Web Guiding System

OPERATING MANUAL

(AWG5000)

Techmach
Better web control

卓越性能 卷取专家

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Quick instructions for ultrasonic or infrared sensor
(Identify material properties)

If a Web Guiding System does not work, or other abnormalities, you can quickly solve the problem according to the following manner:

1、Press the button (SETUP) for 3 seconds, the display will show：00—00；

2、Press the button (OUT) until display 17—00；

If you are using ultrasonic sensors or infrared sensors to measure completely opaque material:

Press the button (SETUP)，Then press the button (OUT) change the parameter into 17—01，then press the button (SETUP)to save it。

If you are using infrared sensors used in transparent materials, such as non-woven fabrics, napkins, gauze, etc.:

3、Press the button (SETUP)，Then press the buton (OUT) change the parameter into17—02，then press the button (SETUP)to save it。

4、Press the button (ESC)，to exit。

Other fast correction operating,

1. If a Web Guiding System lean to the one side, It means the opposite polar .Follow the above instruction revise the 01-00 to 01-01, then, press the button (SETUP)to save the setting。
2. If you think the Web Guiding System response is not fast enough, adjust the 05 parameters,the default is 05-32; rise the value of 05, such as increased to 05-35; the response speed will improved, the other hand, such as low to 05-25, the response speed will reduced.
3. If you need the machine be set to turn automatic mode, adjust the 08 parameters to 08-02;
4. if the infrared sensors or ultrasonic sensors, are required of higher accuracy occasion, perform the following calibration steps.

A, removed the material from the sensor, press the (SETUP) button for three seconds,the display will appear 00-00;

B, press the (SETUP) button, then press the (OUT) button, change the parameters to 00-01, then press (SETUP) button, it will display the maximum value, such as 999;

C, Put the material into the sensor and fully blocking the induction region, the screen will display the minimum value such as 268, maintain the position of the material in the sensor, press the (ESC) button to exit.

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Tale of Contents

Safety and Warning

■ Make sure carefully read this manual before your installing, wiring, starting, operating or making practices while operating and maintaining this unit. Please operate the web guiding control system with necessary skill and complete awareness of the **Safety and Warning**, make sure not operated by unqualified person.

■ We used signal words ***WARNING*** and ***CAUTION*** to indicate Hazard seriousness levels asfollows:

◇***WARNING*****: is used to indicate the presence of a hazard, which can cause severe personal injury, death, or substantial property damage if the warning is ignored.**

⚠***CAUTION*****: is used to indicate the presence of a hazard, which will or can cause minor personal injury or property damage if the warning is ignored.**

However, please comply with instruction strictly no matter ***CAUTION*** or ***WARNING***, as huge damage maybe caused even if ignoring the ***CAUTION*** content.

PRIHIBIT and ***MANDATORY*** symbols are defined follows:

PRIHIBIT: Make sure ***NOT*** to do. For example: we use  to indicate the warning " ***No Kindling***".

MANDATORY: Make sure to do strictly. For example: we use  to indicate the warning ***"EARTHING*** ".

■ In this manual, we use signal words ***NOTE*** to indicate other functional Warnings, which maybe not cause property damage, but still need your full attention. Please put this manual at the place where easy to get.

1. Read the fallowing carefully to defend against electric shock

◇***WARNING***

- ***Make sure the power supply is switched off first and verify that no supply voltage reserved on the switch power with a multi-meter before your wiring or examination, otherwise serious electric shock may be caused.***
- ***Make sure the switch power earthed completely.***
- ***Wiring and examination may only be operated by the qualified person.***
- ***Make sure the wiring only and must after installation of the viscosity control enclosure, otherwise the serious electric shock may be caused.***
- ***Make sure not damage or haul the cable, also unable to crush or hang the cable with heavy materials, otherwise the serious electric shock may be caused.***

2.Read the fallowing carefully to defend against the fire:

⚠ *CAUTION*

- ***Make sure not use any tinder to install switch power or web guide control enclosure, otherwise a fire may be caused.***
- ***Make sure switching off the power supply first while any faults happens with the switch power or web guide control enclosure. Otherwise, continue power-on may cause the fire.***

3.Read the fallowing carefully to defend from damage:

1).Make sure input voltage of switch power comply with this instruction, otherwise serious damage to the switch power may be caused.
2).Make sure correct wiring polarity (+, -), otherwise serious damage to the switch power may be caused.

4.Other warnings:

Please pay attention to follows, any error operation may cause serious personal injury, device damage or electric shock.

1).Transit and installation

⚠ *CAUTION*

- ***Please use correct transport method based on weight of the device itself.***
- ***Make sure not pile up over the reasonable quantity.***
- ***Make sure to install the device at a firm place with the install methods described in this instruction.***
- ***Make sure not stand on this device or put heavy material on the device.***
- ***Make sure the device to be far away from any falling or impingement.***

Operating environment:

Web Guiding Control enclosure and sensors:
Ambient temperature: -10℃ to +50℃(Non-freezing)
Ambient Humidity: Less than 90% RH (Non-condensing)
Storage Temperature: -20℃ to +65℃(Non-freezing)
Storage Humidity: Less than 90% RH (Non-condensing)
Operating altitude: Less than 1000 m
Passline vibration: Less than 5.9m/s²

Linear Actuator :
Ambient temperature: -10℃ to +50℃ (Non-freezing)
Ambient Humidity: Less than 90% RH (Non-condensing)
Deposit Temperature: -20℃ to +65℃ (Non-freezing)
Deposit Humidity: Less than 90% RH (Non-condensing)
Operating altitude: Less than 1000 m
Passline vibration: Less than 5.9m/s^2

⚠ ***Caution:***

- ***Linear Actuator and the sensor should be fastened on the mechanism firmly, otherwise will effect the accuracy, even caused serious damage to this device.***
- ***As for installation of linear actuator, please distinguish the position between R end (fixed) and F end (unfixed), otherwise serious damage to this mechanism will be caused, even rejected.***
- ***We suggest the user use specific adjusting bracket to finish the installation, and make sure a firmly installation, otherwise will effect the accuracy or caused damage badly.***

2). Wiring

⚠ ***Caution:***

Make sure correct wiring connection, otherwise, the damage to switch power or viscosity control enclosure maybe caused.

3). Initial operation and adjustment

⚠ ***Caution:***

- ***Please adjust and confirm your parameter setting before running, otherwise, unexpected affair maybe happens.***
- ***Any extreme parameter adjustment or change will cause an unstable running.***

4). Operating

⚠ ***Caution:***

- ***To insure a timely running-stop and switching-off power supply immediately, please set outer urgent-pause- switch.***
- ***Make sure NOT disassemble this device for maintenance by any unqualified person.***
- ***Make sure NOT to refit the device.***

5).Abnormity handling

⚠ ***Caution:***

Refer to the trouble shooting chapter first when fault happens, and eliminate the trouble according to solution in this instruction. Make sure to verify the security before rerunning the device.

6).Waster handling

⚠ ***Caution:***

Please handle the waster as a kind of general industrial waste.

Introduction

> ⚠ ***Caution:***
> - ***The information contained herein is accurate at the time of publication, Techmach reserves the right to make design changes to equipment described in this manual at any time and without notice.***
> - ***The technician should comply with local rules during the installing process.***
> - ***This mechanism should be installed, activated and operated by qualified person.***
> - ***Remove manually allowed.***

AWG5000 is a high performance web guiding system with high accuracy, stability and reliability and quite simple to install or operate. This system is compatible with Techmach's compensated ultrasonic edge detectors, compensated IR edge detectors and Linear Actuator.

Addition, AWG5000 support Ethernet, CAN and RS485 network communication and allowed to be remotely controlled by a remote station or terminal.

A typical AWG5000 controlling system including four main components:

1.Web guide control enclosure

- The control board is opto-isolated with PWM motor board, which enhances system's reliability;
- The System could save up to 128 unique non-volatile memory for user's settable parameters and operating modes, and auto-recovery after power interruption;
- On-board parameter entry touch keypad control and 5 digits of LED display in bright blue colo;
- Actuator end-of-travel limit:
  Potentiometer input for electronically-adjustable limits;
  Limit switch inputs for adjustable limits;
- Input voltage: 24VDC, 12VDC;
- Network: THERNET, CANBUS, RS485.

2.Switch power supply

- Switch-selectable input voltage: single-phase, 220 ± 20% VAC, 50HZ;
- Output voltage: 24VDC [+V1 –V1]; 12VDC[+V2 –V2]

3.Edge Detector

1).Compensated ultrasonic Edge Detector

- Fully compensated for temperature, humidity, dust, and most other process contaminants, and no manual operation needed;
- Immune to passline variation and web flutter;
- Ideal for transparent or opaque film, paper, foil web materials.

2).Compensated IR Edge Detector

- Fully compensated for temperature, humidity, dust, and most other process contaminants, and no manual operation needed;
- Immune to passline variation and web flutter;
- Ideal for non-wovens and other opaque porous web materials.

4).Linear Actuator

- Techmach's actuator is belt-driven and ball-screw designed for superior reliability and precision. The actuator uses a ball bearing as its driver to make sure smooth motion & precise position. High industrial-grade thrust bearing are used in all actuators. This special thrust bearing was used to trundle, enable a long lifetime and reliant running achieved
- The center position of actuator is adjustable within the safe end-of-travel limit, more flexible and facility.
- DC Servo drive motor made the actuator respond more rapid and accurate
- Full product series optional
- Suitable for every web guide, unwind or rewind roll frame

Technical Parameters (Standard Specification)

Power supply: DC24V
Operating Temperature: - 10℃~ +50℃
Humidity: Less than 90% RH
Enclosure Size: (W*H*D) 190mm*220mm*90mm

Technical Data

1.Web Guiding control enclosure

Power supply: 24VDC±1%,12VDC±1%;
Rated power consumption:120VA;
Enclosure: Protection class is IP54, embedded installation mode and wall-hanging installation mode is optional;
Splice performance: remote control allowed;

On-board entry keypad function:

Parameter setting
Edge A select
Edge B select
Centerline select
Actuator Retract
Actuator Extend
Automatic Mode
Manual Mode
Auto-center Mode

Ambient Temperature: -10℃~50℃
Humidity: 0~90%, Non-Condensing;
Accuracy: within 0.1mm;
Web guiding speed: 25 mm/s;
Max drive load: 3000 kg.

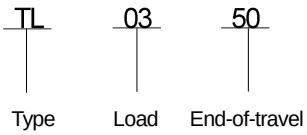
2.Edge Detecter

Splice mode: selectable simulate or digital I/O (digital algorithms);
Temperature Range: -10℃~50℃;
Response time: 4 milliseconds;
Material: electro-aluminum sheet, Chemical synthetic materials.

3.Linear Actuator

Mode:	TL03	TL15	TL30
Max end-of-travel: (±mm)	25-50-100	50-100-150	50-100-150
Max load rating: (Kg)	300	1500	3000
Max Thrust (Kg)	30	150	300

Example of confirming the parameter:



Installation and Debugging

Installation:

> ⚠ ***Note:***
> ***Make sure* NO *any electrical connections exits before the mechanism installation.***

1).Control Enclosure (Refer to application drawing on appendix I)

- Install the control enclosure on a rigid mount such as a wall or secure framework.
- Don't install the control enclosure on the side of a dryer or in other high temperature areas.
- Also, don't install the control enclosure on a moving winder structure, such as unwind or rewind guide frame.

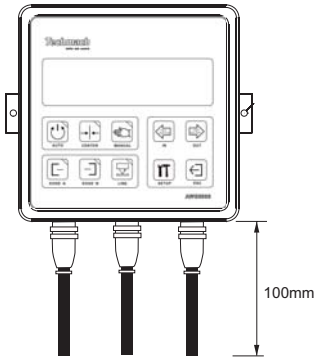
> ⚠ Note:
> ***The cables supplied with the system have been chosen for specific shielding and capacitance properties. Do not splice or replace these cables with any other style or configuration or cable, this can cause serious degradation or complete loss of system performance. Do not splice cables. Long cables are available upon request.***

AW5000 control enclosure offers two kinds of installation modes:

embedded installation and wall-hanging installation

Embedded installation mode: Refer to appendix I for hatch size of mount. Fasten the inserted control enclosure with the bow-angled accessory which is delivered together with the device.

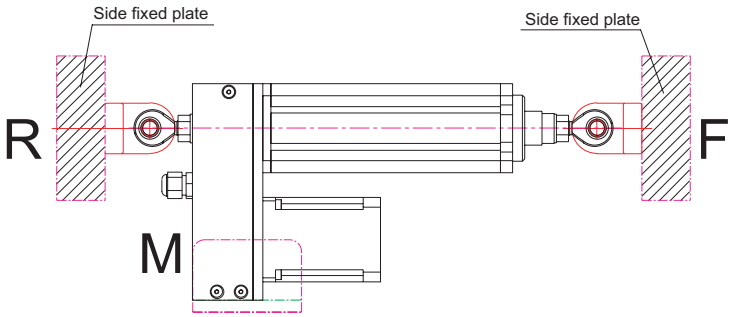
Wall-hanging installation mode: Refer to appendix I for more. Install the web guide control enclosure to the given position with the bolts.



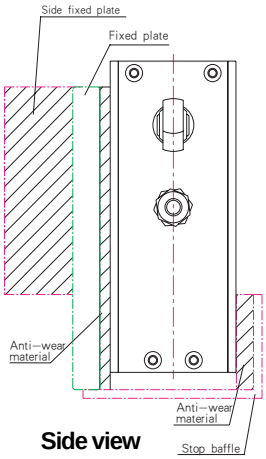
> ⚠ ***注意***
> ***控制器下方留有100mm 空间。***

2).Linear Actuator

- To Fix the Actuator on both 'R' end and 'F' end, note 'R' is the fixed connection end, connecting with static parts, and 'F' end is the hinge joint end, connecting with the parts needed to move oppositely.
- When wall-hanging installation mode, drive motor 'M' should be subjacent. when embedded installation mode, the drive motor 'M' should adopt assist-holding
- Further to the safety consideration, we suggest the user installing a mechanical end-of-travel limit switch.



Front view



Side view

> ⚠ ***Note:***
> ***Make sure the actuator is in the servo-center position before installing the web guide. This may be impossible until after static test.***

> ⚠ ***CAUTION:***
> ***Special attention must be given to the actuator mounting. Any mechanical compliance or backlash in the actuator mounting will seriously affect guiding accuracy. Deflections of a few thousandths of an inch will reduce the performance of the system.***

3). Edge Detector Sensor

- Install the edge detector sensor . Refer to the edge detector sensor application drawings for the correct mounting dimensions and position.
- To simplify installation and adjustment, we suggest users select the auxiliary brackets supplied by TECHMACH.
- The sensor cable should be long enough so that the sensor may be repositioned if the web width or web path changes. The standard cable length is 4m. Longer cables are available upon request.

Application drawing on Appendix II shows how to install the Edge Detector.

4).Switch power supply

Terminal Name	220VAC/50HZ			24VDC		12VDC			(PE)
Terminal code	L	N	⏚	-V1	+V1	-V2	+V2	VADJ	
wiring color				blue	Green	Brown	Red		Yellow
	User's wiring								

Refer to application drawing on appendix IV

> ⚠ ***CAUTION:***
>
> ***Make sure the terminal ⏚ earthed with PE(protect earth) completely.***

Adjustment

Refer to connection drawing of Appendix V to complete the whole electric connection.

■ **Static Test**

a).Turn the power switch on;

b).Press the ***MANUAL*** button;

c).Press the ***IN*** and ***Out*** buttons several times. The actuator and web guide mechanism should move freely and without hesitation;

d). Press and hold the ***IN*** button. When the guide mechanism gets near the In limit, release the button;

e). Jog the ***IN*** button repeatedly until the actuator automatically stops at its end-of-travel limit.

> ⚠ ***CAUTION:***
>
> ***If the actuator or guide mechanism hits a mechanical obstruction before the actuator stops automatically at its end-of-travel limit, release the button immediately. Continued activation will cause serious damage to the actuator motor and/or guide mechanism.***

f). Repeat the previous two steps using the ***OUT*** button to check the Out limit.

g). Press the ***CENTER*** button and verify that the actuator drives to the center of its stroke.

■ **Dynamic Test**

a).Press ***CENTER*** button and verify that the actuator drivers to the center of its stroke. This also places the web guide in its center (or tram) position;

b).Thread the web through the machine and put a slight tension on it so the web is in its normal operating position.

Repeat steps c) through f) for each sensor;

c).Press the ***CENTER*** button;

d).Position the sensor.

- Edge Detector: Place at the edge of the web. The edge detector's null indictor LED will turn off when the edge detector is positioned correctly. The scribed lines on the edge detector indicate the approximate location of the detector's guide point.

> ⚠ ***Note***
> ***The default calibration supplied with the system should work for most materials. However, if the null indicator LED does not turn off the detector may need to be calibrated.***

e).Press the ***AUTOMATIC*** button

f).Move the sensor left or right slowly and observe how the guide reacts. The guide should move the web so that it follows (or chases) the movement of the sensor.

- **Edge Detector:** The guide should move the web so that the edge of the web is always aligned with the edge detector's guide point.

> ⚠ ***Note:***
> ***If the web guide does not follow the movement of the sensor and moves in same direction with offset of web materials, then the sensor polarity not correct and must be changed. Refer to the system configuration section of this manual for more information.***

Operation

The AWG5000 may be configured for a wide variety of applications, but most configurations share the same basic operating procedure:

1).Press the Center button and wait for the web guide to drive to the center of travel.
2).Thread the web through the machine.
3).Position the sensors.

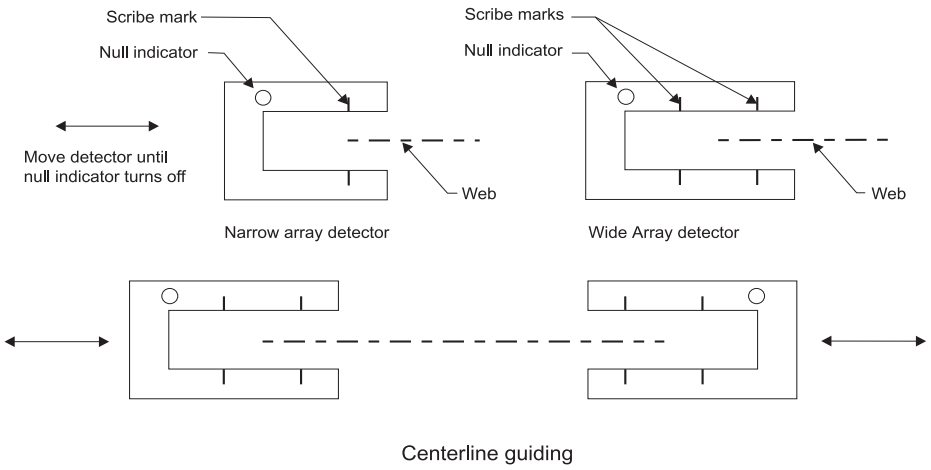
- **Narrow array edge detector:** Place the detector near the edge of the web. Move the detector towards the web until its null indicator LED turns off.

> ⚠***Note:***
> ***The scribed lines on the edge detector indicate the approximate location of the detector's guide point.***

- **Two edge detectors (Centerline guiding):** Press ***EDGE-A*** button, Place detector A near the edge of the web. Move detector A towards the web until its null indicator LED turns off. Press ***EDGE-B*** button, Place detector B near the opposite edge of the web. Move detector B towards the web until its null indicator LED turns off.

4).Sensor's operation modes, see configure of parameter 10 for more information.

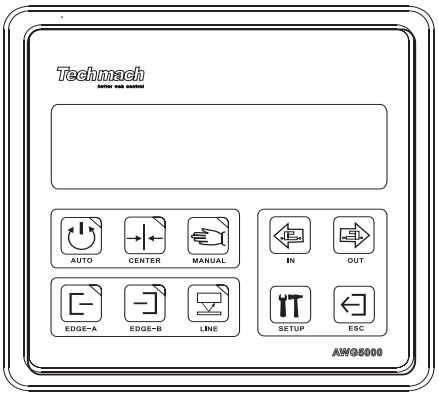
5).Press *AUTO* button. The system will now guide the web in Auto mode.



6).System configuration:

a).verify the wiring connection carefully before turning on the power supply.

b).Note that the LED display will show dashes '- - - - -' immediately after power is turned on, the dashes indicate that no parameter is currently selected for examination or adjustment, but that the system is operating normally.



The default setting is for Web Guiding Control.

- Note that the display screen will show “00-00” immediately after power is turned on and after the ***SETUP*** button is pressed, now the system enters into the parameter setting course;
  (The front two digits of ’00-00’ means the parameter code number, the later two digits means data value corresponding to the parameter code number.);
- Press the ***OUT*** or ***IN*** buttons so that you could select the parameter you want to examine and/ or adjust. Each parameter has a unique code number.;
- Press ***SETUP*** button to activate configure of a certain parameter code number;
- Press the ***OUT*** or ***IN*** buttons to adjust the parameter value;
- Press ***SETUP*** to store the new data value in non-volatile memory;
- To leave the data value at its original value press ***ESC***;

4).Operating modes:

(AUTO): AUTO MODE;
(CENTER): CENTER MODE;
(MANUAL): MANUAL MODE.

The parameters of AWG5000 control enclosure are described below:

0).Web compensation enable bit.

Parameter code number:00

Parameter rage:[0,1], the defanlt ralue is 0

0 - Disabled material compensaycon

1 - Enabled material compensaycon

1).Input A Polarity

Parameter Code number: 01

Parameter Range: [0, 1], the default value is 0

0 — The actuator will move out when edge detector A is blocked, or the Eagle Eye I sensor's sight point is to the left of the line or edge it is following.

1 — The actuator will move out when edge detector A is unblocked, or the Eagle Eye I sensor's sight point is to the right of the line or edge it is following.

2).Input B Polarity

Parameter Code number: 02

Parameter Range: [0, 1], the default value is 0

0 — The actuator will move out when edge detector B is blocked, or the digital line guide's sight point is to the left of the line or edge it is following

1 — The actuator will move out when edge detector B is unblocked, or the digital line guide's sight point is to the right of the line or edge it is following

3).Maximum Deadband

Parameter Code number: 03

Parameter Range: [0-99],the default value is 28

The Maximum deadband is a zone around the sensor guide point where the motor drive is turned off. The higher the Maximum Deadband value is set, the farther the web edge or line must move away from the guide point before the motor drive is turned on. This parameter is typically used to compensate for edge curl and web flutter. The Maximum Deadband value must be higher than the Minmium Deadband value.

4).Minimum Deadband

Parameter code number: 04

Parameter range: [0-99] The default value is 14

The minimum deadband is a zone around the sensor guide point that the web edge or line position enters this zone, it must then move outside of the Maximum deadband zone before the motor drive is turned on. The minimum Deadband value must be lower than the Maximum Deadband value.

5).Auto-Mode Speed Limit

Parameter code number: 05

Parameter range: [20-60], the default value is 26

This parameter limits the max speed of the actuator in Automatic mode, the higher this value is, the faster the actuator can move.

6).Manual-Mode Speed

Parameter code number: 06

Parameter range: [15-60], the default value is 30

This parameter determines how fast the actuator will move in Manual and Servo-Center mode . The higher this value is, the faster the actuator will move.

7).Manual Polarity

Parameter code number: 07

Parameter range: [0, 1], the default value is 0

0 — The actuator extends when the ***OUT*** mode is selected, and retracts when the ***IN*** mode is select

1 — The actuator extends when the ***IN*** mode is selected, and retracts when the ***OUT*** mode is selected

8).Power-up Mode

Parameter code number: 08

Data: [0-2], the default value is 0

0 — The system will power-up in Manual mode

1 — The system will power-up in Servo-Center mode

2 — The system will power-up in the same operating mode that was selected when last powered-down

9).Edge-Loss and Line-Loss Detection

Parameter Code number: 09

Data: [0, 1], the default value is 0

0 — Edge-Loss and Line-Loss detection are disabled

1 – Edge-Loss and Line-Loss detection are enabled

10).Sensor operation mode

Parameter Code number: 10

Parameter range: [0-3], the default value is 0

0 – Sensor on the mode of edge

11).Sensor's regular interval

Parameter code number: 11

Parameter Range: [4-20], the unit is ms, the default value is 4ms

This parameter determines the sensor's regular interval.

12).compensate time

Parameter code number: 12

Parameter range: [0-20], the default value is 0

This parameter is typically used to adjust the compensate time for edge defect, and the motor drive is turned off during this compensate time, the motor drive is turned on after this compensation. Make sure Parameter 9 (**Edge-Loss and Line-Loss Detection**) to be configured before enable this parameter.

13).reserved for future use
Parameter code number: 13

14).reserved for future use
Parameter code number: 14

15).reserved for future use
Parameter code number: 15

16).reserved for future use
Parameter code number: 16

17).Recover the factory configure
Parameter Code number: 17
Parameter range: [0, 1], the default value is 0
0 – Default parameter configure disabled;
1 – Default parameter configure enabled.

18). Reserved for future use
Parameter code number: 18

19).Software Version
Parameter Code number: 19
This parameter displays the software version.

20).Software Version
Parameter Code number: 20
This parameter displays the software version.

21). Keypad lock/unlock
Parameter Code number: 21
Parameter Range: [0-1], the default value is 0
0 - - Keypad lock disabled;
1 — Keypad lock enabled.
When activate this parameter, press and hold ESC button for 5 seconds, the keypad will be locked, parameter configure could not be modified, excepting press and hold ESC button for 5 seconds to unlock the keypad, then start the parameter configure course.

22).Software Version
Parameter Code number: 22
This parameter displays the software version.

23). High signal level of sensor guide point

Parameter Code number: 23

Parameter range: [0-9], the default value is 5

Read only.

24). Low signal level of sensor guide point

Parameter Code number: 24

Parameter range: [0-99], the default value is 12

Read only.

25).Gain Serve

Parameter code number: 25

Parameter range: [0-30], the default value is 1

The larger this parameter is , the slower this guide responds, reduce this value to speedup reasonse of web guide.

26).reserved for future use

Parameter code number:26

27).reserved for future use

Parameter code number:27

28).End-of-Travel Limit

Parameter Code number: 28

Parameter range: [10-40], the default value is 10

This parameter is used to set the distance that the actuator can drive under manual mode. The higher this value is set, the farther in or out the actuator will travel before it reaches the Out-of travel limit.

29).reserved for future use

Parameter code number:29

30).reserved for future use
Parameter code number:30

31).reserved for future use
Parameter code number: 31

32).reserved for future use
Parameter code number: 32
Parameter Range: [0-1],the default value is 0
0-disabled PLC Interface
1-Enabled PLC Interface,now that the automatic web guiding is controlled by external input PLC Signal.

33).reserved for future use
Parameter code number: 33

34).reserved for future use
Parameter code number: 34

35).reserved for future use
Parameter code number: 35

36).reserved for future use
Parameter code number: 36

37).reserved for future use
Parameter code number: 37

38).reserved for future use
Parameter code number: 38

39).reserved for future use
Parameter code number: 39

40).reserved for future use
Parameter code number: 40

41).reserved for future use
Parameter code number: 41

42).reserved for future use
Parameter code number: 42

43).reserved for future use

Parameter code number: 43

44).reserved for future use

Parameter code number: 44

45).reserved for future use

Parameter code number: 45

46).reserved for future use

Parameter code number: 46

47). Web code

Parameter code number: 47

Parameter Range: [0-31], the default value is 0, the corresponding software version is P1.13

This software can store up to 32 unique job parameters, user can select required job parameter by adjust this parameter.

Troubleshooting

1. The system will not work in automatic, Manual, or Servo-Center mode

Reason and solution

Open line fuse. If the LED data displays are not lit, check the line fuse and replace if open. If the replacement fuse also opens, the system must be returned for repair

Inhibit input polarity is set wrong. Refer to the System configuration section on this manual for more info

Non-volatile memory contains bad data Reset all parameters to their default values

> ⚠ ***WARNING***
>
> ***This procedure will erase all previously entered parameter settings! Be sure to write down all your current parameter settings record on paper in advance.***

2.When the system is in Automatic mode, the web guide steers the web in the wrong direction

Description and solution:

Sensor polarity is wrong. Parameter 01,02 for Sensor polarity must be changed for the selected sensor.

3.The system is unstable in automatic mode while pulling web

Description and solution:

- **Sensor in wrong position**
  Unwind stand: The sensor should be located down-web, close to the last shifting idler roll;
  Winder stand: The sensor should be located up-web before the last fixed idler roll, one or two web widths from the shifting base;
  Intermediate guides: The sensor should be placed close to the exiting idler roll. Refer to the guide application drawings;
- **Excessive chuck wobble:**
  Decrease the web speed or re-chuck the roll of material;
- **Web tension is low or tension control varies:**
  Increase the web tension or repair the tension control.

4.The actuator extends or retracts beyond the actuator's end-of-travel limits and jams

Description and solution:
Limit Switch or encoder failed. Replace the limit switch or encoder.

5.The system will not work in Automatic mode but works correctly in Manual and Servo-Center mode

Description and solution:

- **Edge detector: Transducers covered with dust or other material**. Clean the edge detector transducer face with a cloth dampened with water or a mild detergent solution. If the contamination cannot be removed with this method, return the edge detector for repair

- Edge detector failure

6.When in Manual mode the web guide or actuator moves too fast or too slow

Description and solution:
Manual-mode speed setting is incorrect. Check the corresponding value of parameter 06.

Maintenance

- Please operate and deposit this mechanism under necessary environment conditions.
- Move and operate this mechanism with correct methods, as specified in this instruction.

  - Make sure correct wirings connection as specified in this instruction, especially for wiring of power supply.
  - After power-up, make sure correct parameter configure of the control enclosure before operation.
  - We could offer required parameter configure for users, please state your specific requirement when packing an order.

- To attain best operating performance and when the sensor covered with dust or other material, make sure to clean the underside of the sensor with a clean soft cloth dampened with water or a cleaning solution suitable for photographic lenses.

- There is no periodic maintenance required for this system, and no need to be recalibrated, the auto matic compen sate technical make this system own a long longevities, no defect caused due to the time reason. If unable re cover to the original accuracy caused by other reasons, please return for repair.

Shipping and storage

- The device should be packed carefully so as to withstand the hazards of ocean transportation and waterproof. And make sure the device to be far away from any impact, oscillation, fire, moisture, in order to prevent from any damage in delivery and returning for repair.
- Storage: reasonable package without stacking, and waterproof. The device should be stored correctly so as to withstand the hazards of oil, rust, dust and fire, and avoiding put this device directly up to the sun.

Warranty Policy & server after sale

■ Techmach products are warranted to be free from defects in design, materials and workmanship for a period of one (1) year from date of delivery. No other warranty is expressed or implied including warranties or merchantability and fitness for any particular purpose. We are not liable for incidental or consequential damage due to improper operation or exceed the given warranty period, otherwise, all charges occurred including freight and customs duties etc should be prepaid by the buyer in advance

■ **The following items are excluded from this warranty:**

- **Routine maintenance and adjustment, as specified in the equipment instruction manual.**
- **Failure due to improper installation by the buyer or inadequate maintenance by the buyer.**
- **Malfunctions that occur as a result of buyer-supplied interfacing.**
- **Physical damage resulting from an accident, misuse or abnormal condition of operation.**
- **Incorrect electric connection or incorrect power supply wiring**
- **Maintain or replace by unqualified person**
- **Not comply completely with the requirements specified in this instruction.**

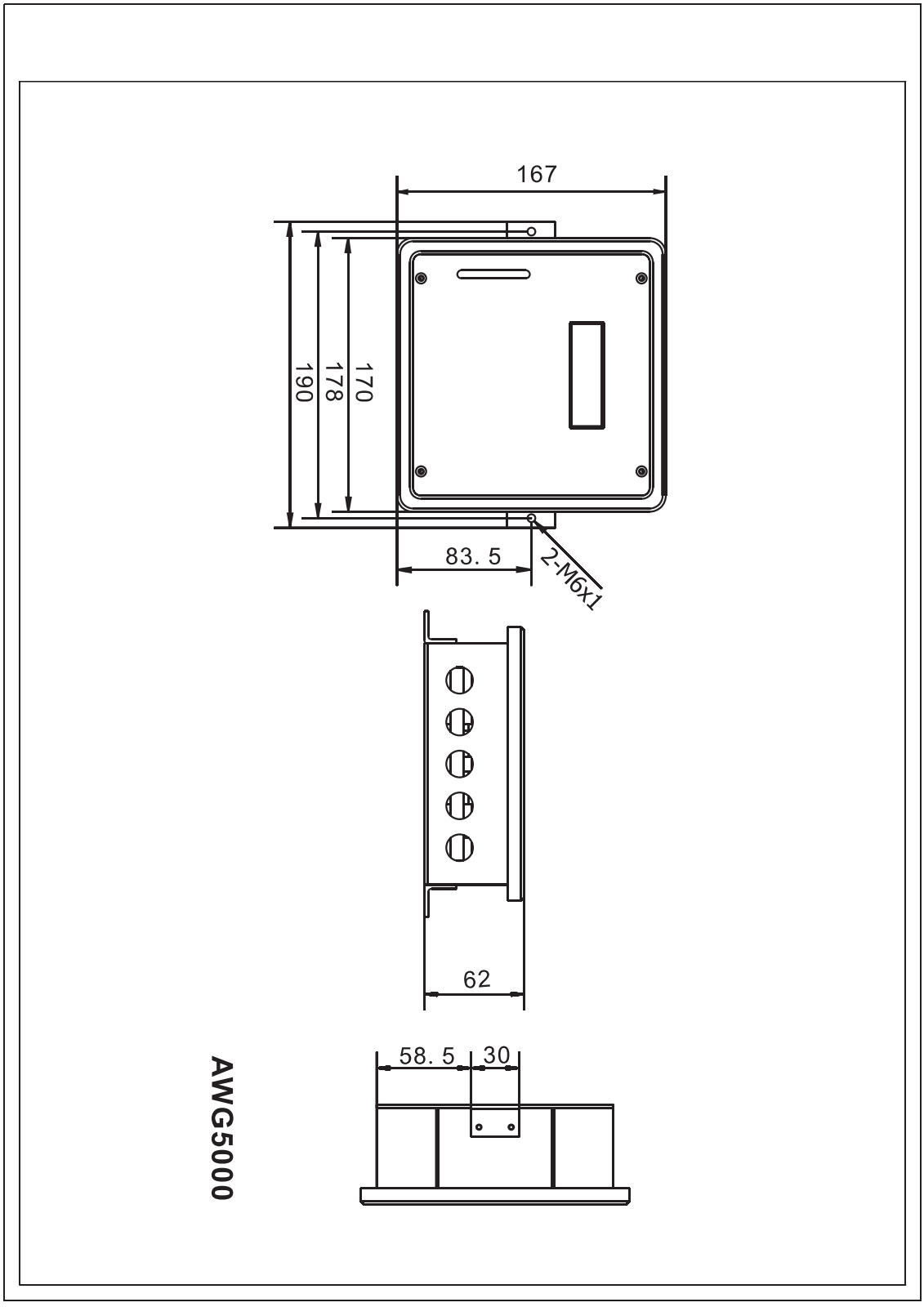
■ Any question during operating, feel free to call our home office, we will feedback as soon as possible.

■ For question concerning your equipment or conditions not covered in this instruction, please feel free to call or write out home office timely. But please have the system model number and serial number available prior to your call or included in the correspondence.

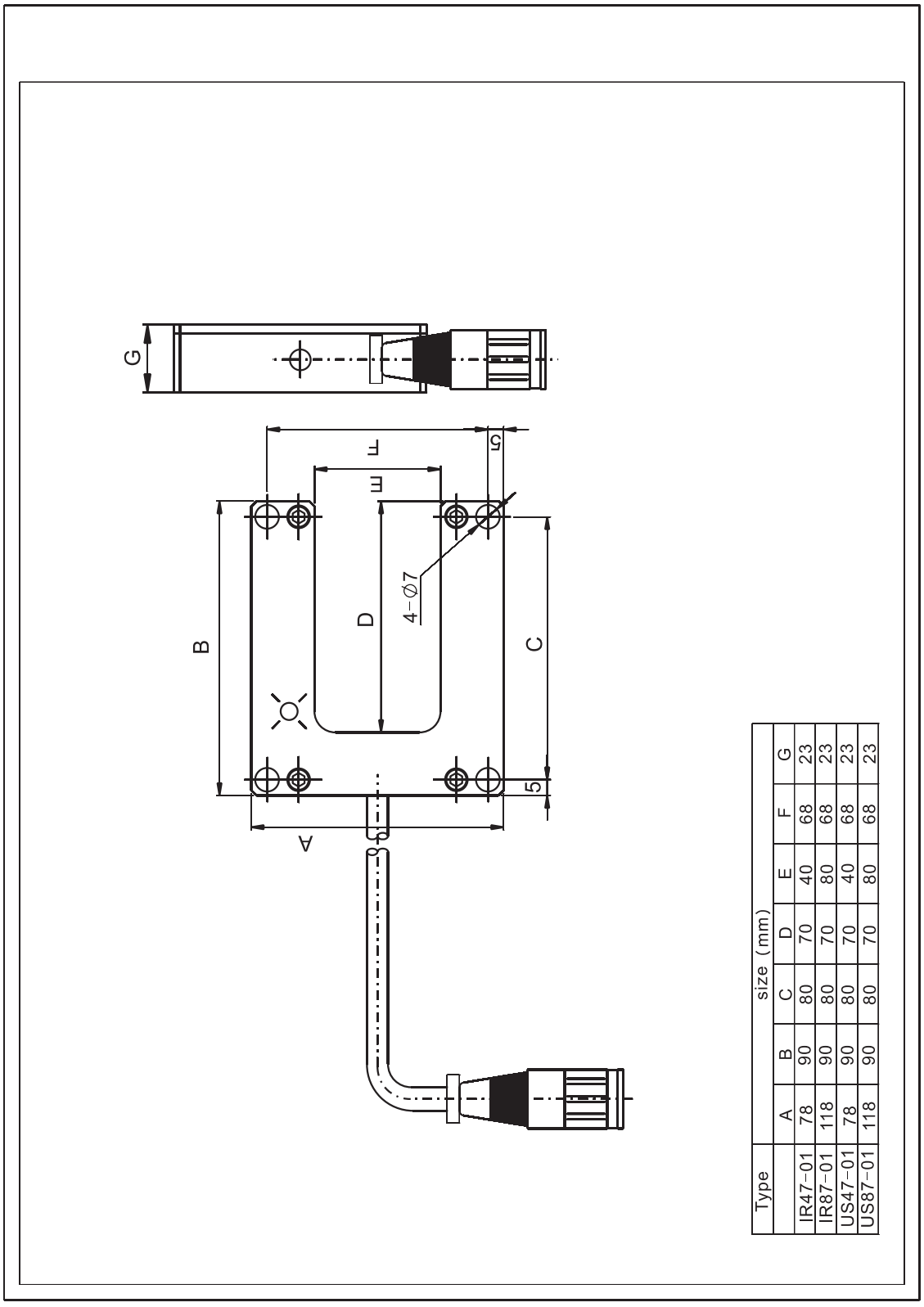
Return authorization: ·

Parts being returned for repair must have a return authorization (RA) number issued before returning, please call us for and request a return authorization so that your repair can be processed quickly.

Appendix .I: Application drawing for control enclosure installation

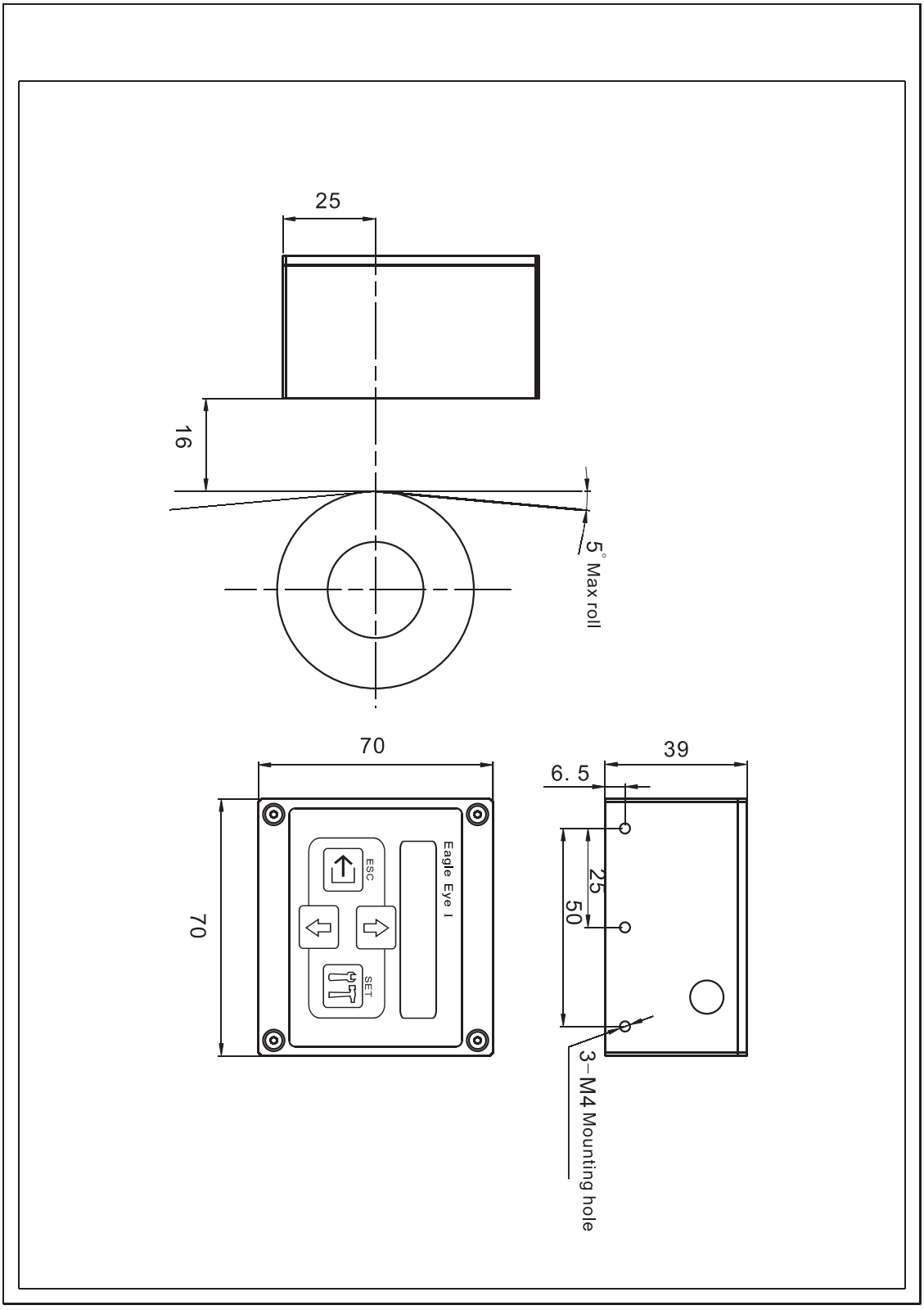


Appendix II：Edge detector application drawing



Type	size (mm)						
	A	B	C	D	E	F	G
IR47-01	78	90	80	70	40	68	23
IR87-01	118	90	80	70	80	68	23
US47-01	78	90	80	70	40	68	23
US87-01	118	90	80	70	80	68	23

Appendix III: Installation drawing for EAGLE EYE I photoelectric sensor



Photoelectric sensor Techmach LS80 Manual

Before debugging, please make sure that the controller's parameters are as follows: 03-01，10-03。
When installing LS80, please keep the scale line in side of LS80 just above the stick, and the distance between the bottom of LS80 and materials should be about 20mm.

Operating Steps:

1. Choose Mode
If chase the line: Please press the button "Line";
if chase the edge: Please press the button "Edge", and the button indicator light will be on (if the original mode is chase-line, this step can be ignored.)

2. Calibration
Press the button "Calibrate", then the laser light under the detector will be lit red, put the line which will be chased up to the red line which has lit up by the laser light;

3. Press the button "OK", the laser light will be turn off, and the other lights will be turn on at different locations and different colors, twinkling all the time. That is to say, the system is entering the automatic detection state. If the lines located in the middle of lighten scope are found, these lights will be stop wink. You will find the signal strength on the panel progress bar in 1s. After 1s, the bar will stop, and it will stop at the offset value of the current line position.

Special Note:

If the system don’t find the target line or the offset of between target line and the center of lighten scope is too large, the laser light will be lighten again, while the other colors lights will be turn off. At that time, in order to lap over the target line and the red line that lit up by the laser light, you should readjust the location of materials and the detector.

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