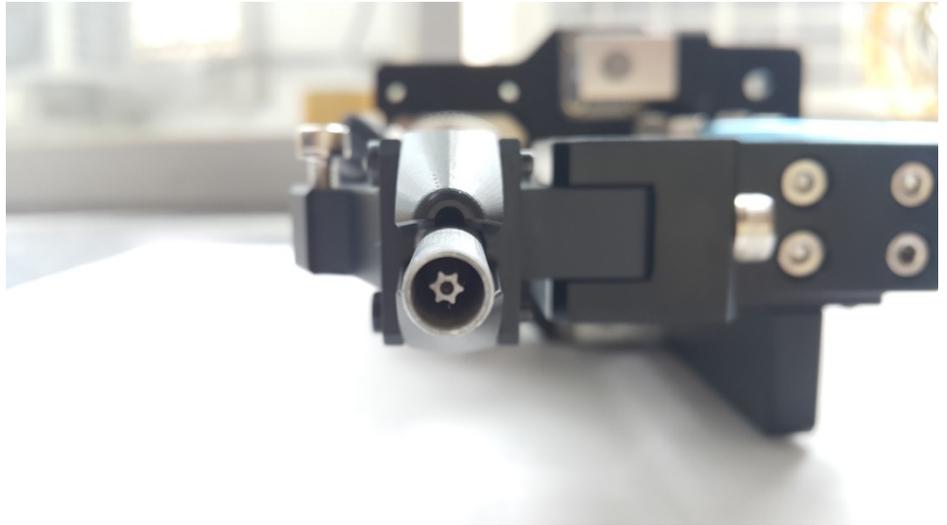


Revision : 1

March 20, 2017

ADC Specifications Manual



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1. GENERAL SAFETY RULES

WARNING! Read and understand all instructions. Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury

SAVE THIS INSTRUCTIONS

1.1 Work Area

- **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

1.2 Electrical Safety

- **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
- **Avoid body contact with grounded surface ad pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock
- **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
- **When operating a power tool outside, use an outdoor extension cord marked W-A or W.** These cords are rated for outdoor use and reduce the risk of electric shock.

1.3 Personal Safety

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
- **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your finger on the switch or plugging in tools may result in personal injury.
- **Remove adjusting keys or switches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

1.4 Tool use and Care

- **Use clamps or other practical way to secure and support the workplace to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
- **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety
- **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.

- **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
- **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool, may become hazardous when used on another tool.

1.5 SERVICE

- **Tool service must be performed only by qualified personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury
 - **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance instructions may create a risk of electric shock or injury.

2. SPECIFIC SAFETY RULES

2.1 Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.

2.2 Never lubricate aerosol oil on to the electrical part.

3. Product

It consists of the torque & angle control spindle and Spindle drive as a complete system.

1) Standard packing item



Spindle



Spindle cable pair(3m)
(power + encoder)



ADC Spindle drive



AC power cord



I/O cable (3M)

2) Option accessories



ParaMon Touch



I/O Wiring box



3) Custom design items

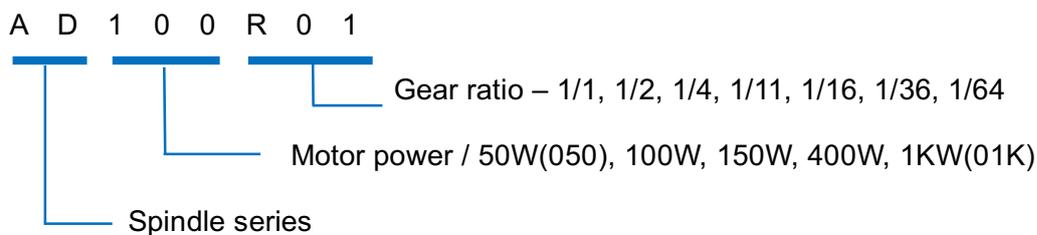
- Vacuum pick-up assembly
- Bit holder
- Bit cushion
- Telescopic extension with cushion
- Offset type
- Multi spindle
- Auto screw feeding unit

4. Main features

- 1) Digital torque and angle program in 15 preset number
- 2) 2 multi sequence programs with 10 steps in one cycle operating
- 3) 2 model programs with 10 steps of preset # in count no. and I/O managing
- 4) Auto speed setting by torque setting
- 5) Monitoring fastening quality and count of screw numbers
- 6) Error information by code display
- 7) Easy parameter setting and monitoring by ParaMON (free PC software)
- 8) Real time torque & angle curve display
- 9) Real time fastening data output
- 10) Modbus protocol
- 11) RS422, Micro USB communication port
- 12) Programable 8" touch LCD pc with monitoring and data saving feature (Option)
- 13) Network connection by RS422
- 14) Synchronizing torque control by master / slave setting
- 15) 10% of torque accuracy in full scale
- 16) +/- 3% of repeatability

5. Specification

5.1 Spindle model designation



5.2 Spindle specification

Model	Torque (kgf.cm)	Torque (Nm)	Torque (Lbf.In.)	Speed	Bit socket	Controller
AD050R01	0.5 ~ 6	0.04 – 0.58	0.43 – 5.20	150~2000	Hex1/4" or dia.4	ADC-100
AD100R01	2 ~ 12	0.19 – 1.17	1.73 – 10.41	150~2000	Hex1/4"	ADC-200
AD150R01	2 ~ 20	0.19 – 1.96	1.73 – 17.36	150~2000	Hex1/4"	ADC-400
AD150R02	4~ 28	0.39 – 2.74	3.47 – 24.30	150~2000	Hex1/4"	
AD150R04	5 ~ 50	0.49 – 4.90	4.34 – 43.4	100~1200	Hex1/4"	
AD150R11	15 ~ 100	1.47 – 9.81	13.02 – 86.8	50~450	Hex1/4"	

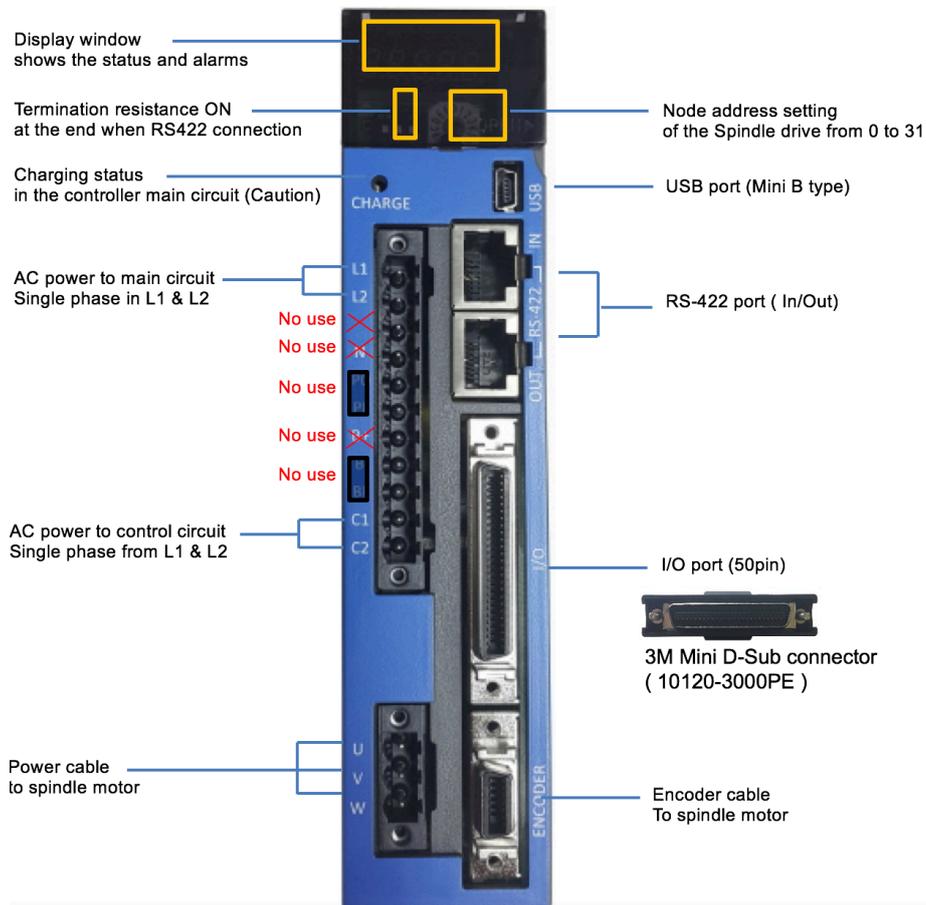
AD150R16	30 ~ 180	2.94 – 17.65	26.04 – 156.24	30~310	Hex1/4" or SQ3/8"
AD150R36	50 ~ 300	4.90 – 29.43	43.4 – 260.4	30~140	SQ3/8"
AD150R64	100 ~ 500	9.81 – 49.05	86.8 - 434	30~75	SQ3/8" or SQ1/2"

5.3 Spindle drive specification

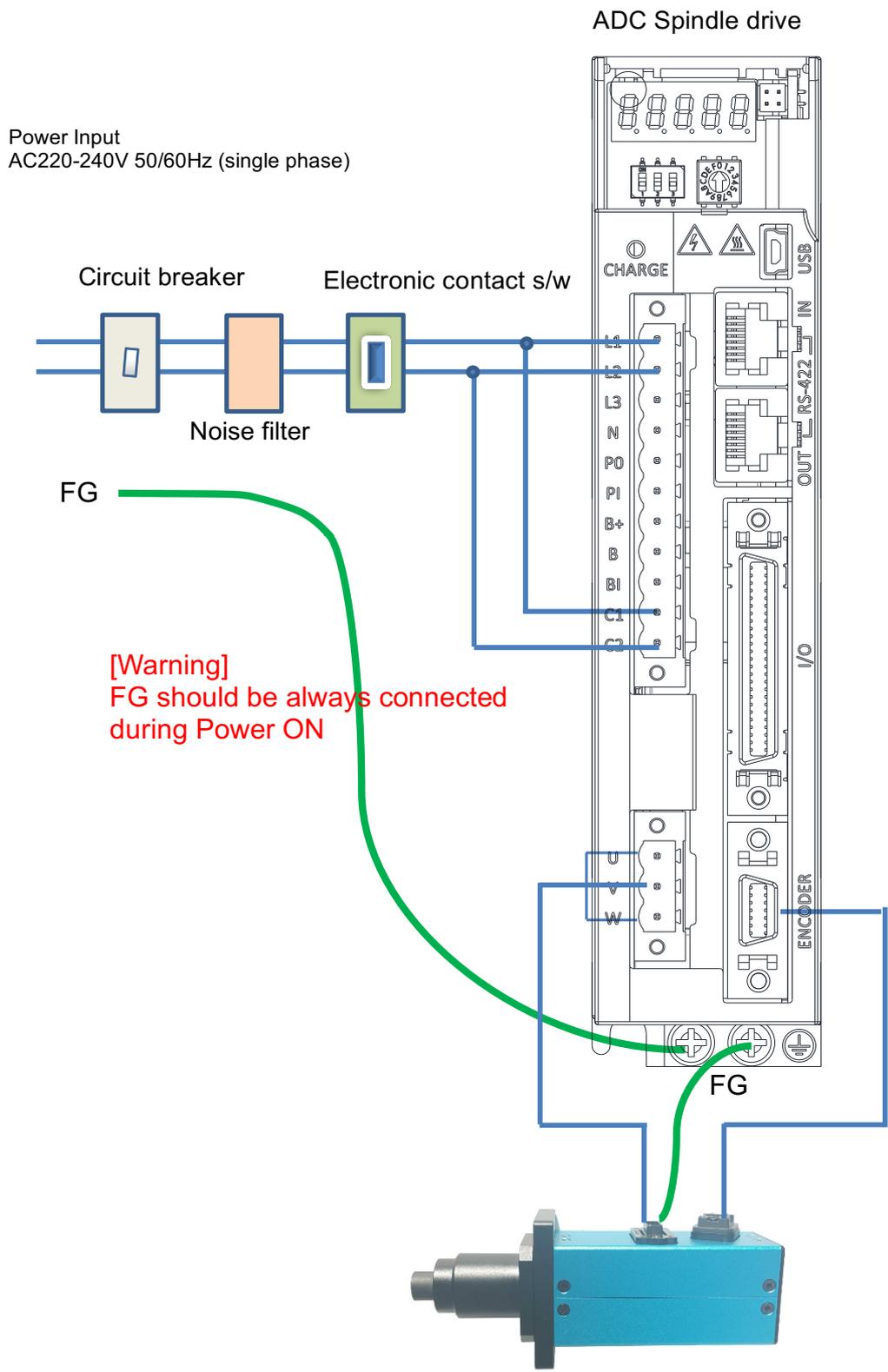
Model	ADC-100	ADC-200	ADC-400
Input power	AC200-230V, 50/60Hz single phase		
Rated current	1.4A	1.7A	3.0A
Max current	4.2A	5.1A	9.0A
Temperature	Operation 0-50°C, Storage -20~65°C / 90% RH		
Humidity	90% RH		
Protection	Over current, over load, over heat, over & low voltage		
COM port	RS-422 (Modbus-RTU) / max 200m, USB 2.0 (mini B)		

6. Description and wiring

6.1 Spindle drive description



6.2 Spindle drive and spindle wiring



Spindle



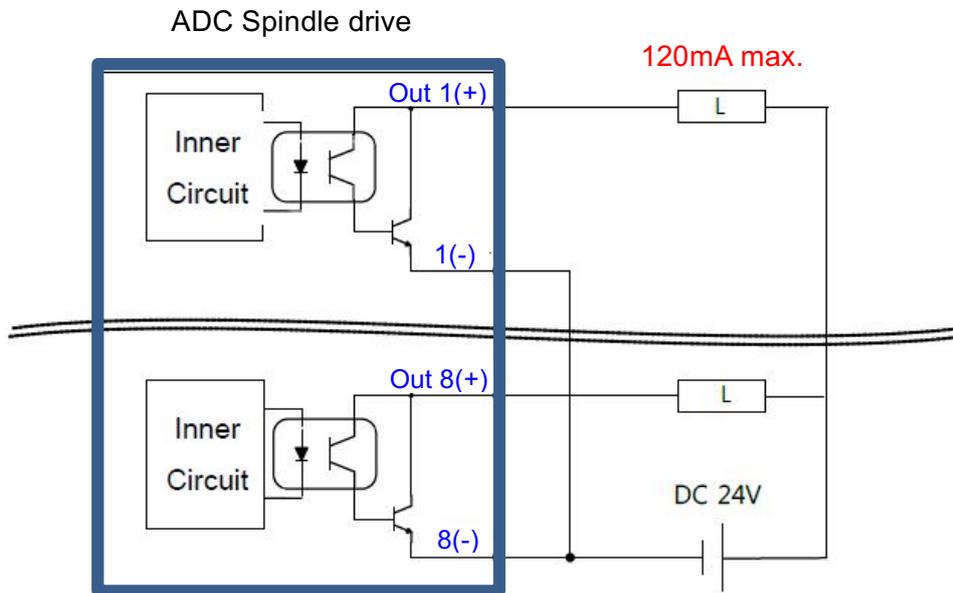
[Warning]
The cable should not be stressed during operation. It cause cable damage and any electric shock risk

Use the cable tie block to hold the cable on the top of spindle to prevent cable stress.



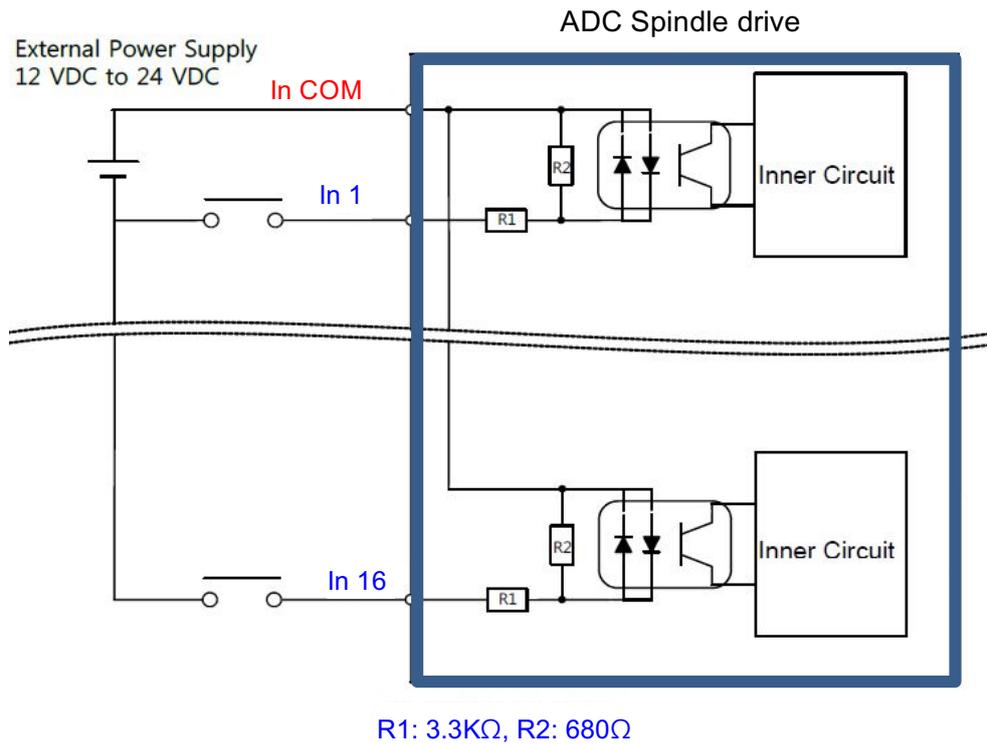
7. I/O details

7.1 Digital output (Out 0 – Out 8, total 8 outputs)



PIN No.	Description	Factory setting
35	OUT 1 (+)	Torque UP
36	OUT 1 (-)	
37	OUT 2 (+)	Fastening OK
38	OUT 2 (-)	
39	OUT 3 (+)	Ready
40	OUT 3 (-)	
41	OUT 4 (+)	Motor RUN
42	OUT 4 (-)	
43	OUT 5 (+)	Alarm
44	OUT 5 (-)	
45	OUT 6 (+)	Status F/L
46	OUT 6 (-)	
47	OUT 7 (+)	Count complete
48	OUT 7 (-)	
49	OUT 8 (+)	-
50	OUT 8 (-)	

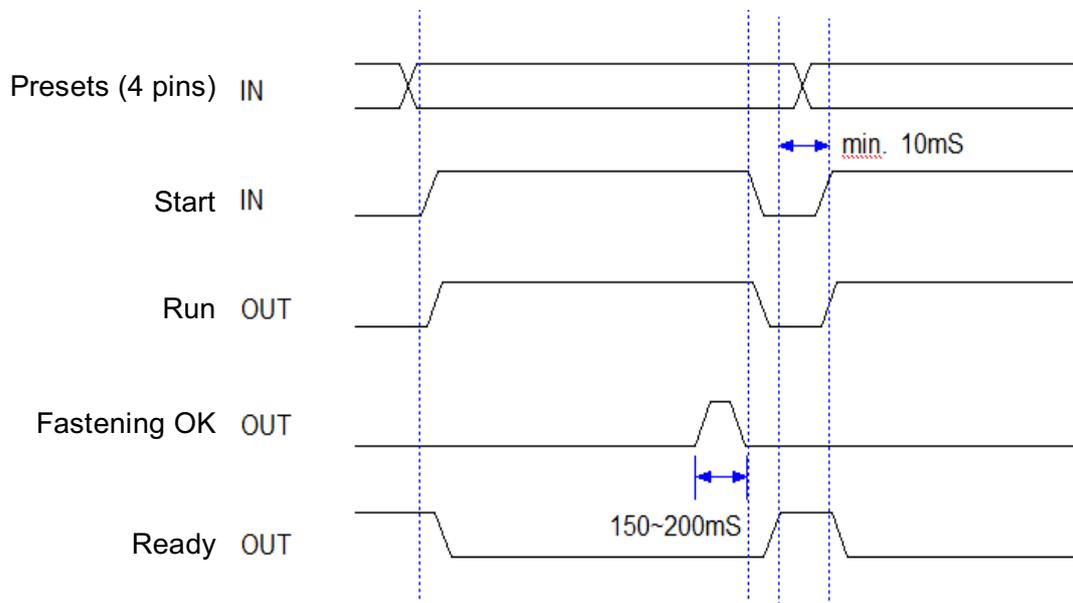
7.2 Digital input (In 1 – In16, total 16 inputs)



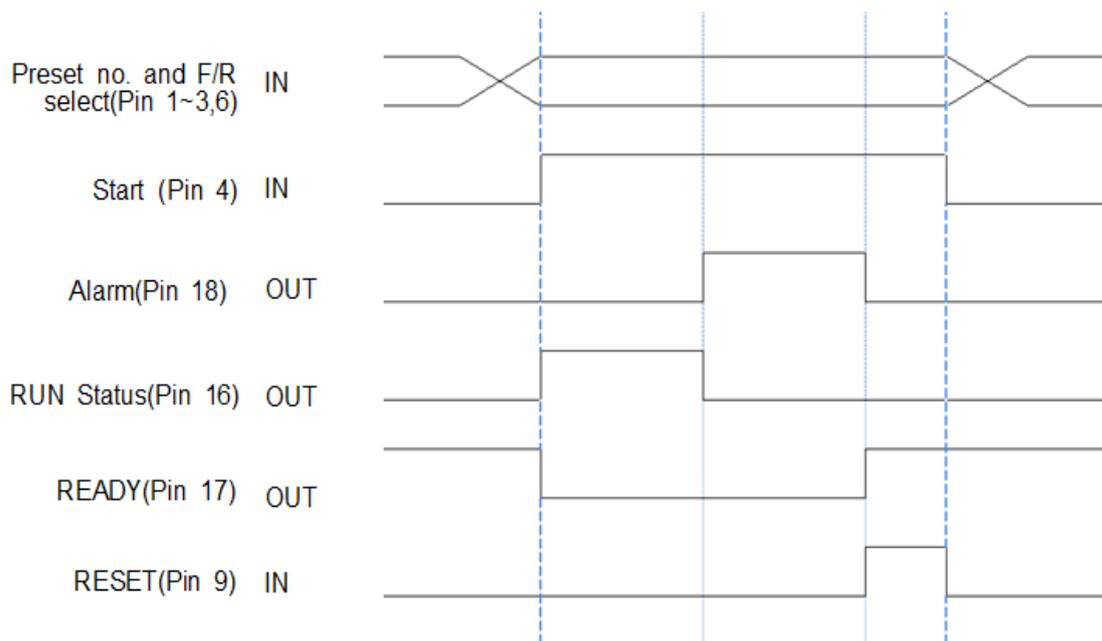
PIN No.	Description	Factory setting
11, 21	IN COM	24V(+)
12	IN 1	Preset select 1
13	IN 2	Preset select 2
14	IN 3	Preset select 3
15	IN 4	Start
16	IN 5	Forward / Reverse
17	IN 6	Driver Lock
18	IN 7	Multi sequence
19	IN 8	Reset
22	IN 9	-
23	IN 10	-
24	IN 11	-
25	IN 12	-
26	IN 13	-
27	IN 14	-
28	IN 15	-
29	IN 16	-

7.3 I/O timing chart

1) Fastening OK



2) Fastening NG

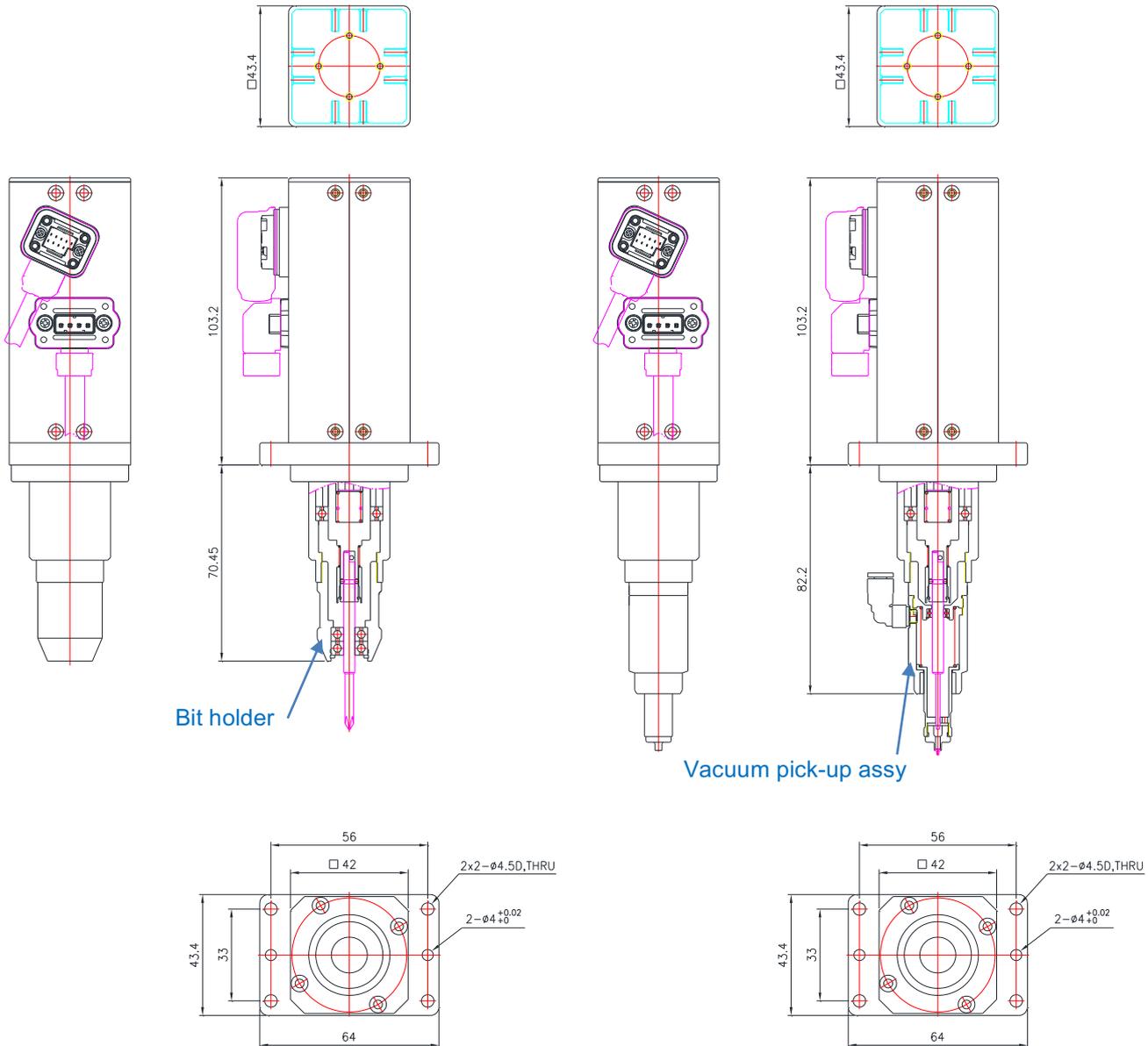


8. Drawing

8.1 Spindle drawings

AD050R01-E
AD050R01-E+C

AD050R01-E+V
AD050R01-E+VC

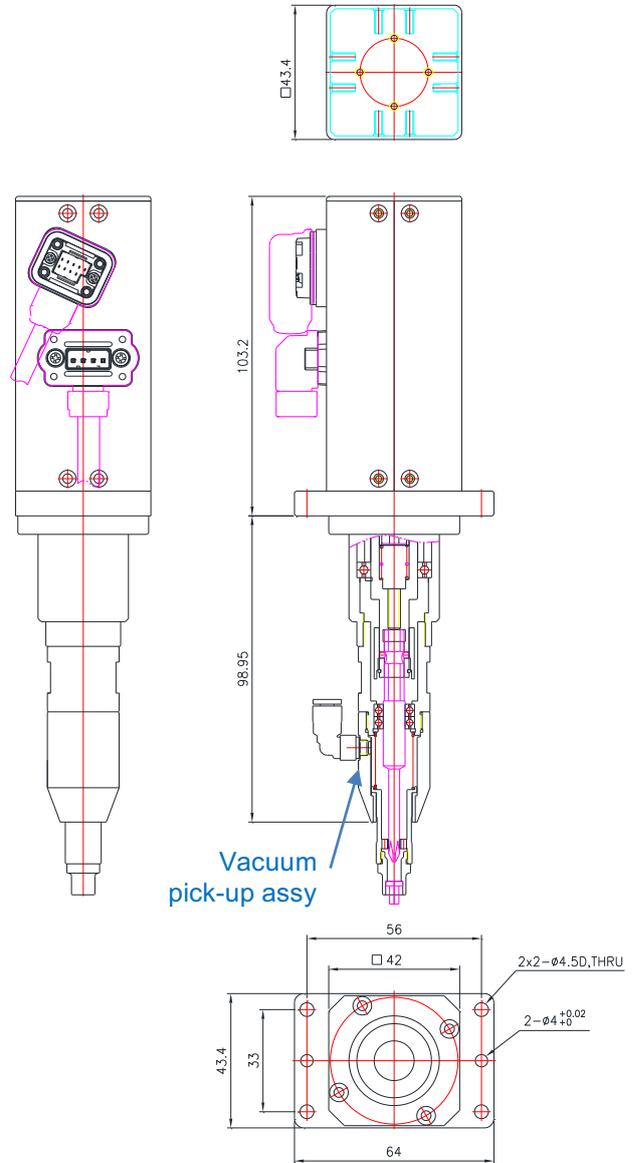
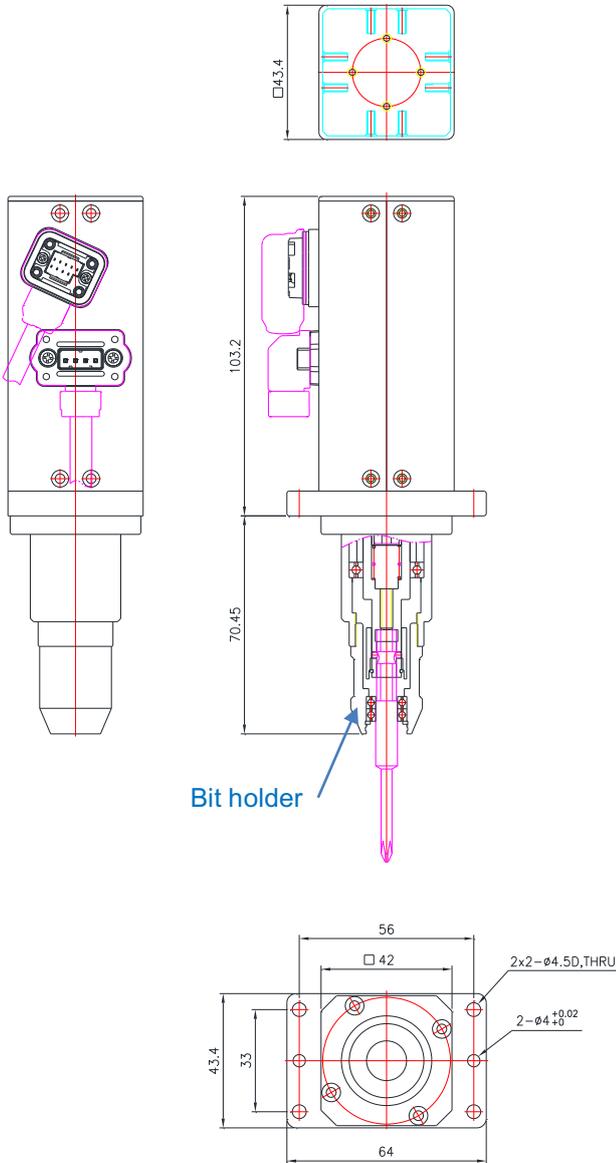


Bit holder (Option)
for Ohmi V-05 bit or equivalent
(with Dia. 4mm body hold by bearing)

Vacuum pick-up assy (Option)
for Ohmi V-05 or equivalent
(with Dia. 4mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and applications. The above described vacuum pick-up assy is for one of the application. It doesn't work for all application.

AD050R01-A
AD050R01-A+C

AD050R01-A+V
AD050R01-A+VC

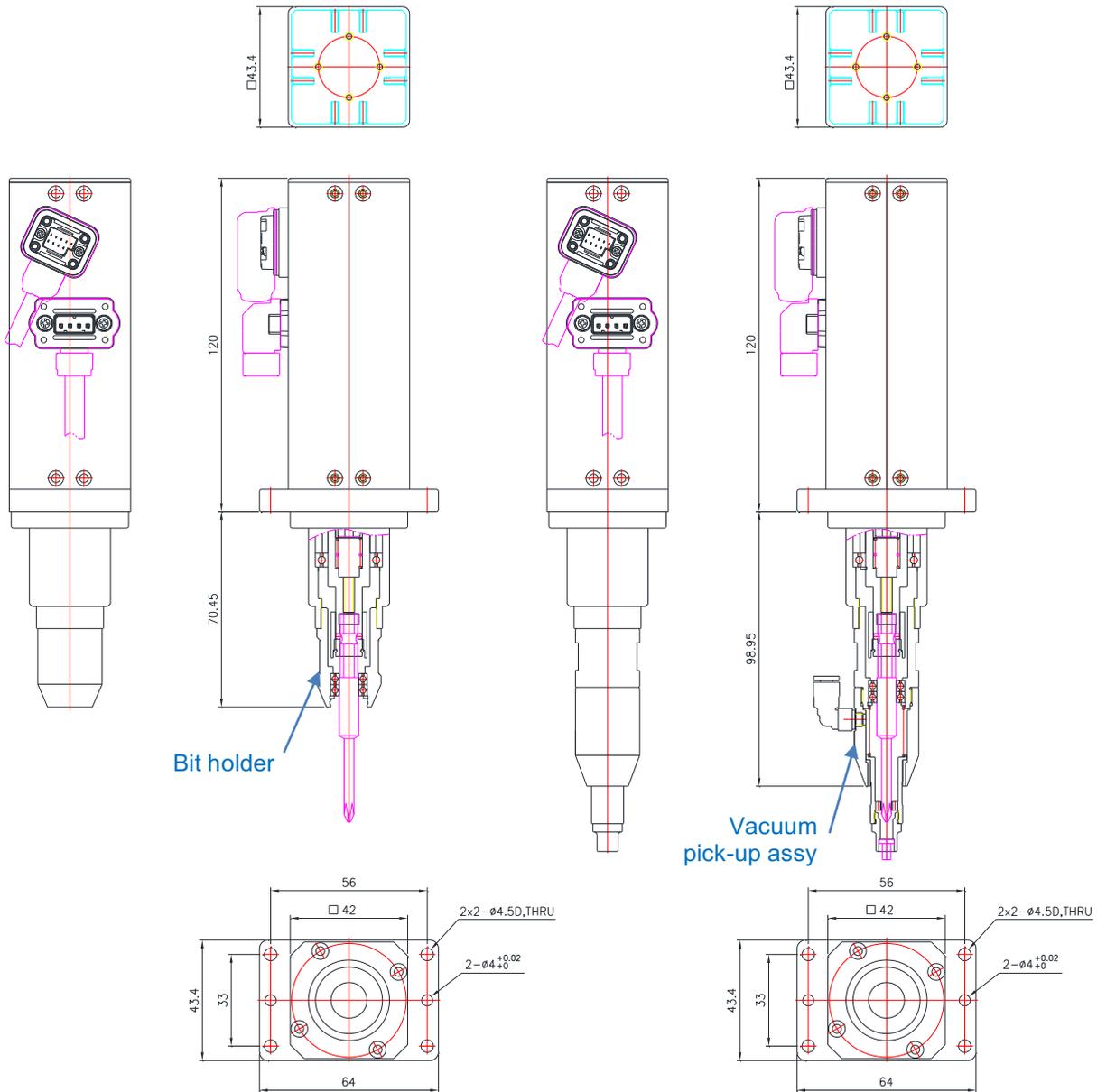


Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4"
with Dia 7mm body hold by bearing)

Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4"
with Dia 7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and
applications. The above described vacuum
pick-up assy is for one of the application. It
doesn't work for all application.

AD100R01-A
AD0100R01-A+C

AD100R01-A+V
AD100R01-A+VC

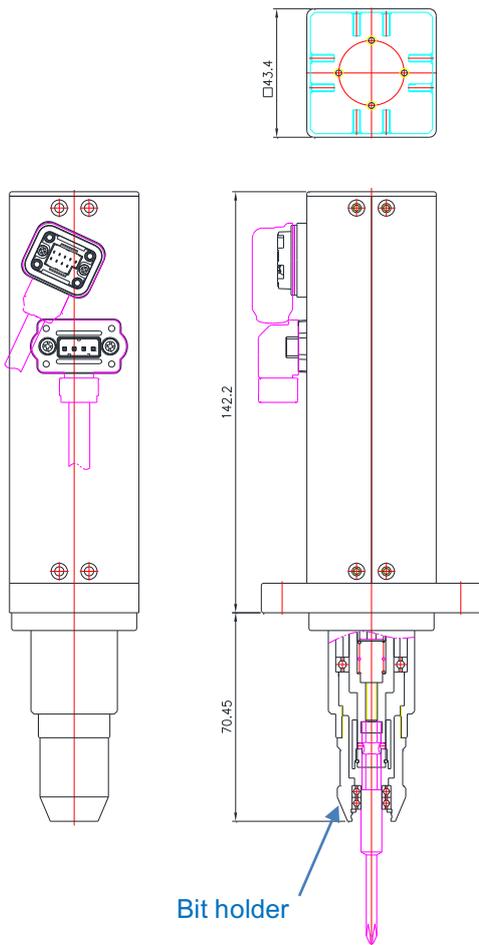


Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4"
with Dia 7mm body hold by bearing)

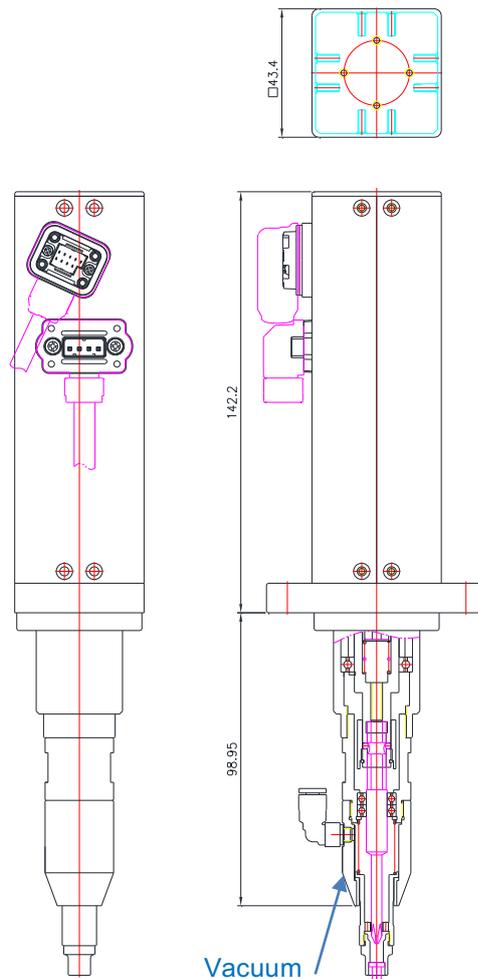
Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia
7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and
applications. The above described vacuum
pick-up assy is for one of the application. It
doesn't work for all application.

AD150R01-A

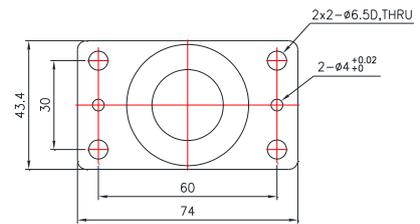
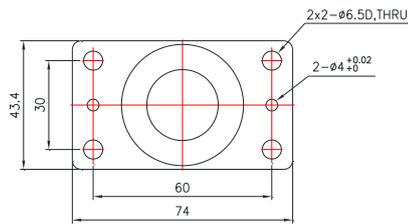
AD150R01-A+V



Bit holder



Vacuum pick-up assy

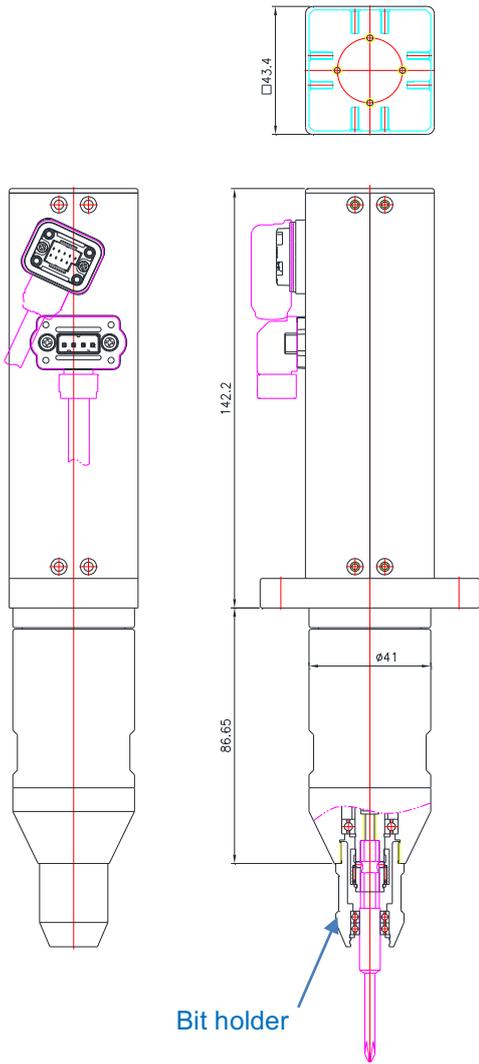


Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia 7mm body hold by bearing)

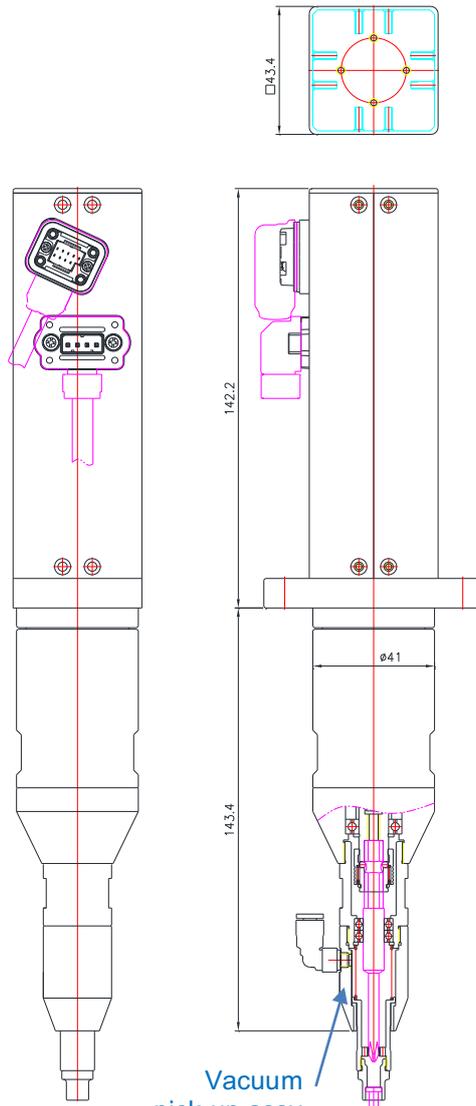
Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia 7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and applications. The above described vacuum pick-up assy is for one of the application. It doesn't work for all application.

AD150R02-A

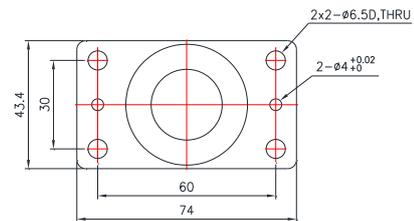
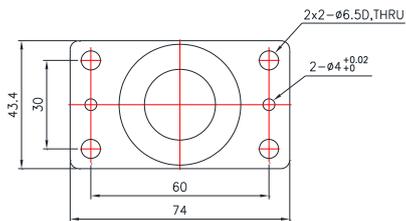
AD150R02-A+V



Bit holder



Vacuum pick-up assy

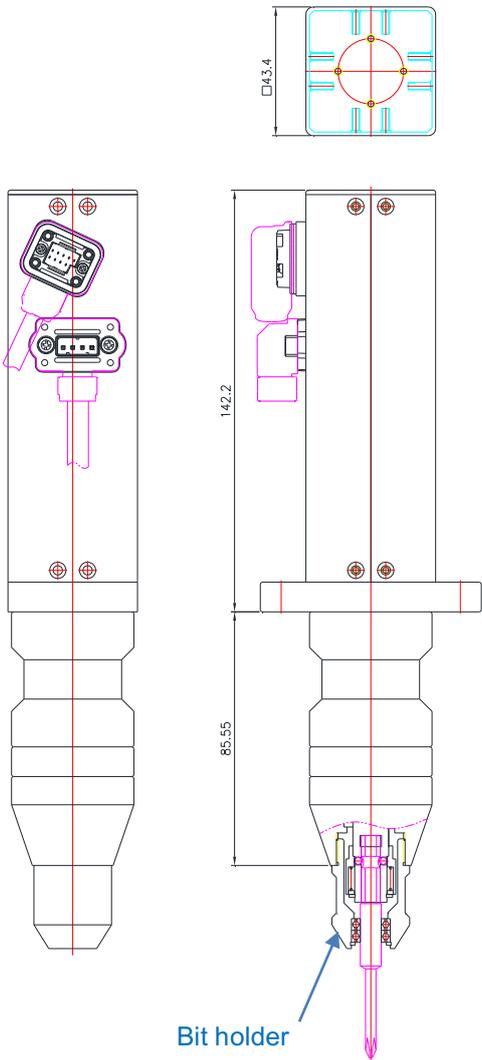


Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4"
with Dia 7mm body hold by bearing)

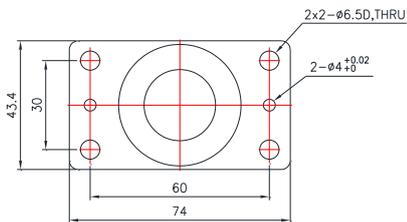
Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia
7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and
applications. The above described vacuum
pick-up assy is for one of the application. It
doesn't work for all application.

AD150R04-A

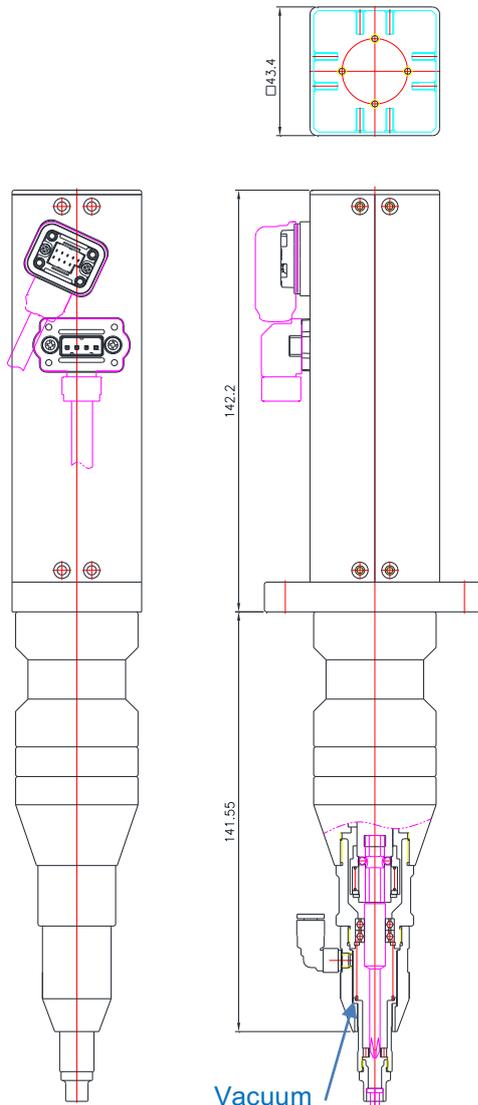
AD150R04-A+V



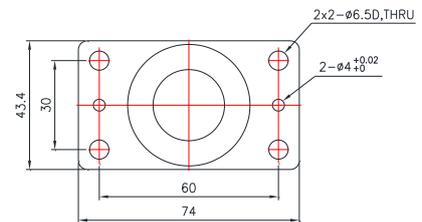
Bit holder



Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia 7mm body hold by bearing)



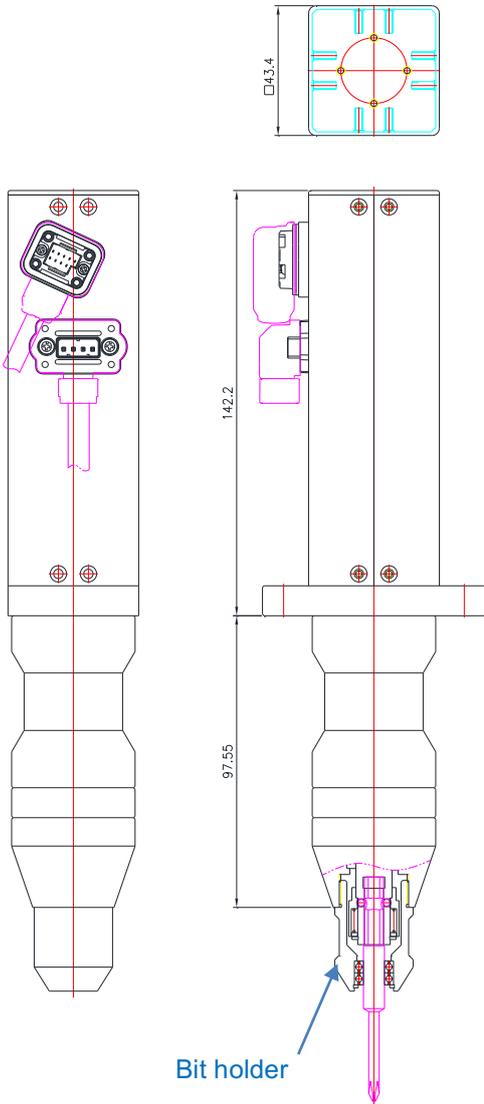
Vacuum pick-up assy



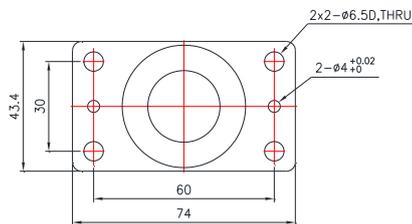
Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia 7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and applications. The above described vacuum pick-up assy is for one of the application. It doesn't work for all application.

AD150R11-A
AD150R16-A

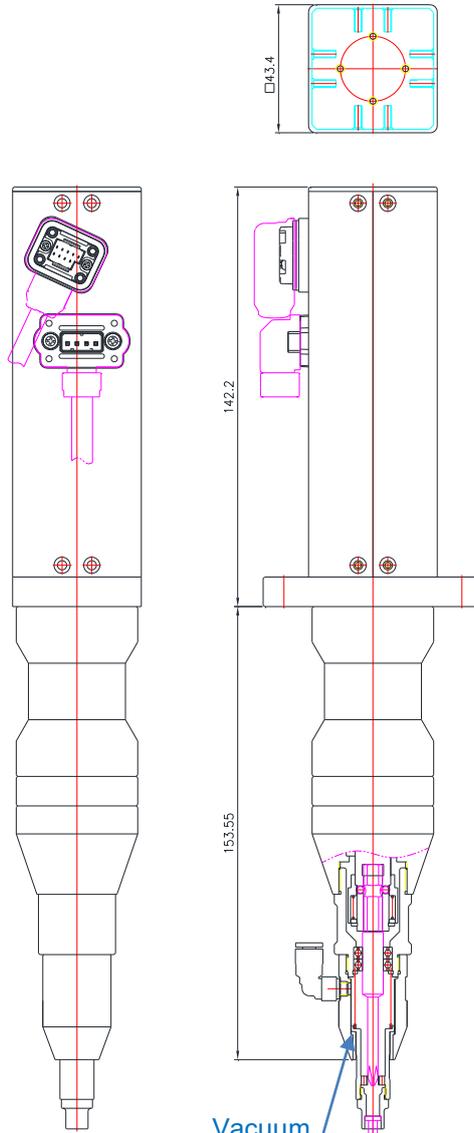
AD150R11-A+V
AD150R16-A+V



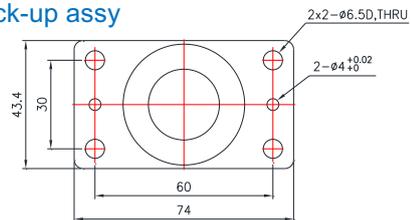
Bit holder



Bit holder (Option)
for Ohmi V-17 or equivalent (Hex1/4"
with Dia 7mm body hold by bearing)



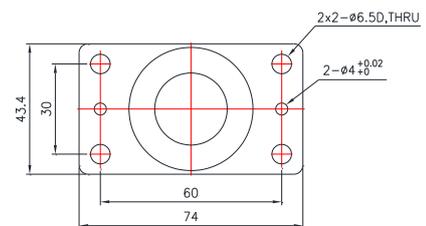
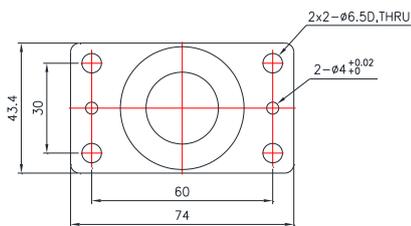
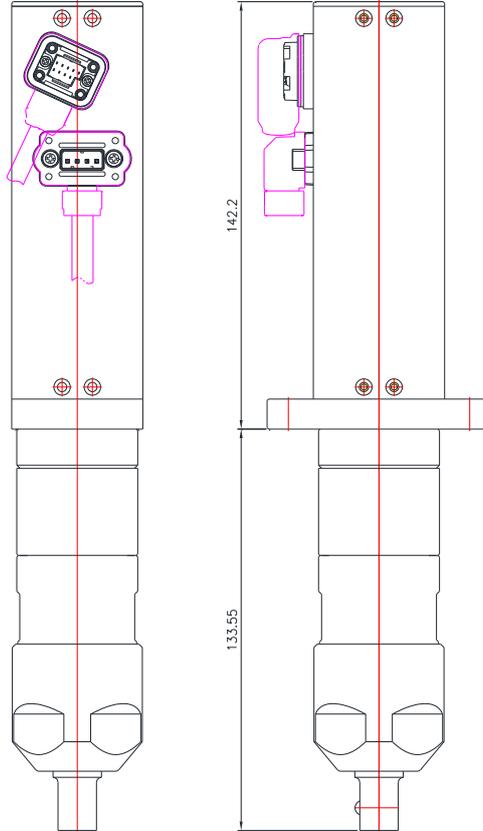
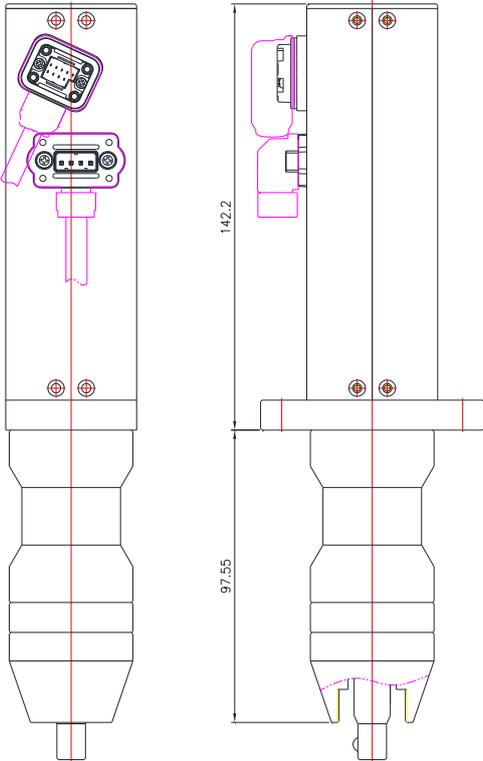
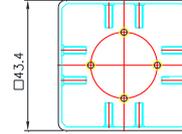
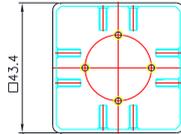
Vacuum
pick-up assy



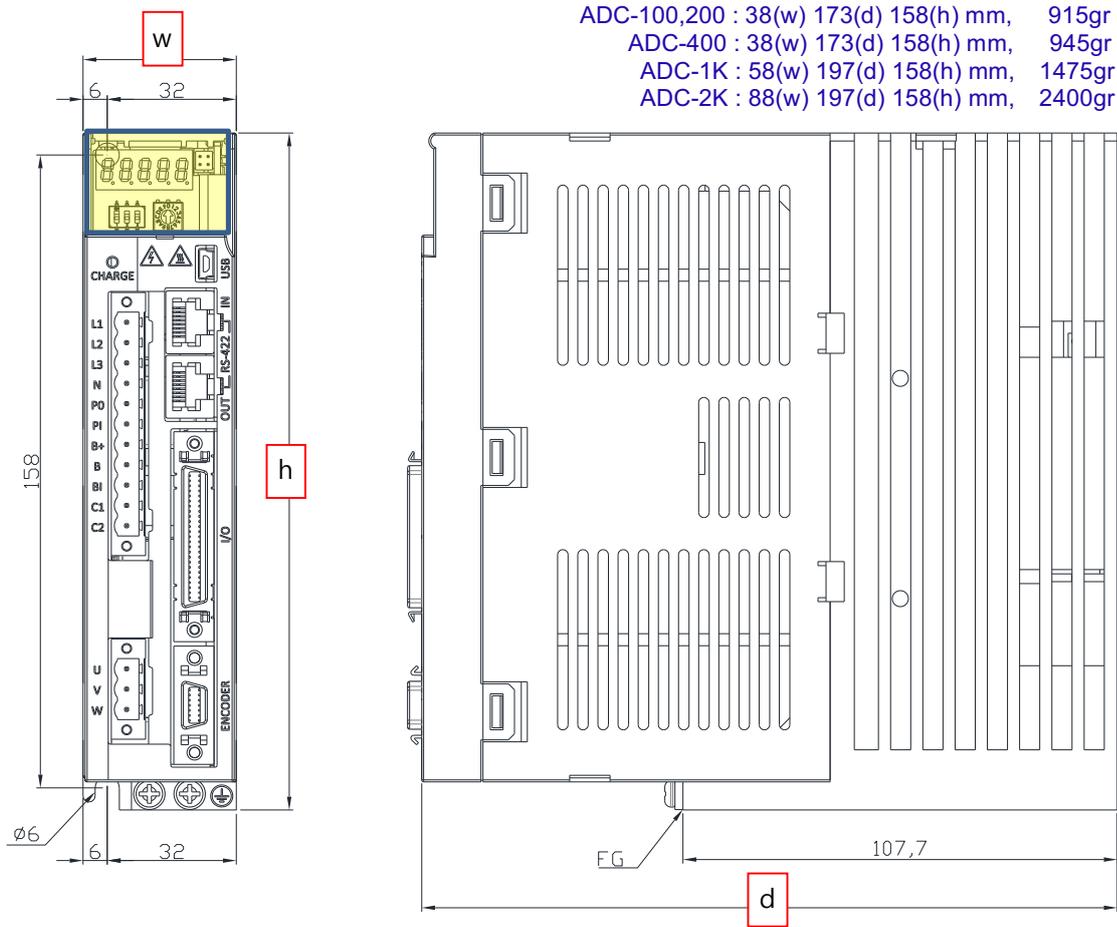
Vacuum pick-up assy (Option)
for Ohmi V-17 or equivalent (Hex1/4" with Dia
7mm body hold by bearing)
Mouth piece is not included in the assy.
It is custom designed for each screw size and
applications. The above described vacuum
pick-up assy is for one of the application. It
doesn't work for all application.

AD150R11-SQ3/8
AD150R16-SQ3/8

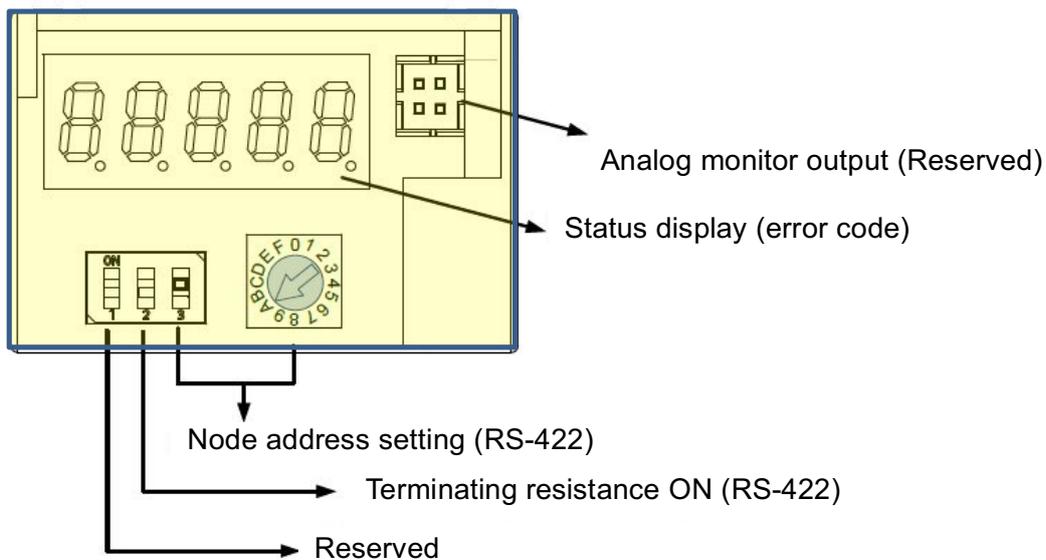
AD150R36-SQ1/2 or SQ3/8
AD150R64-SQ1/2 or SQ3/8



8.2 Spindle drive drawing



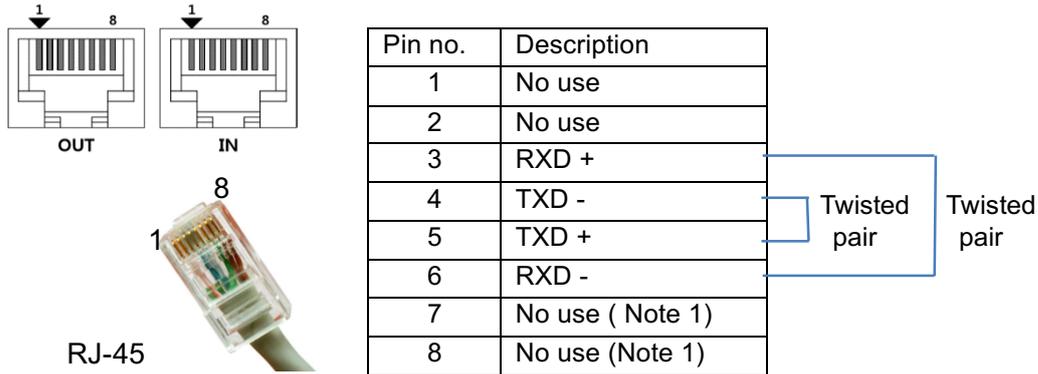
8.3 Spindle drive front panel description



9. Communication wiring and port setting

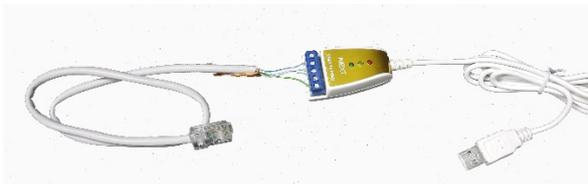
ADC is capable of connecting to the host controller (Handy Loader, HMI, PLC, PC, etc.) through RS-422 serial communication or USB 2.0 (mini B type), allowing the user to use such functions as parameter change and data monitoring.

9.1 RS-422 communication connector pin details



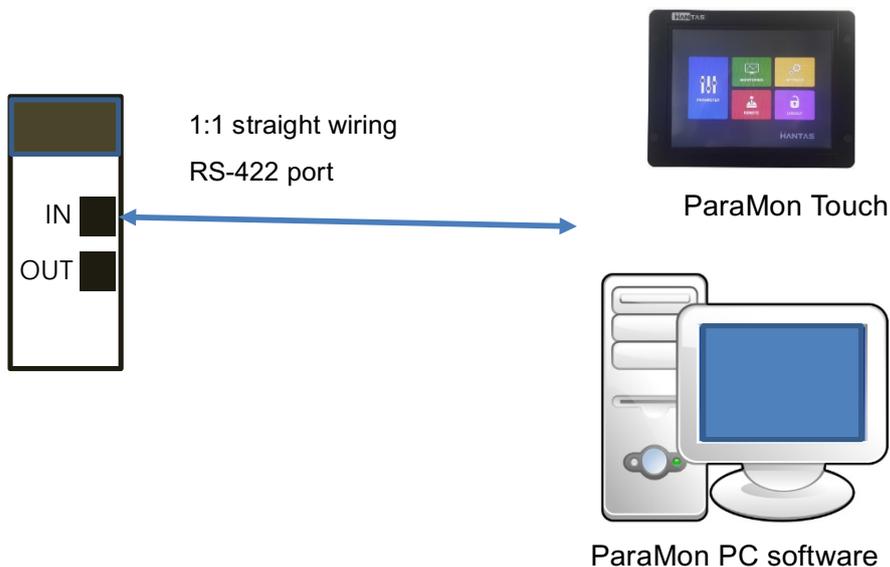
The pare of TXD+ / TXD- (4,5) and RXD+ / RXD- (3,6) wires should be twisted wiring.

Note 1 : Never use these two pins to others. There is 5V power output for other purpose.

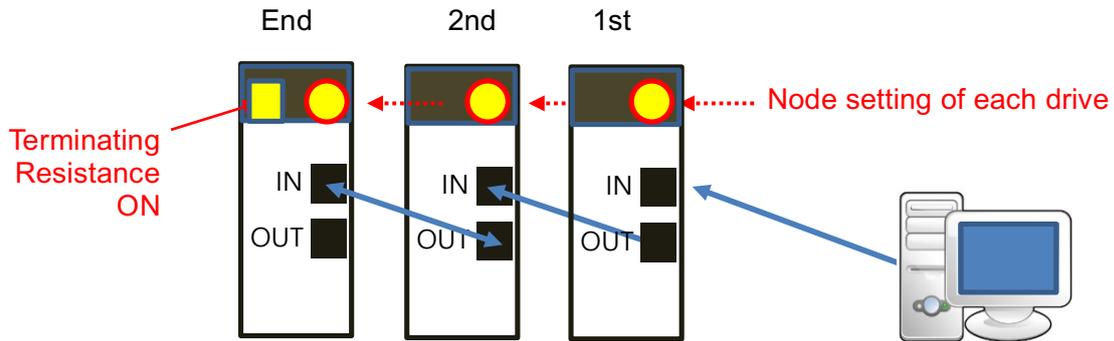


RS422 to USB converter

9.2 Single communication wiring using RS-422



9.3 Multi-Drop Connection using RS-422 (up to 31 spindle drives)



- The pins of IN & OUT port are connected by parallel together (1:1), allowing for convenient multi-drop wiring.
- The different node no. should be selected for each drive
- The Terminating resistance switch should be ON for the last connected drive
- Total 31 drives can be connected in a network

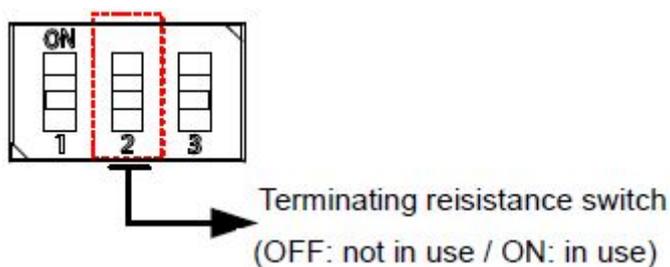
9.4 Terminating resistance setting for multi-drop connection

Every single spindle drive has the built-in terminating resistance (120Ω) internally.

But it is always OFF by the switch by the factory setting.

When they are connected with more than three(3) together in multi-drop connection, the latest one should have the terminating resistance by the switch ON.

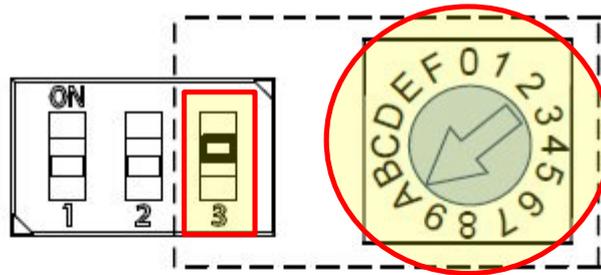
Otherwise the communication can be not stable at all.



9.5 Node (ID) address setting for multi-drop connection

Every single spindle drive should be identified with Node address in multi-drop connection network. Whenever the drive is turn on, the node address is recognized. The drive should be turned OFF and ON again to change the node address.

The address can be selected by each one of slide switch and rotary switch as below;



Rotary switch setting	0	1	2	3	4	5	6	7	8	9	A
Toggle switch setting	OFF										
Node address	0	1	2	3	4	5	6	7	8	9	10

Rotary switch setting	B	C	D	E	F	0	1	2	3	4	5
Toggle switch setting	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
Node address	11	12	13	14	15	16	17	18	19	20	21

Rotary switch setting	6	7	8	9	A	B	C	D	E	F	
Toggle switch setting	ON										
Node address	22	23	24	25	26	27	28	29	30	31	

9.6 Synchronizing fastening by torque

Two or more spindles up to maximum 31 spindles can be operated with a torque synchronized condition. Please refer the Operation manual of PC software ParaMon ADC / page 23 Monitoring >

6) Synchronizing

Mountz Calibration & Repair Services

Mountz Inc. features an experienced calibration and repair staff. Our trained technicians can calibrate and repair most any tool. Mountz provides rapid service with quality that you can trust as we offer three state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

Since 1965, Mountz Inc. has proven in-depth knowledge of torque is reflected in our tool's craftsmanship and our ability to provide solutions to both common and uncommon torque applications. We perform calibrations in accordance with ANSI/NCSL-Z540. Mountz is dedicated solely to the manufacturing, marketing and servicing of high quality torque tools.

Tool Service & Repair Capability

- Torque Wrench Calibration: Click Wrench, Dial Torque Wrench, Beam Wrench, Cam-Over & Break-Over Wrench
 - Torque Screwdrivers: Dial, Micrometer, Preset & Adjustable
 - Torque Analyzers/Sensors: All brands
 - Electric Screwdrivers: All brands
 - Air Tools: All brands
- Impact Wrenches, Drills, Pulse Tools, Grinders, Percussive Tools, Air Screwdrivers, Nutrunners, DC Controlled Nutrunners
- Torque Multipliers: All brands

Mountz Service Locations

Eastern Service Center
19051 Underwood Rd.
Foley, AL 36535
Phone: (251) 943-4125
Fax: (251) 943-4979

Western Service Center
1080 N.11th Street
San Jose, CA 95112
Phone: (408) 292-2214
Fax: (408) 292-2733

www.mountztorque.com
sales@mountztorque.com



Twitter: @mountztorque

Download a "Service Form" and include a copy when you send the tools in to be serviced.

Looking for fasteners?
www.mrmetric.com

