remotely by using remote mount kit.

Performance Specifications

ElectroMagnetic Compatibility (EMC)

All Models:

Meets all relevant requirements of EN 61326-1 (2006) when installed with shielded wiring. The sub-device must also use shielded wiring for installation.

Vibration Effect

Output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15 mm displacement peak amplitude / 60-500 Hz 2g).

When the THUM Adapter is used on wired devices that are subject to vibration levels greater than 2g, it is recommended that the THUM Adapter be remotely mounted using the remote mount kit.

Temperature Limits

Operating Limit	Storage Limit
-40 to 185 °F	-40 to 185 °F
-40 to 85 °C	-40 to 85 °C

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA
Emerson Process Management GmbH & Co. - Karlstein, Germany
Emerson Process Management Asia Pacific Private Limited - Singapore

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at www.rosemount.com. A hard copy may be obtained by contacting an Emerson Process Management representative.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

Electro Magnetic Compatibility (EMC) (2004/108/EC)

Emerson Process Management complies with the EMC Directive.

Radio and Telecommunications Terminal Equipment Directive (R&TTE) (1999/5/EC)

Emerson Process Management complies with the R&TTE Directive.

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certificates

North American Certifications

Factory Mutual (FM) Approvals

- 15** FM Intrinsically Safe and Non-incendive
Intrinsically Safe for Class I/II/III, Division 1, Groups A, B, C, D, E, F, and G.
Zone Marking: Class I, Zone 0, AEx ia IIC
Temperature Codes T4 ($-50\text{ °C} \leq T_{amb} \leq 70\text{ °C}$)
Non-incendive for Class I, Division 2, Groups A, B, C, and D.
Intrinsically safe and non-incendive when installed according to Rosemount Drawing 00775-0010.
Enclosure Type 4X/IP66

CSA - Canadian Standards Association

- 16** CSA Intrinsically Safe
Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D.
T3C ($-50\text{ °C} \leq T_{amb} \leq 70\text{ °C}$)
Intrinsically safe when installed according to Rosemount Drawing 00775-0012.
Suitable for Class I, Division 2, Groups A, B, C, and D.
Enclosure Type 4X/IP66

European Certifications


- 11** ATEX Intrinsic Safety
Certificate No.: Baseefa09ATEX0125X  II 1G
Ex ia IIC T4 ($-50\text{ °C} \leq T_{amb} \leq 70\text{ °C}$)
IP66
CE 1180


Table 3. Input Parameters

Loop Power
U _i = 30 V
I _i = 200 mA
P _i = 1.0 W
C _i = 0
L _i = 0

Special conditions for safe use (X)

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

- N1** ATEX Type n
Certificate No.: Baseefa09ATEX0131  II 3 G
Ex nA IIC T4 ($-50\text{ °C} \leq T_{amb} \leq 70\text{ °C}$)
U_i = 45 Vdc MAX
IP66
CE 1180

Product Data Sheet

00813-0100-4075, Rev CA

January 2011

Smart Wireless THUM Adapter

IECEX Certifications

- I7** IECEX Intrinsic Safety
Certificate No.: IECEX BAS 09.0050X
Ex ia IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
IP66

Table 4. Input Parameters

Loop Power
U _i = 30 V
I _i = 200 mA
P _i = 1.0 W
C _i = 0
L _i = 0

Special conditions for safe use (X)

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

- N7** IECEX Type n
Certificate No.: IECEX BAS 09.0058
Ex nA IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
U_i = 45 Vdc MAX
IP66

INMETRO Certifications

- I2** Intrinsic Safety
BR-Ex ia IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C) Ga
- N2** INMETRO Type 'n'
BR-Ex nA IIC T4 Gc (-50 °C ≤ T_{amb} ≤ 70 °C)

China (NEPSI) Certifications

- I3** China (NEPSI) Intrinsic Safety
Ex ia IIC T4

CCoE Certifications

- IW** Intrinsic Safety
Ex ia IIC T4

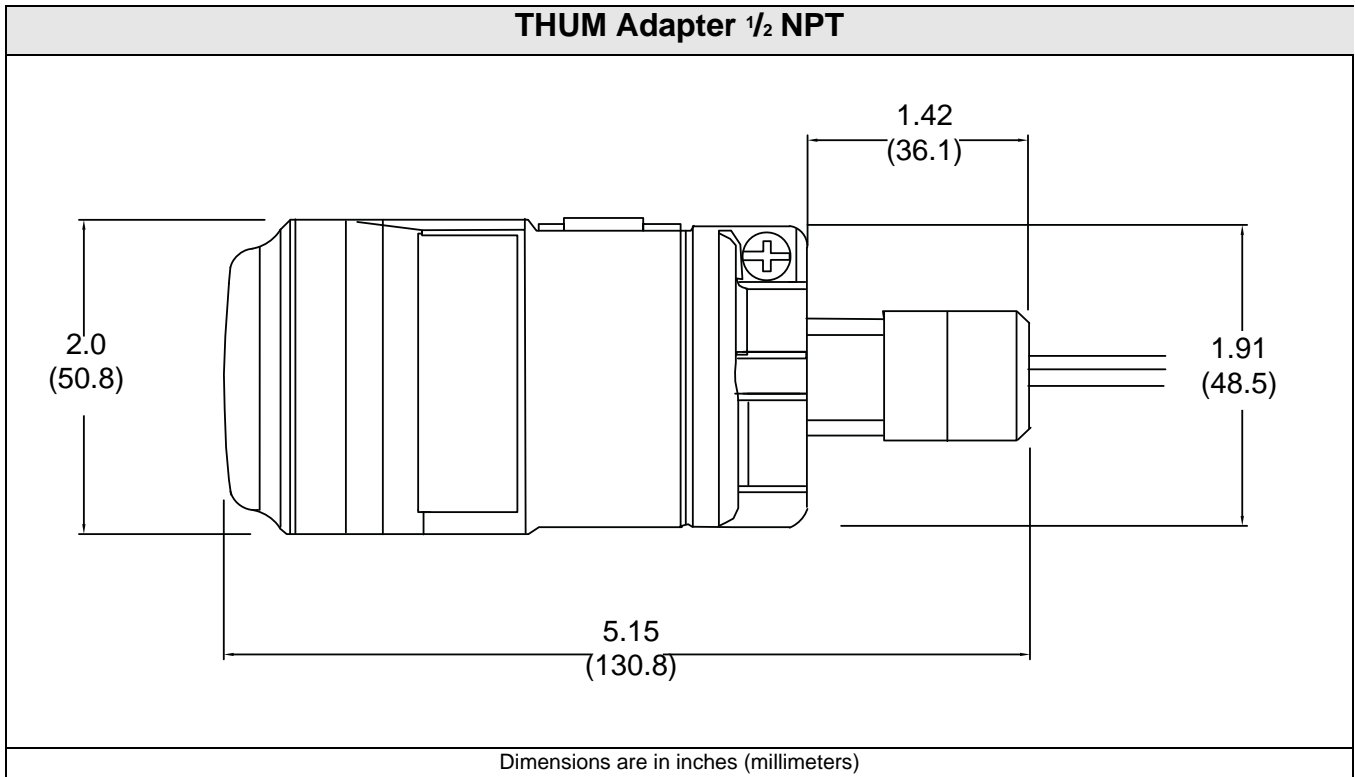
KOSHA Certifications

- IP** Intrinsic Safety
Ex ia IIC T4

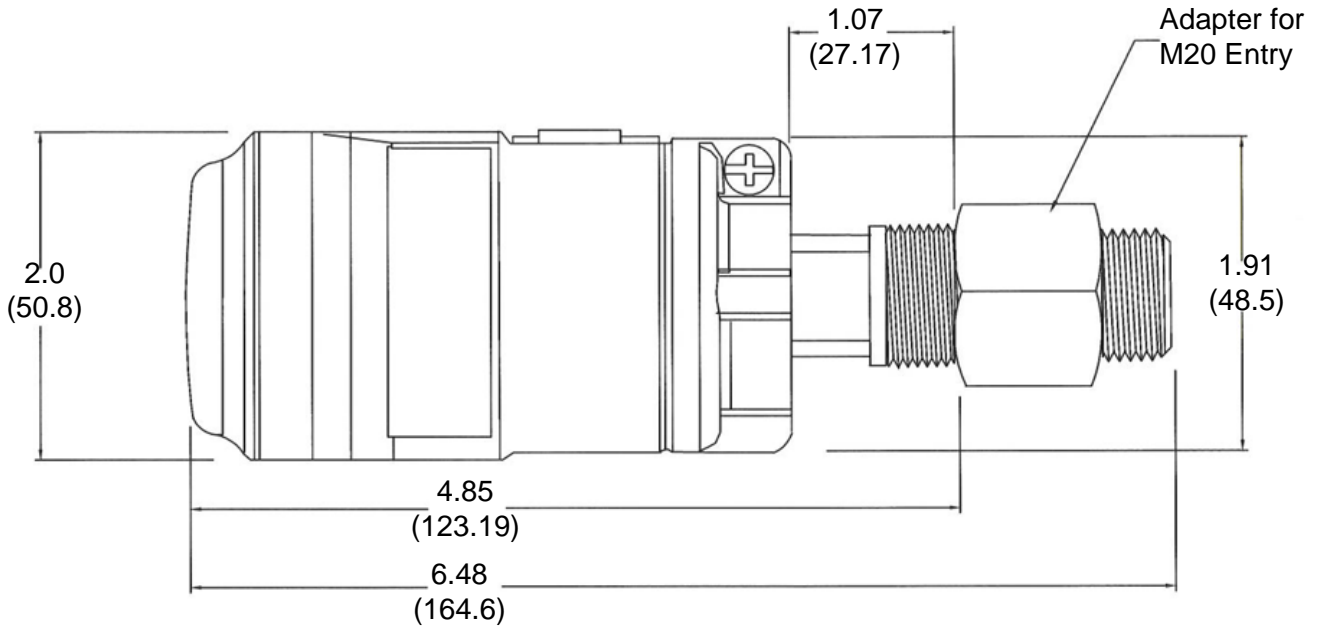
GOST Certifications

- IM** Intrinsically Safe
Ex ia IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
Ex nA IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
IP66

Dimensional Drawings

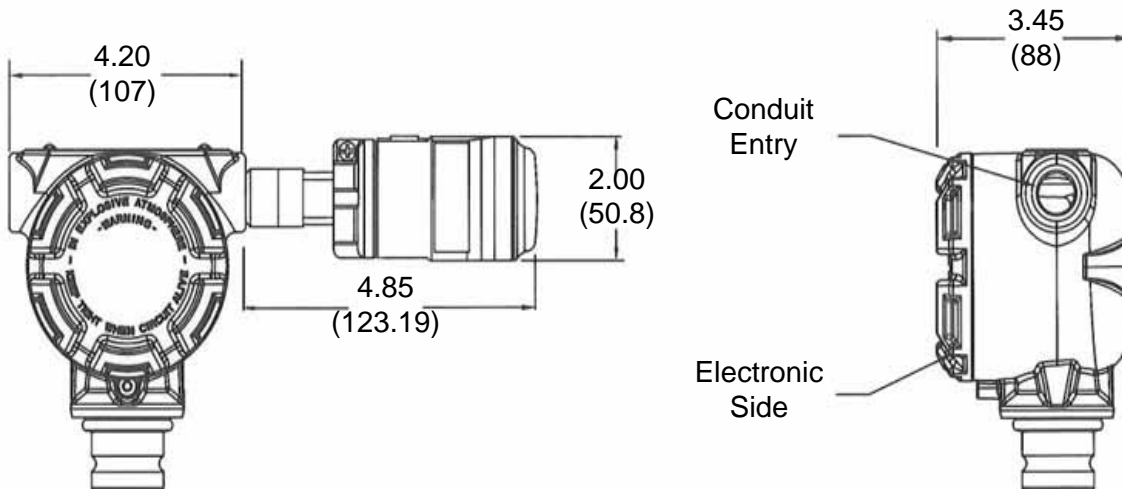


THUM Adapter with M20 Conduit Adapter



Dimensions are in inches (millimeters)

THUM Adapter with Remote Mount Kit



Dimensions are in inches (millimeters)

Smart Wireless THUM Adapter

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