

# COM-K Instruction Manual

IMR01Z01-E9

Thank you for purchasing this RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference.

## CAUTION

- This is a Class A instrument. In a domestic environment, this instrument may cause radio interference, in which case the user may be required to take adequate measures.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.

## NOTICE

- This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
- The figures, diagrams and numeric values used in this manual are only for purpose of illustration.
- RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage.
- RKC is not responsible for any damage and/or injury resulting from the use of instruments made by imitating this instrument.
- Periodic maintenance is required for safe and proper operation of this instrument. Some components have a limited service life, or characteristics that change over time.
- Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice.
- No portion of this document may be reprinted, modified, copied, transmitted, digitized, stored, processed or retrieved through any mechanical, electronic, optical or other means without prior written approval from RKC.

## 1. PRODUCT CHECK

Before using this product, check each of the following:

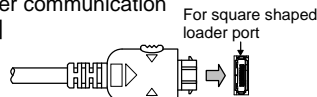
- Model code
- Check that all of the accessories delivered are complete.
- Check that there are no scratch or breakage in external appearance (case, terminal, etc).

### COM-K-□

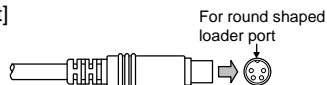
□: Loader communication cable (Optional)

N:None

- 1: W-BV-01 cable (1.5 m) for loader communication  
[For square shaped loader port]



- 3: W-BV-03 cable (1.5 m) for loader communication  
[For round shaped loader port]



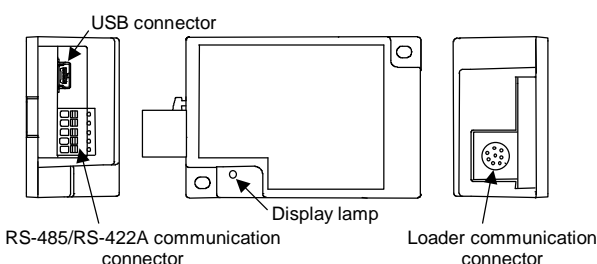
### Accessories

USB cable (1 m) .....	1
Instruction Manual (IMR01Z01-E9) .....	1

The USB device driver can be downloaded from the official RKC website: <http://www.rkcinst.com/english/soft/index.asp>

If any of the products are missing, damaged, or if your manual is incomplete, please contact RKC sales office or the agent.

## 2. PARTS DESCRIPTION



- Display lamp

Loader power *	Communication state	Lamp state
Supply the power	Standby/during data receive	A orange lamp turns on
	During data send	A orange lamp is flashing
Power not supplied	Standby/during data receive	A green lamp turns on
	During data send	A green lamp is flashing

\* The power is supplied from the loader communication connector of the controller (RKC product).

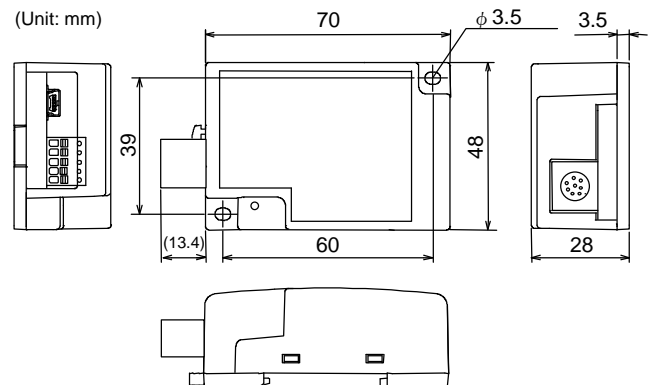
## 3. MOUNTING

### ■ Mounting Cautions

- (1) Use this instrument within the following ambient temperature and ambient humidity.
  - Allowable ambient temperature: -10 to +50 °C
  - Allowable ambient humidity: 5 to 95 % RH (Absolute humidity: MAX. W. C 29.3 g/m<sup>3</sup> dry air at 101.3 kPa)
- (2) Avoid the following when selecting the mounting location:
  - Rapid changes in ambient temperature, which may cause condensation.
  - Corrosive or inflammable gases.
  - Direct vibration or shock to the mainframe.
  - Water, oil, chemicals, vapor or steam splashes.
  - Excessive induction noise, static electricity, magnetic fields or noise.
  - Direct air flow from an air conditioner.
  - Exposure to direct sunlight.
  - Excessive heat accumulation.
- (3) Mounting consideration
  - Install the module 200 mm away from the main power line.
  - Ensure at least 50 mm space on top and bottom of the control unit for maintenance and environmental reasons.

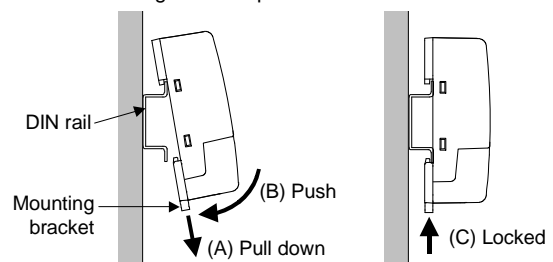
### ■ Dimensions

(Unit: mm)



### ■ DIN rail Mounting

1. Pull down the mounting bracket at the bottom of the module (A). Attach the hooks on the top of the module to the DIN rail and push the lower section into place on the DIN rail (B).
2. Slide the mounting bracket up to secure the module to the DIN rail.

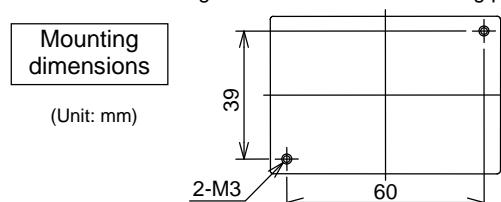


### ■ Panel Mounting

Mount COM-K directly on the panel with screws which are inserted in the mounting holes of the top and bottom mounting brackets.

**Recommended tightening torque: 0.3 N·m (3 kgf·cm)**

The customer needs to provide the M3 size screws. Select the screw length that matches the mounting panel.



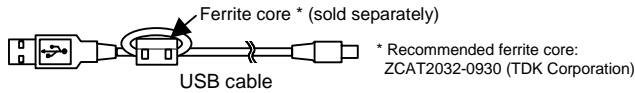
## 4. WIRING

### WARNING

To prevent electric shock or instrument failure, turn off the power before connecting or disconnecting the instrument and peripheral equipment.

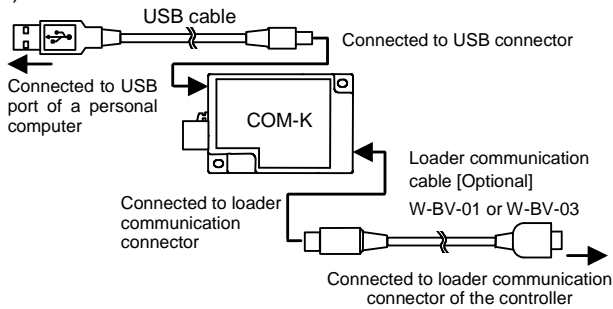
### Wiring Cautions

- To avoid noise induction, keep communication signal wire away from instrument power line, load lines and power lines of other electric equipment.
- If the personal computer is easily affected by noise, use the ferrite core in the USB cable. For an installation position of a ferrite core, please refer to the following figure.



### Method to connect

#### (1) For loader communication



To avoid termination of the loader communication for some versions of COM-K, do not turn the controller (FB400/FB900 etc.) ON or OFF during operation by loader communication.

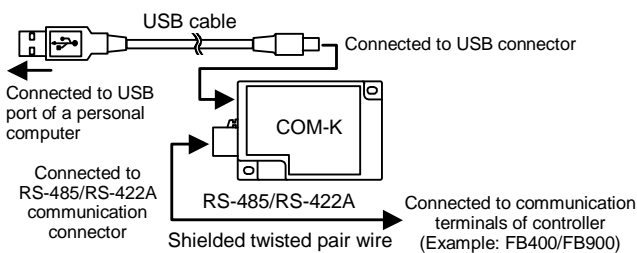
W-BV-01 loader communication cable:  
It is possible to use COM-K when controller is either ON or OFF. COM-K starts supplying power to the connected controller being OFF after approximately 2 seconds.  
W-BV-03 loader communication cable:  
Controller should be always ON to use with COM-K.

Display of controller (RKC product) being powered by COM-K:

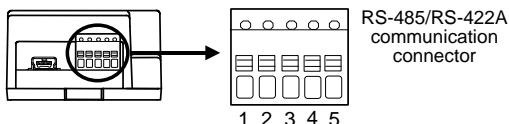
FB series, RB series etc.	Displays "----" at the PV/SV monitor display.
PF900/901	Lights all State monitor lamps: RESET, RUN, FIX, MAN, HOLD, STEP.SET and PTN.END. Other displays and lamps are OFF.

#### (2) For RS-485/RS-422A communication

The shielded twisted pair wire must be provided by the customer.



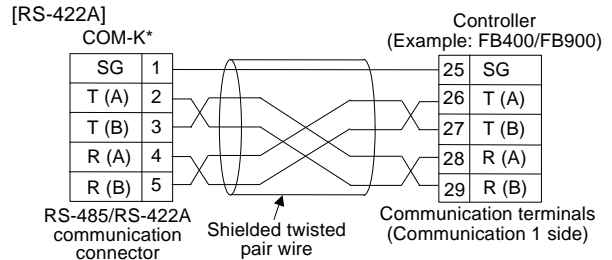
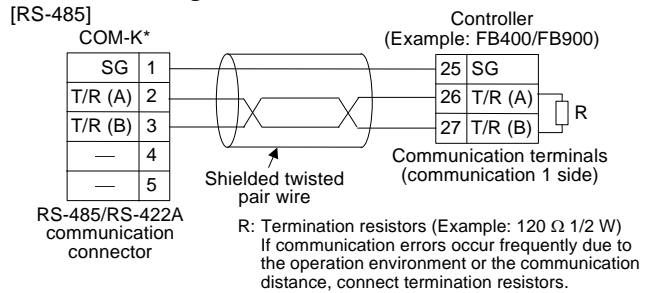
### Connector pin configuration



[RS-485]			[RS-422A]		
Pin No.	Signal name	Symbol	Pin No.	Signal name	Symbol
1	Signal ground	SG	1	Signal ground	SG
2	Send data/ Receive data	T/R (A)	2	Send data	T (A)
3	Send data/ Receive data	T/R (B)	3	Send data	T (B)
4 *	Unused	—	4	Receive data	R (A)
5 *	Unused	—	5	Receive data	R (B)

\* Do not connect wires to 4 and 5 pins. Malfunction may result.

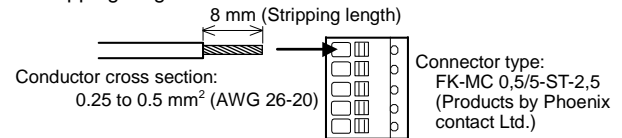
### Connection diagram



\* The termination resistor is built into the COM-K.

### Attention in connector wiring

- The lead wires use the stranded wire.
- Use the stranded wire from size 0.25 to 0.5 mm<sup>2</sup> (AWG 26-20).
- Stripping length is as follows.



### Installation of USB device driver

Installs an USB device driver in a personal computer before use.

- Connect COM-K to USB port of a personal computer.
- Install an USB device driver according to an on screen instruction.

## 5. SPECIFICATIONS

### USB function

Interface:	Based on USB Ver. 2.0
Communication speed:	Full speed (12 Mbps)
Connection:	Connected by universal USB cable (Mini-B connector)
Power source method:	Bus power (The power is supplied from the USB port on the personal computer side)
Compatible OS:	Windows XP/2000 Professional/Me/98 Second Edition, Windows 7 (32-bit, 64-bit)/Vista (32-bit, 64-bit)

### Communication function

Interface:	Based on RS-485, EIA standard Based on RS-422A, EIA standard
Connection method:	2-wire system, half-duplex multi-drop connection (RS-485) 4-wire system, half-duplex multi-drop connection (RS-422A)
Synchronous method:	Half-duplex start-stop synchronous type
Communication speed:	2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps
Data bit configuration:	Start bit: 1 Data bit: 7 or 8 Parity bit: Without, Odd or Even Stop bit: 1 or 2
Protocol:	Protocol depends on application of the personal computer side
Number of connecting controllers	Maximum 31 controllers (RS-485, RS-422A)
Termination resistor:	Built-in termination resistor (120 Ω)

### General specifications

Power supply voltage:	5 V DC ±5 % (Supplied by USB bus cable)
Current consumption:	150 mA max. (Loader communication) 60 mA max. (RS-485/RS-422A communication)
Allowable ambient temperature range:	-10 to +50 °C
Allowable ambient humidity range:	5 to 95 %RH (Non condensing) Absolute humidity: MAX.W.C 29.3 g/m <sup>3</sup> dry air at 101.3 kPa
Weight:	Approx. 40 g