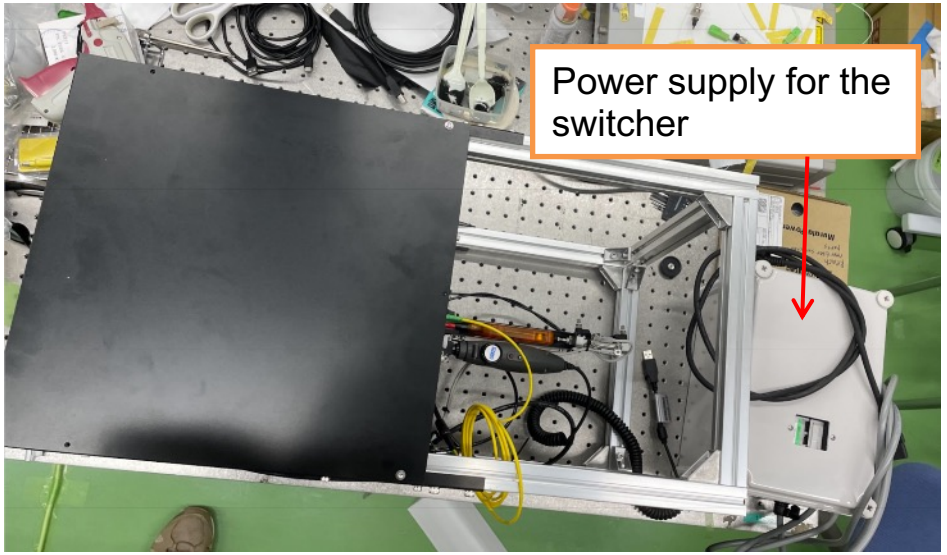
New prototype switcher (FY23) manual

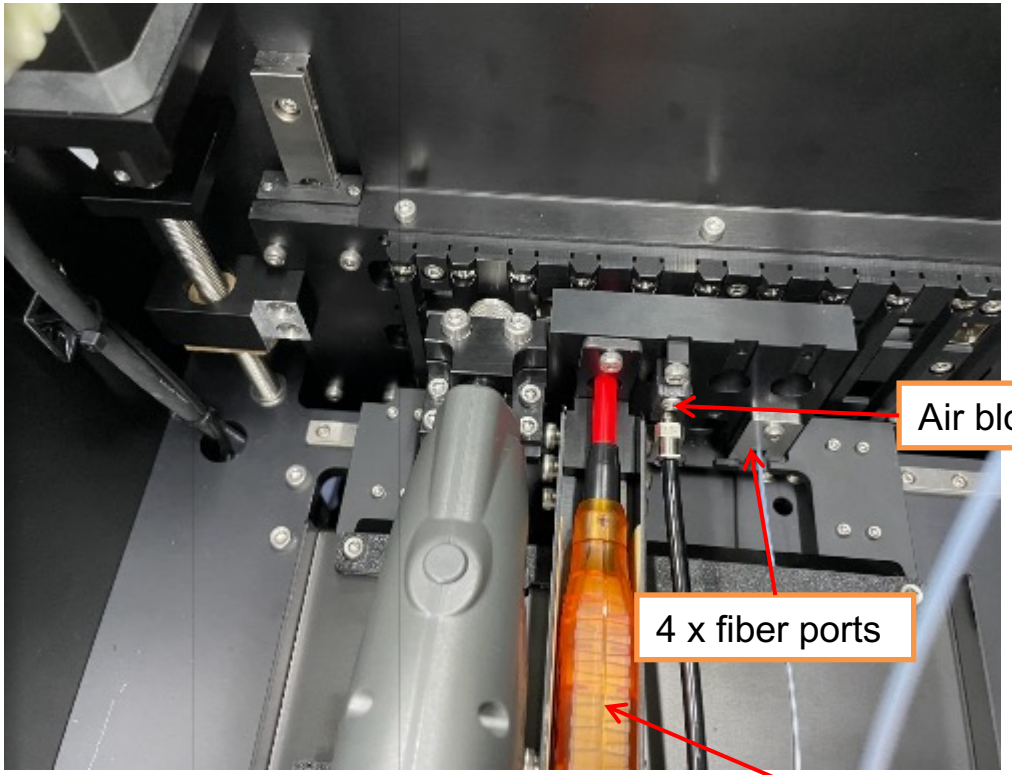
2024/07/27 ABC/NAOJ Takayuki Kotani

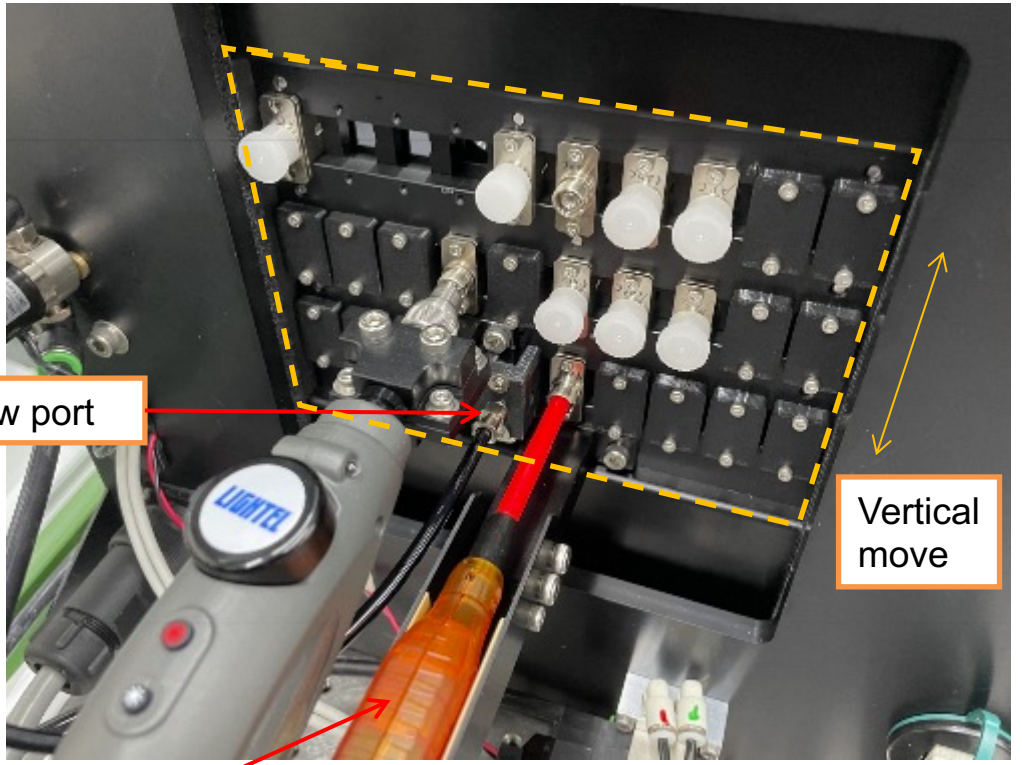


Fiber microscopes, fiber attachment, USB memory for GUI software in the Lightel case

1. Please clean the inside and outside of the switcher. I did only very simple cleaning
2. Connect the switcher and the power supply
3. Attach the fiber microscopes (be careful about the orientation and the inner and external microscopes)
4. Connect the air tubes to the fittings
5. Set the IP address of your PC
6. (optional) Connect 2x 25V power supplies to control 2x solenoid valves
7. Please initialize the switcher when turning on the power

Fibers, microscopes, air blow port

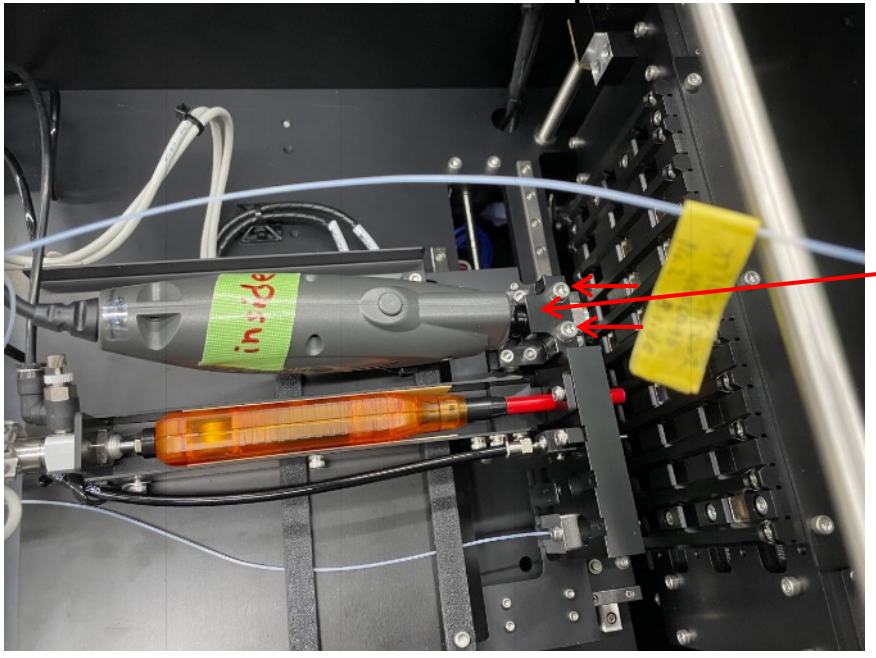




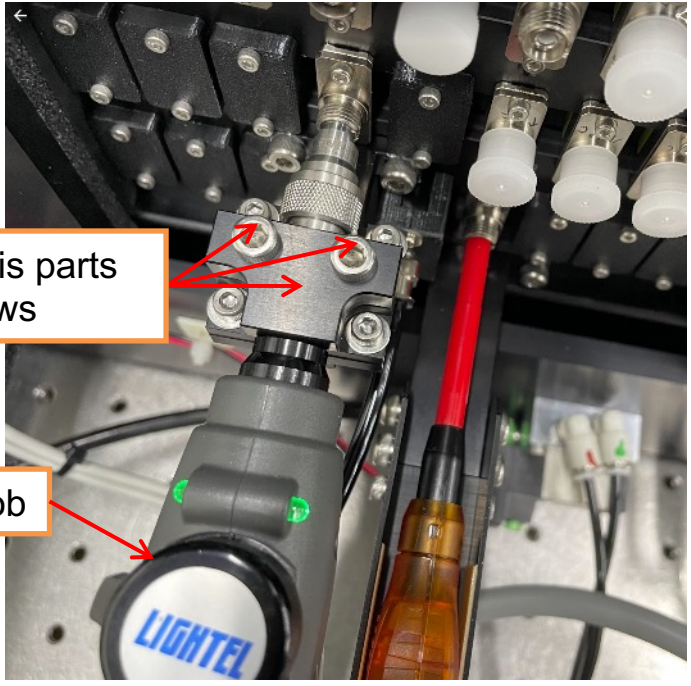
Attach microscopes to the fiber ports

- Please use the fiber microscope labeled “inside” for the inner fiber port. It cannot be attached to the outer fiber port.
- For the internal microscope, please put it to the fiber port so that the focus knob is facing downwards. For the external microscope, put it so that the focus knob is facing upwards.

Internal microscope

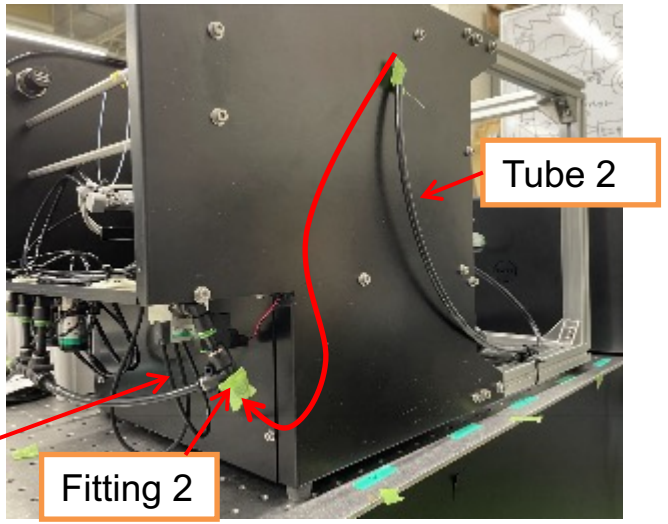


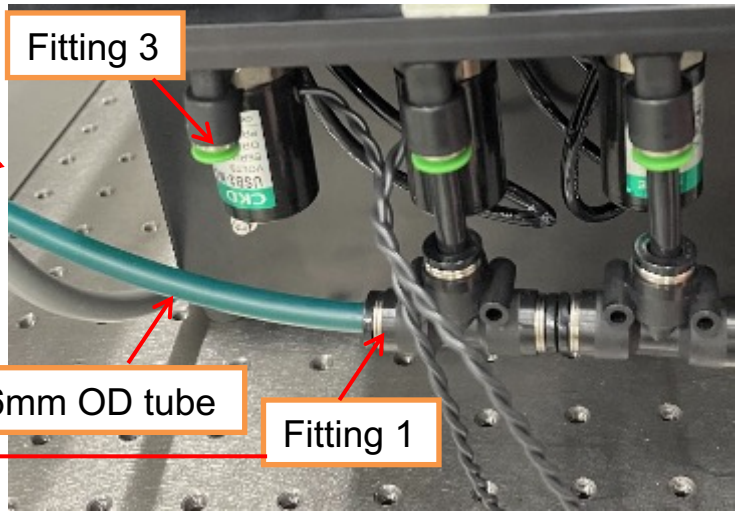
external microscope

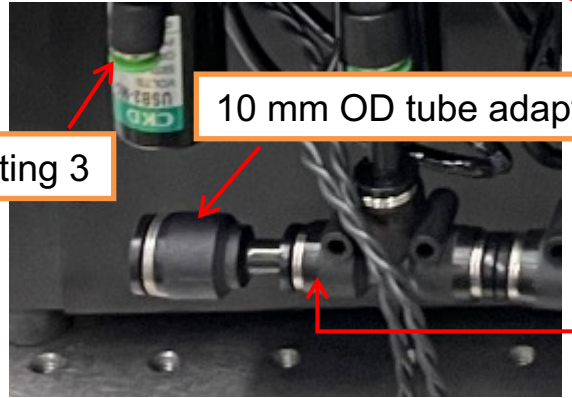



USB port for the
internal microscope

Attach air tubes to the switcher

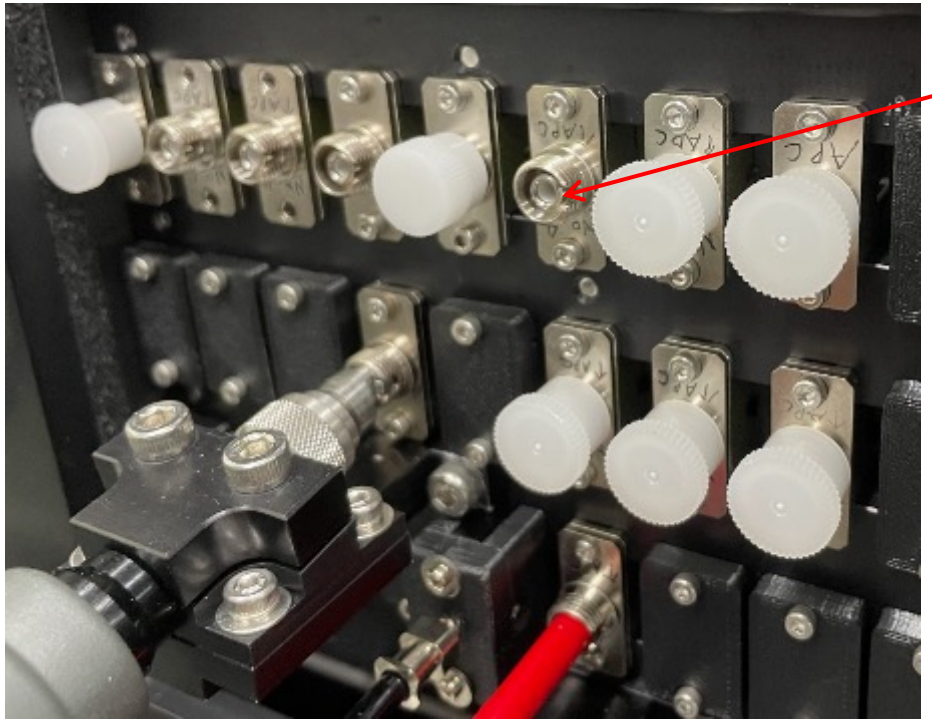




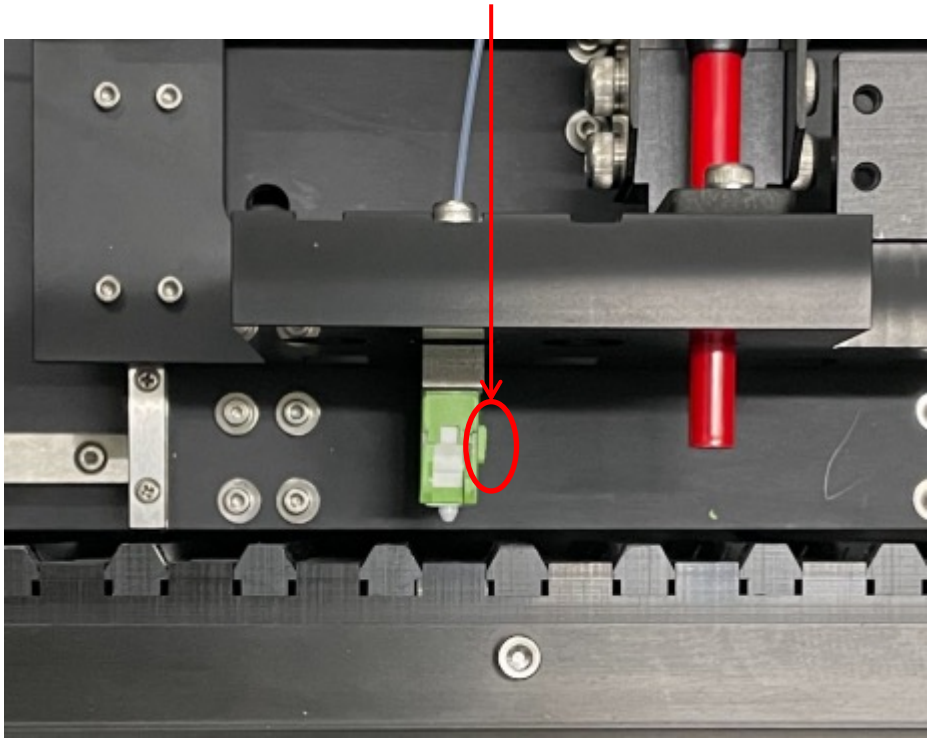


- If you use the 6mm OD tube (green one), remove the 10mm OD tube adapter, then connect the 6mm OD tube to the fitting 1. This 6mm OD tube should be connected to your compressor or regulator
- Air pressure should be> 0.4 MPa to drive pneumatic actuators.
- Connect the tube 2 to the fitting 2
- Fitting 3 is for a tube which will be connected to a particle counter

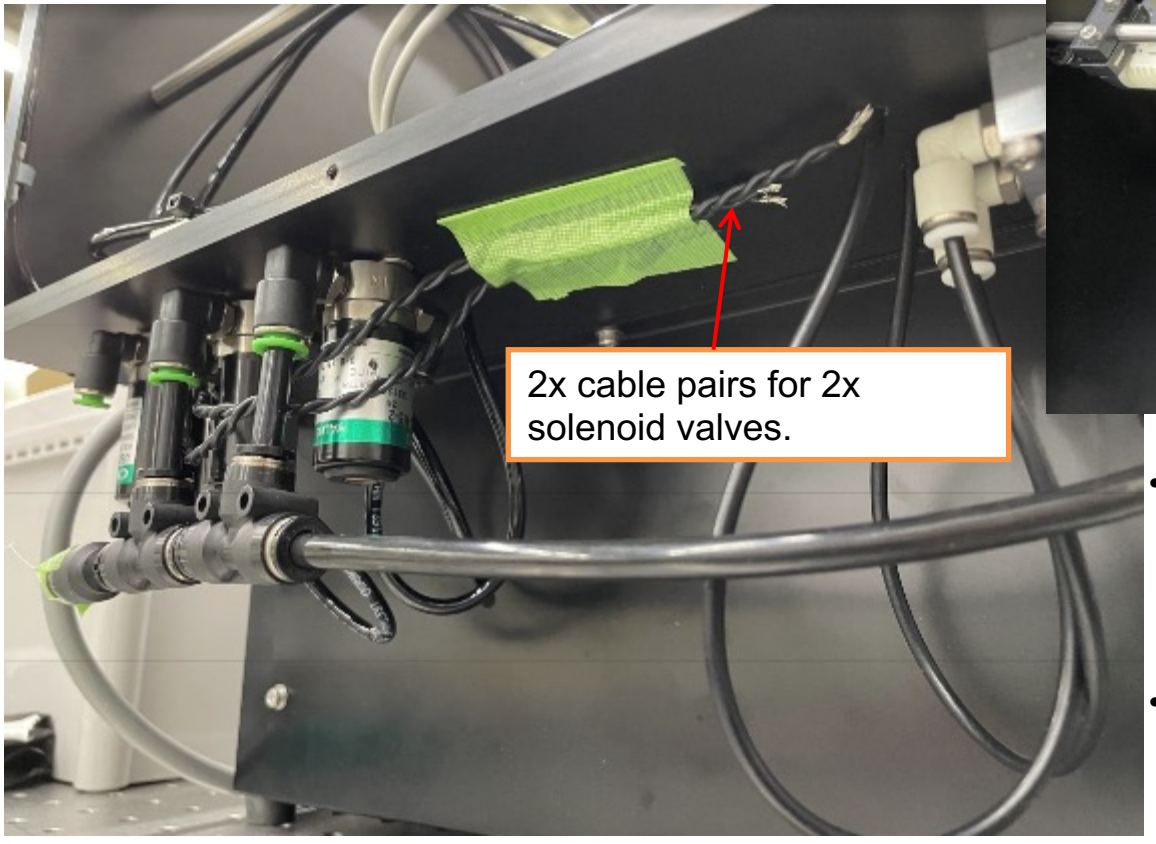
Fiber adapter orientation

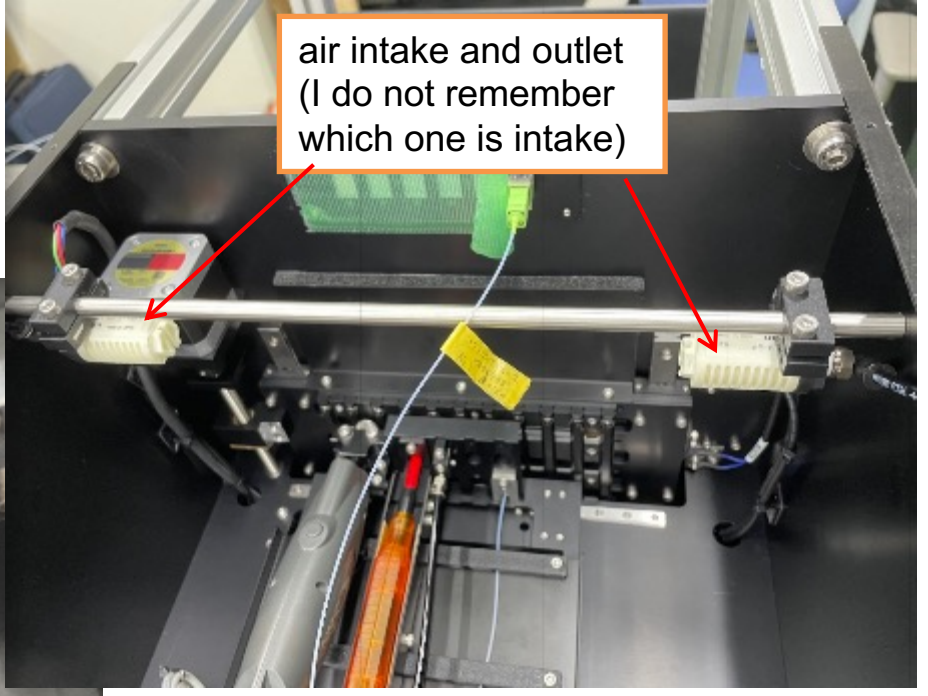


- Please note that the cutout of the fiber adapter is oriented, as shown here. It is 180 degrees different from the previous switcher.



Power supplies for the solenoid valves





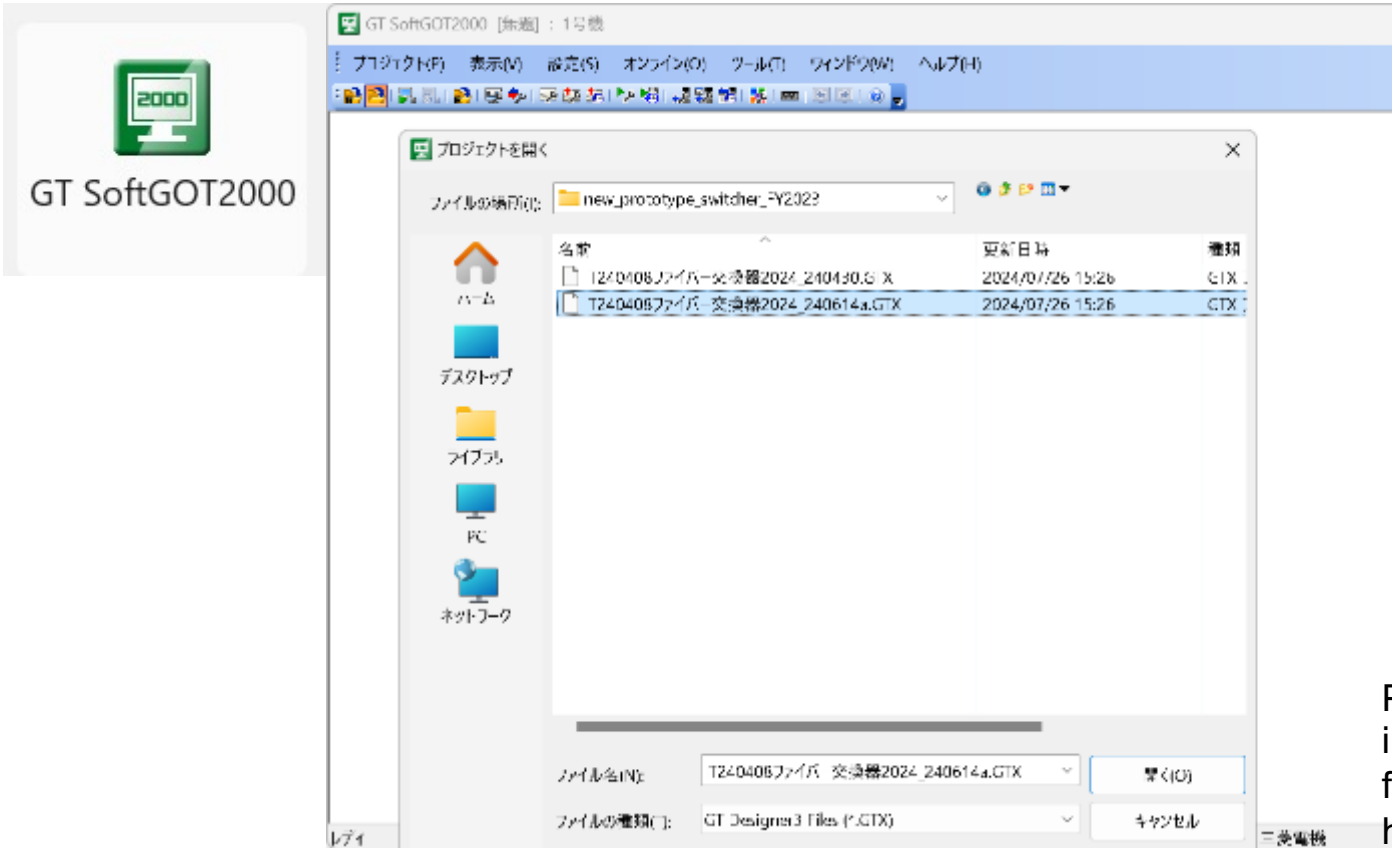
- There are 2 cable pairs for the 2 solenoid valves, each for sending air to the switcher for pressurization and sending air inside the switcher to a particle counter.
- Please connect these cables to 25V power supplies to open/close the valves.

IP setting of your control PC

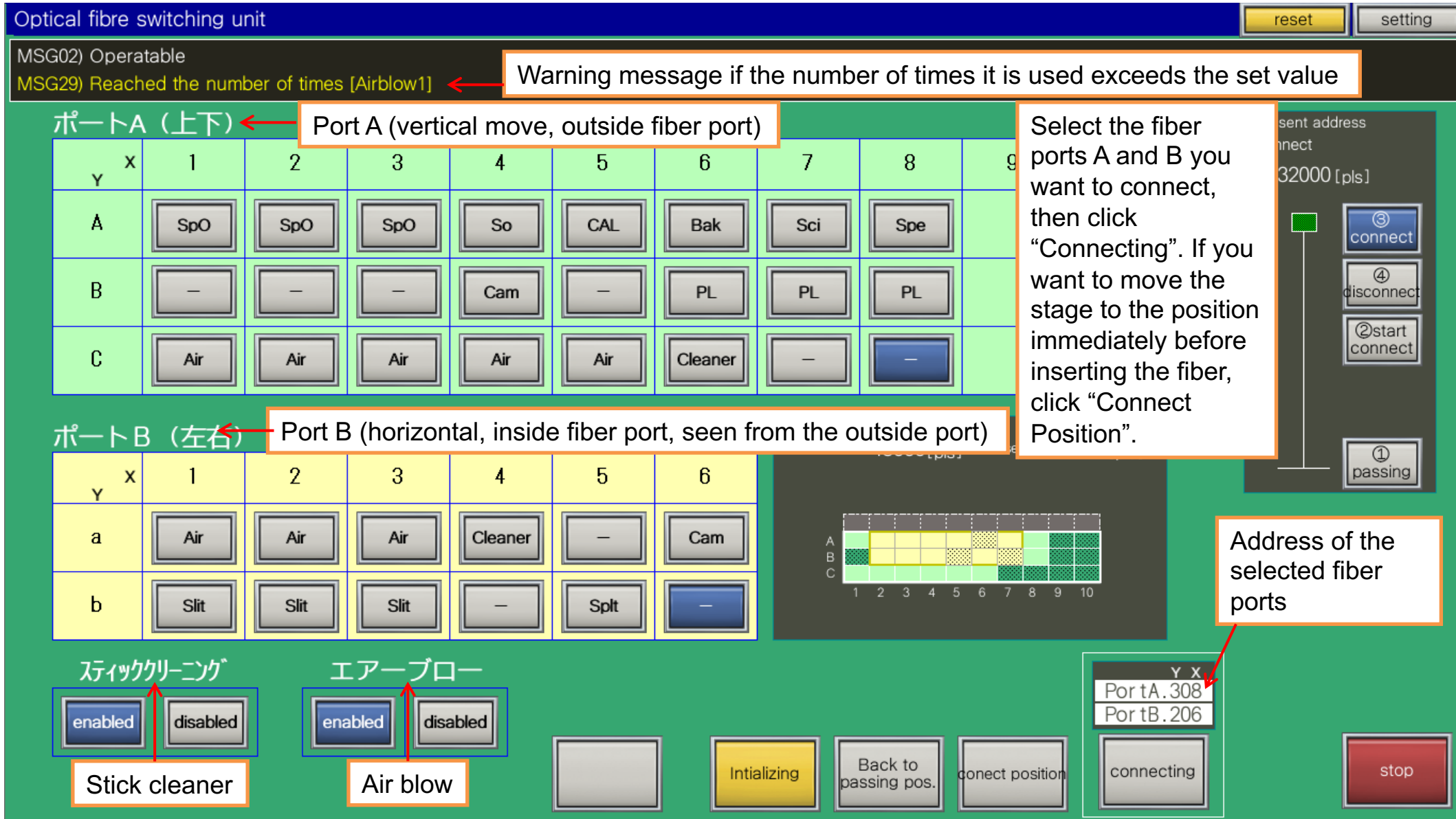
IP address: 192.168.0.184

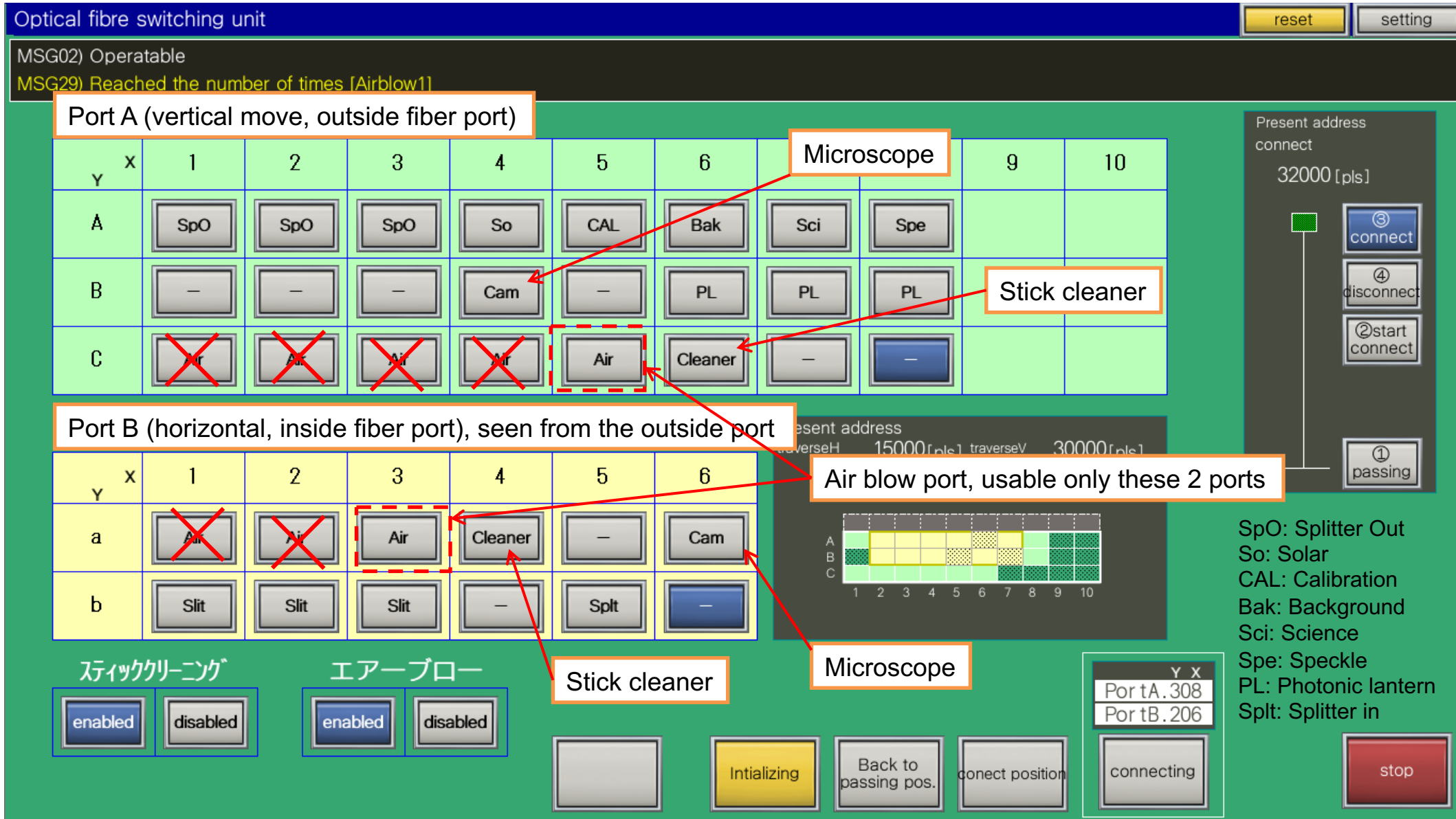
GUI software

Run GT SoftGOT2000, then open the file “IT240408ファイバー交換器2024_240614a.GTX”



Please insert this USB memory stick into your PC to prevent the software from being forcibly closed after a few hours. This USB memory is in the Lightel’s case.


Optical fibre switching unit
reset
setting
MSG02) Operatable
MSG29) Reached the number of times [Airblow1]
Warning message if the number of times it is used exceeds the set value
ポートA（上下）
Port A (vertical move, outside fiber port)
Select the fiber ports A and B you want to connect, then click “Connecting”. If you want to move the stage to the position immediately before inserting the fiber, click “Connect Position”.
sent address
nect
32000 [pls]
③ connect
④ disconnect
②start connect
① passing
ポートB（左右）
Port B (horizontal, inside fiber port, seen from the outside port)
Address of the selected fiber ports
Port A.308
Port B.206
スティッククリーニング
エアーブロー
enabled
disabled
Stick cleaner
Air blow
Intializing
Back to passing pos.
conect position
connecting
stop


Optical fibre switching unit
reset
setting
MSG02) Operatable
MSG29) Reached the number of times [Airblow1]
Port A (vertical move, outside fiber port)
Microscope
Stick cleaner
Air blow port, usable only these 2 ports
Port B (horizontal, inside fiber port), seen from the outside port
Stick cleaner
Microscope
Present address
connect
32000 [pls]
③ connect
④ disconnect
②start connect
① passing
SpO: Splitter Out
So: Solar
CAL: Calibration
Bak: Background
Sci: Science
Spe: Speckle
PL: Photonic lantern
Splt: Splitter in
スティッククリーニング
enabled
disabled
エアーブロー
enabled
disabled
Intializing
Back to passing pos.
conect position
Port A.308
Port B.206
connecting
stop

Fiber port address

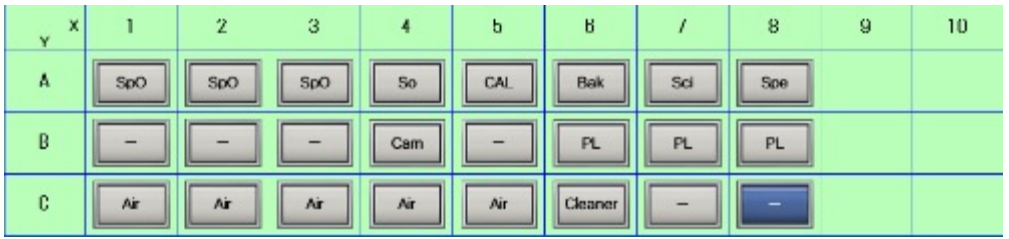
Some combinations of fiber ports cannot be executed.

Port A (vertical move, outside fiber port)

	1	2	3	4	5	6	7	8	9	10
A	101	102	103	104	105	106	107	108		
B				204		206	207	208		
C	301	302	303	304	305	306				

Port B (horizontal, inside fiber port)

	1	2	3	4	5	6
a	101	102	103	104		106
b	201	202	203		205	



SpO: Splitter Out
So: Solar
CAL: Calibration
Bak: Background
Sci: Science
Spe: Speckle
PL: Photonic lantern
Splt: Splitter in

		101	102	103	104	105	106	107	108	204	206	207	208	305	306
		A1	A2	A3	A4	A5	A6	A7	A8	B4	B6	B7	B8	C5	C6
103	a3	0	0	1	1	1	1	1	1	1	1	1	1	0	0
104	a4	0	0	1	1	1	1	1	1	1	1	1	1	0	0
106	a6	0	0	0	0	0	1	1	1	0	1	1	1	0	0
201	b1	1	1	1	1	1	1	0	0	1	1	0	0	1	1
202	b2	0	1	1	1	1	1	1	0	1	1	1	0	1	1
203	b3	0	0	1	1	1	1	1	0	1	1	1	1	1	1
205	b5	0	0	0	0	1	1	1	1	0	1	1	1	1	1

1 = Connection OK
2 = connection not possible

setting

Ver.240531

back

	explanation
M01/M03 setting (taravese)	Setting M01 M03 axis.
M02 setting (connecting)	Setting M02 axis.
timer setting	
maintenance data	check runnning data
PLC IP address setting	settting of animation position
言語	日本語に切り替え Language setting

M01,M03 setting (taravese)

Present address 15000 30000 [pls]

Present speed 0 0 [pls/sec]

reset back

	address[pls] X	address[pls] Y	speed [pls/sec]	Acc.time [sec]	Dec.time [sec]		
Initial	Inital address 500	-350	2000	1.000	1.000		
JOG+	CW limit 78500	62500	100	1.000	1.000		
JOG−	CCW limit -4800	-4000	100	1.000	1.000		
Setting address	30000	0	6000	1.000	1.000		

		Pos.1	Pos.2	Pos.3	Pos.4	Pos.5	Pos.6
		0	15000	30000	45000	60000	75000
Pos.1	0	00	01	02	03	04	05
Pos.2	30000	10	11	12	13	14	15
Pos.3	60000	20	21	22	23	24	25

X Y Axis error

error code

0 0

maximum speed

6000 [pls/sec]

initial creep spped

500 [pls/sec]

acc. time

1.000 [sec]

dec. time

1.000 [sec]

X	Y	
		cw limit
		org sensor
		zero tim
		ccw limit
		drv. alarm

stop

M02 setting (connencting)

Present address 32000 [pls]

Present speed 0 [pls/sec]

reset

back

	address[pls]	speed [pls/sec]	Acc.time [sec]	Dec.time [sec]	
Initial	Inital address -40	4000	1.000	1.000	
JOG+	CW limit 32300	2000	1.000	1.000	
JOG−	CCW limit -2000	2000	1.000	1.000	
passing	0	8000	3.000	0.100	
start connect	14000	8000	3.000	0.100	
connect	32000	3000	1.000	1.000	
dis-connect	12500	4000	1.000	1.000	

Axis error

error code

0

maximum speed

40000 [pls/sec]

initial creep spped

200 [pls/sec]

acc. time

1.000 [sec]

dec. time

1.000 [sec]

cw limit

org sensor

zero tim

ccw limit

drv. alarm

停止

timer setting

back

	setting value	remark
エアーブローA 時間	OPEN 0.01 / SHUT 0.05 [sec]	
エアーブローA 繰り返し回数	10 [回]	
エアーブローB 時間	OPEN 0.10 / SHUT 0.02 [sec]	
エアーブローB 繰り返し回数	7 [回]	
スティック時間	PortA 3.0 / PortB 1.0 [sec]	

Air blow A time setting

Air blow A repetition

Air blow B time setting

Air blow B repetition

Stick cleaner time setting

Total number of uses of stick cleaners, air blowers, and fiber connections

maintenance data

back

	PV / SV	remark
スティックA	14 / 100 RESET	電磁弁動作回数
スティックB	9 / 100 RESET	電磁弁動作回数
エアーブローA	104 / 100 RESET	電磁弁動作回数
エアーブローB	162 / 100 RESET	電磁弁動作回数
嵌合回数	143 / 100 RESET	挿入位置到達回数

Stick cleaner A

Stick cleaner B

Air blow A

Air blow B

Fiber connection

IP address setting for the switcher

If you want to change the switcher's IP address, you also need special software. So please let us know before changing the address.

Command line operation

Most commands are the same as the past switcher, except select fibers and switch status.

Select fiber port A and B

> 500000FF03FF000024000014010000W*0000140003010501020001

0105: Port A address

0102: Port B address

Last 4 letters: 0001= Cleaning On, 0000 = Cleaning off

Get switch status (I will send you the details of the alert and GUI messages later)

> 500000FF03FF000018000004010000W*000000000E

< D00000FF03FF00003C000001040102000010001AFC8000003E800007530000000000000000040010

[23 : 26] # Port A target position

[27 : 30] # Port B target position

[31 : 34] # M01, M03 flag for current and target position match, 0001 == OK

[35 : 38] # M02 insert-disconnect axis current position, 0=during move, 0003=insert, 0001=disconnect

[39 : 46] # Horizontal axis current position

[47 : 54] # insertion axis current position

[55 : 62] # vertical axis current position

[63 : 66] # Alert number 1

[67 : 70] # Alert number 2

[71 : 74] # GUI message 1

[75 : 78] # GUI message 2

Move the stages to the position immediately before inserting the fiber

> 500000FF03FF00001C000014020000100W*0000120010