

User Manual

ACM360-B0 Bluetooth Adapter

METTLER TOLEDO

A graphic element consisting of a series of parallel, slightly curved lines in shades of green, forming a triangular shape that points downwards and to the right, positioned behind the company name.

METTLER TOLEDO Service

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use of your new equipment according to this User manual and regular calibration and maintenance by our factory-trained service team ensures dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget. Further information is available at www.mt.com/service.

There are several important ways to ensure you maximize the performance of your investment:

1. **Register your product:** We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.
2. **Contact METTLER TOLEDO for service:** The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.
 - **Installation, Configuration, Integration and Training:**
Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.
 - **Initial Calibration Documentation:**
The installation environment and application requirements are unique for every industrial scale so performance must be tested and certified. Our calibration services and certificates document accuracy to ensure production quality and provide a quality system record of performance.
 - **Periodic Calibration Maintenance:**
A calibration Service Agreement provides on-going confidence in your weighing process and documentation of compliance with requirements. We offer a variety of service plans that are scheduled to meet your needs and designed to fit your budget.

Safety Instructions

Do not use the device in hazardous environment!

The safety of the device cannot be ensured if it is not operated in accordance with the operating instructions and if it is not serviced in accordance with this service manual.

Only authorized personnel may open the device.

Please avoid impact and heavy shock.

Do not submerge or use in wash down environment.

FCC Statment

This device complies with part 15 of the FCC rules.

1.1 FCC Part 15.105 (b)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna

- Increase the separation between the equipment and receiver

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- Consult the dealer or an experienced radio/TV technician for help .

1.2 FCC Part 15.19(a)(3)

Conditions for Use:

This device complies with Part15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and

- (2) This device must accept any interference received, including interference that may cause undesired operation.

1.3 FCC Part 15.21

Note:The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

1.4 FCC Part 2.1093

To satisfy FCC RF exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

© METTLER TOLEDO 2017

No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of METTELER TOLEDO.

U.S. Government Restricted Rights: This documentation is furnished with Restricted Rights.

Copyright 2017 METTLER TOLEDO. This documentation contains proprietary information of METTLER TOLEDO. It may not be copied in whole or in part without the express written consent of METTER TOLEDO.

METTLER TOLEDO reserves the right to make refinements or changes to the product or manual without notice.

COPYWRIGHT

METEELER TOLEDO® is a registered trademark of Metteler-Toledo, LLC. All other brand or product names are trademarks or registered trademarks of their respective companies.

**METTLER TOLEDO RESERVES THE RIGHT TO MAKE
REFINEMENTS OR CHANGES WITHOUT NOTICE.**

Disposal of Electrical and Electronic Equipment



In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

Thank you for your contribution to environmental protection.

Contents

1.	Introduction	2
1.1	Product specifications.....	2
1.2	Name Rule	2
1.3	How to use it.....	2
2.	Installation	3
2.1	Environment	3
2.2	Factory setting.....	3
3.	Operation	3
3.1	Important information	3
3.2	Pairing.....	3
3.3	Work Mode.....	5
3.4	Print template.....	5
3.5	Transmission mode	6
3.6	Factory reset	6
4.	ACM360 Applications	8
4.1	Standard Communication - 1:1 pairing	8
4.2	Standard Communication - multi:1 pairing.....	8
4.3	ZPL template printing - 1:1 pairing	9
4.4	ZPL template printing - Multi:1 pairing.....	9
4.5	Smart Device Standard Communication – 1:1 or multi :1	10

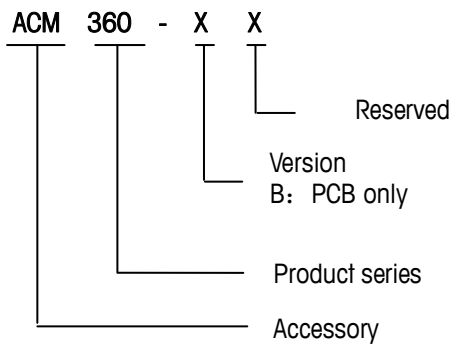
1. Introduction

1.1 Product specifications

Table 1-1: Product specifications of ACM360-B0

Bluetooth version	Bluetooth 4.1 (Only compatible with Bluetooth 4.x or higher)
Ave. power consumption	~50mW (equivalent to 10mA @ 5V)
Standard communication distance	~10m
Maximum radiated output power	0 dBm
Antenna type	PCB antenna 3dBi
Indicator	Red / Green / Yellow LEDs

1.2 Name Rule



1.3 How to use it

This module is used for transferring serial port into Bluetooth.

Please follow the instructions below to guarantee that the module remains in compliance.

- (1) Please stat "Contains FCC ID: 2ALAI17MT101" information on the label of the host.
- (2) Do not remove the shielding box and any other part of the module.
- (3) Please offer 2.5~3.3V input to the ACM360-B0
- (4) A keypad is needed to do the basic configuration.
- (5) The indicator on the mainboard shows the work state of ACM360-B0

2. Installation

2.1 Environment

A good environment can ensure that the ACM360-B0 Bluetooth Adapter works reliably. Some of the factors which can affect ACM360-B0 are as follows:

- 1 Metal shield: Metal shield will affect the communication distance and stability of the ACM360-B0. For example, a reinforced concrete wall can block the nearby signal of the ACM360-B0 Bluetooth adapters.
- 2 Electronic interference: The fluctuation of the power voltage will affect the stability of the ACM360-B0. An extreme fluctuation will damage the circuit. Avoid linking the adapter to an unstable power supply and be away from static electricity.
- 3 Humidity: Wet environments will cause erosion on the circuit, and reduce the stability of the ACM360-B0.

2.2 Factory setting

The factory parameters of ACM360-B0 are listed in the sheet below:

Table 2-1: Factory setting of ACM360-B0

Parameter	Default
Pairing info	-Empty-
Role	Slave
Work mode	SPP
Transmission mode	One to one
Baud rate	9600

3. Operation

3.1 Important information

Plug the ACM360 to the DB9 or M12 port of the device. When it powers on, the red LED will blink one time.

***How to check if the ACM360 is powered on?**

After power on, shortly press the button of the adaptor. An indicator LED will blink several times.

3.2 Pairing

Finish the installation of the two adaptors as described.

Press and hold the button on the 1st adaptor until the yellow LED blinks one time;
 Press and hold the button on the 2nd adaptor until the yellow LED blinks two times;
 → The green LED of both adaptors will blink when the pairing is done.
 → If it is under multi to one transmission mode, the green LED of both adaptors will blink when the pairing is done. Then red LED will blink one time.

***How to determine the slave / master role?**

The 1st adaptor works in the Slave Role.

The 2nd adaptor works in the Master Role.

Slave Role: Can be searched and connected by other adaptors / smart devices.

Master Role: It will connect another paired slave role device automatically.

Table 3-1: Suggested work role

Slave Role	Master Role	Note
Terminal	Terminal	
Terminal	PC	PC must use a host app
Terminal	Smart device	Smart device must use a host app
Printer	Terminal	Can be used in 1:1 or Multit:1
2nd display / terminal	Terminal / 2nd display	When terminal is connected to the 2 nd display, the terminal can be the slave role or the master role.

***How to find the paired ACM360 (1:1 pairing only)**

Finish the installation of the two adaptors as described in chapter 3.1.

Shortly press the button of the adaptor, a yellow or green LED starts to blink several times by work mode. Meanwhile, the yellow or green LED will also blink on the 2nd paired by his work mode.

The yellow color represents the slave role and the green one represents the master role.

***How to pair multiple master role ACM360 to one slave role ACM360**

1. Please set the adaptor to "Multi to one" transmission mode.
2. Before building multi to 1 template printing net, you will need to prepare and download several label templates in the slave adaptor, and select the template No. in master adaptors.
3. To build the multi to 1 template printing net, please:
 - a. Power on the slave adaptor
 - b. Power on only 1 of master adaptors
 - c. Press slave adaptor button until 1 yellow flash then release
 - d. Press master adaptor button until 2 yellow flash then release
 - e. When pairing successfully, the LED indication shows Green-Red pattern
 - f. Power off the master adaptor, power on another master adaptor
 - g. Repeat c. & d.

3.3 Work Mode

The ACM360 has two different work modes:





Table 3-2: Two different work mode of ACM360

Work mode	Description
SPP	Any data will be directly transferred from one adaptor to another.
Template printing	Datum received from serial port will be parsed and transferred to the 2 nd adaptor. In the 2 nd adaptor, datum will be merged into a template and the merged template will be send out of the serial port.

***How to query work mode/ role**

Shortly press the button of the adaptor, the LED starts blinking. Check the following table to determine the current work mode and role.

Table 3-3: The meaning of the blinks when querying work mode/role

Blinks	Work mode	Role
 Yellow *2	SPP	Slave role
 Yellow *3	Template printing	Slave role
 Green *2	SPP	Master role
 Green *3	Template printing	Master role

***How to switch the work mode**

Finish the installation of the two adaptors as described in chapter 3.1.

Finish the pairing of the two adaptors as described in chapter 3.2.

Press and hold the button of the adaptor until a yellow LED blinks 3 times and then shortly press the button within 5 seconds to switch the work mode.

After work mode changes successfully, the ACM360 will reboot itself and the red LED will blink one time.

3.4 Print template


This function is for switching and querying print templates stored in the ACM360 under template printing mode.

When you using print template mode, at least one template should be download into the slave module.

***How to query the print template**

Double click the button of the adaptor. The color represents different print template numbers.

Table 3-4: The meaning of the blinks when querying print template

Blinks	Print template number
 Green *1/*2/*3	Print template 0/1/2

☀ Yellow *1/*2/*3	Print template 3/4/5
☹ Red *1/*2/*3/*4	Print template 6/7/8/9

*How to switch to the print template

Press and hold the button of the adaptor until the yellow LED blinks 3 times and then double click the button within 5 seconds to switch to the print template 0 ~ 2. The default template is No.0. Performing setup first time sets this to template 1. Performing setup 2nd time sets this to template 2. Performing setup 3rd time set this back to template 0.

To switch to the print templates 3~9, please use InSite.

After print template changes successfully, the ACM360 will reboot itself and the red LED will blink once.

Notice: the print template number is selected on each master ACM360 connected to the terminal. All templates should be stored in the slave ACM360 connected to the printer.

3.5 Transmission mode

This function is for opening/closing the multi-to-one function. Once the multi-to-one function is on, please set one master role and multi slave roles.

Notice: The communication is from master to slave only, not bi-directional like SPP communication in 1:1 mode.

* How to query the transmission mode

Triple click the button of the adaptor. A red light will blink differently according to the different transmission mode.

Table 3-5: The meaning of the blinks when querying transmission mode

Blinks	Transmission mode
☹ Red *1	One to one
☹☹ Red *2	Multi to one

*How to switch transmission mode

Press and hold the button of the adaptor until the yellow LED blinks 3 times and then triple click the button within 5 seconds to switch to the transmission mode.

After transmission mode changes successfully, the ACM360 will reboot itself and the red LED will blink once.

Notice: Both the slave role and master role ACM360 should be set in the same transmission mode.

3.6 Factory reset

Finish the installation of the two adaptors as described in chapter 3.1.

Press and hold the button of the adaptor until a yellow LED blink 3 times and then press the button 4 times to reset the adaptor.

- ➔ A red LED will blink 1 time when the reset will be done.
- ➔ Some parameters will be reset to the default.

Table 3-6: Parameters after factory reset

Parameter	Keep	Reset to default	Default
Pairing info		√	-Empty-
Role		√	Slave
Work mode		√	SPP
Transmission mode		√	One to one
Baud rate		√	9600
Name	√		-Factory Preset-
Print templates	√		-Factory Preset-
Print keywords	√		-Factory Preset-

ACM360 Applications

This chapter summarizes the setup necessary to configure certain common applications

4.1 Standard Communication - 1:1 pairing

4.1.1 Overview

This application uses the ACM360 to provide bi-directional serial communication with all data directly transferred between two adaptors, just like a cable.

Typical applications include:

- (1) A terminal with a wireless remote scale.
- (2) A terminal with a wireless remote display including CPTZ or scoreboard.
- (3) A terminal output template for wireless printing.

4.1.2 Configuration

Use two ACM360s with DB9 or M12 connections and applicable accessories

- (1) Plug the ACM360 into the devices and confirm the red LED will blink once on power-up.
- (2) Reset both ACM360 to default
- (3) Confirm work mode is SPP
- (4) Confirm transmission mode is 1 to 1
- (5) Determine Master and Slave role for each ACM360 and pair
- (6) Confirm pairing of the two ACM360s
- (7) Confirm Baud rate of each device is 9600 or matches ACM360 setup
- (8) Configure each of the connected devices COMx settings, the same as if they were connected by a cable.

4.2 Standard Communication - multi:1 pairing

4.2.1 Overview

This application uses the ACM360 to provide one-way serial communication from up to 5 terminals to one shared slave. The slave is typically attached to a printer.

Typical applications include:

- (1) A terminal output template for wireless printing

NOTE: Each ACM360 has limited cache so the output template should be relatively small in size.

4.2.2 Configuration

Use up to six ACM360s with DB9 or M12 connections and applicable accessories

- (1) Determine all Masters and one Slave role for each ACM360
- (2) Plug the ACM360 into the device and confirm the red LED will blink once on power-up
- (3) Reset all ACM360s to default
- (4) Confirm work mode is SPP
- (5) Set transmission mode to multi to 1

- (6) Leave slave ACM360 powered on
- (7) Identify a master to pair and power-off other master ACM360s
- (8) Pair the powered-on master to the slave ACM360
- (9) Power-off newly paired master and repeat steps 7 and 8
- (10) When all masters are paired to the one slave, power-on all master ACM360s
- (11) Confirm Baud rate of each device is 9600 or matches ACM360 setup
- (12) Configure each of the connected devices COMx settings the same as if they were connected by a cable. Plug the ACM360 to your devices. When the power is on, a red LED will blink once.

4.3 ZPL template printing - 1:1 pairing

4.3.1 Overview

This application prints values from the terminal where the master ACM360 adds a template number which is wirelessly transmitted the slave ACM360. The slave ACM360 merges the print values with the designated locally saved template, and then sends the ZPL code out the serial port to the printer.

Typical applications include:

- (1) Wireless printing of the terminal output values which are then merged with a ZPL label template **stored in the ACM360-B0**.

4.3.2 Configuration

Use two ACM360s with DB9 or M12 connections and applicable accessories

- (1) Plug the ACM360 into the device and confirm the red LED will blink once on power-up
- (2) Reset both ACM360 to default
- (3) Set work mode to Template printing
- (4) Confirm transmission mode is 1 to 1
- (5) Determine Master and Slave role for each ACM360
- (6) Download ZPL template to slave ACM360 using InSite
- (7) Set Master ZPL template number to match saved location in slave
- (8) Pair the ACM360s
- (9) Confirm pairing of the two ACM360s
- (10) Confirm Baud rate of each device is 9600 or matches ACM360 setup
- (11) Configure each of the connected devices COMx settings the same as if they were connected by a cable

4.4 ZPL template printing - Multi:1 pairing

4.4.1 Overview

This application prints values from up to five terminals where the master ACM360 adds its specific template number which is wirelessly transmitted to one shared slave ACM360. The slave ACM360 merges the print values with the designated locally saved template then sends the ZPL code out the serial port to the printer.

Typical applications include:

- (1) Wireless printing of the terminal output values which are then merged with a ZPL label template **stored in the slave ACM360-B0**

4.4.2 Configuration

Use up to six ACM360s with DB9 or M12 connections and applicable accessories
Determine all Masters and one Slave role for each ACM360

- (1) Configure the slave ACM360 using InSite
 - a) Reset slave ACM360 to default
 - b) Set work mode to Template printing
 - c) Confirm transmission mode is multi to 1
 - d) Download all ZPL templates to slave ACM360 using InSite
 - i. Skip this step if using one of 3 default ZPL templates
 - (2) Configure all master slave ACM360s using InSite
 - a) Reset master slave ACM360 to default
 - b) Set work mode to Template printing
 - c) Confirm transmission mode is multi to 1
 - d) Use InSite to set each Master's ZPL template number to match saved location in slave
 - (3) Plug in 1 master at a time and slave ACM360s into their respective device and confirm the red LED will blink once on power-up
 - (4) Confirm work mode is Template printing
 - (5) Confirm transmission mode is multi to 1
 - (6) Pair the powered on master to the slave ACM360
 - (7) Power-off newly paired master and repeat steps 4 thru 7
 - (8) When all masters are paired to the one slave, power-on all master ACM360s
 - (9) Confirm Baud rate of each device is 9600 or matches ACM360 setup
- Configure each of the connected devices COMx settings the same as if they were connected by a cable.

4.5 Smart Device Standard Communication – 1:1 or multi :1

4.5.1 Overview

This application pairs an ACM360 with a smart device which is running a custom host application. The host application could run on a smart phone, tablet or PC.

4.5.2 Configuration

Use up to five ACM360s with DB9 or M12 connections and applicable accessories
Smart device Bluetooth interface will limit how many ACM360s can be paired with it.

- (1) Plug the ACM360 into the device and confirm the red LED will blink once on power-up
- (2) Reset the ACM360 to default
- (3) Confirm work mode is SPP
- (4) Set smart device into pairing mode
- (5) Pair ACM360 as Slave role; use passcode=0000 if necessary
- (6) Confirm Baud rate of the device is 9600 or matches ACM360 setup

www.mt.com

Mettler-Toledo (Changzhou) Measurement Technology Ltd.

Industry/Retail

111 West Tai Hu Road, Xinbei District,
Changzhou, Jiangsu P.R.C. 213001
China

Tel: +86 519 86 64 20 40

Fax: +86 519 86 64 19 91

E-mail: ad@mt.com