

# GA series

## Measuring Light Curtain

### Applications

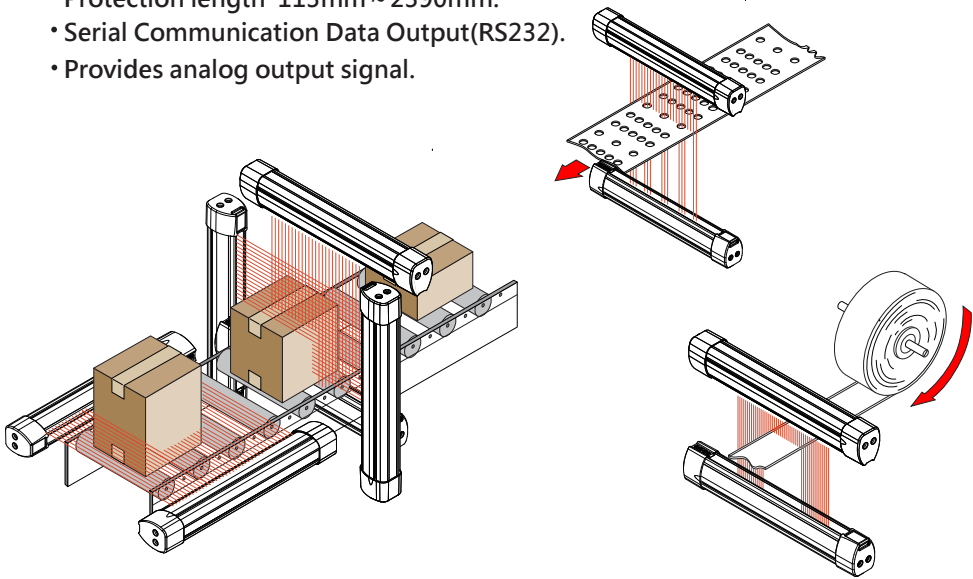
- Production line object size identify
- Object Recognition
- Object Outline establish

### Practical Use



### Introduction

- Have 37.52mm, 18.76mm, 9.38mm, 5mm, 2.5mm resolution etc, to meet customer needs.
- Protection length 113mm ~ 2390mm.
- Serial Communication Data Output(RS232).
- Provides analog output signal.



### GA Technical data

#### Basic information

| model              | GA25             | GA50       | GA0        | GA1        | GA3        |
|--------------------|------------------|------------|------------|------------|------------|
| Optical Axis Pitch | 2.5mm            | 5mm        | 9.38mm     | 18.76mm    | 37.52mm    |
| Detection zone     | 157.5~1917.5mm   | 155~1915mm | 140~2390mm | 131~2381mm | 113~2363mm |
| Response time      | 3.6msec ~ 55msec |            |            | <100msec   |            |
| Operating distance | 0.5m ~ 5 m       |            |            |            |            |

#### Electrical Interface

|                   |                                  |
|-------------------|----------------------------------|
| Power Supply      | 24VDC $\pm$ 10%                  |
| Power Consumption | Each module 16 Optical Axis 40mA |
| Connector         | M12 Connector                    |

#### Output

| Output Mode | GA25、GA50                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                    | GA0、GA1、GA3                                                                                                                                                                                                                                                  |                                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|             | RS232                                                                                                                                                                                                                                                                                                                                                                                        | Analog output(Optional)                                                                                                                                                                                                                                                                                                                                                                                                                                    | Switching output                                                                                                                                                                   | RS232                                                                                                                                                                                                                                                        | Analog output(Optional)                                                                                            |
|             | RS-232 Baud rate (4 modes) 9600 bps, 19.2K bps, 57.6K bps, 115.3K bps<br>Model 1 : Maximum output optical axis was obstructed conversion value.<br>Model 2 : Minimum output optical axis was obstructed conversion value.<br>Model 3 : Maximum output and Minimum Output optical axis was obstructed conversion value.<br>Model 4 : All Output optical axis was obstructed conversion value. | DC 0~10V analog output, 10mA max corresponding measurement result, output 4 type mode(selection by DIP switch)<br>Model 1 : Maximum output optical axis was obstructed conversion value.<br>Model 2 : Minimum output optical axis was obstructed conversion voltage value.<br>Model 3 : Output total optical axis count was unobstructed conversion voltage value.<br>Model 4 : Output total optical axis count was unobstructed conversion voltage value. | Provide a set of hardware<br>Switching output, output<br>Interface of transistor type<br>NPN / PNP<br>Switching output<br>NC / NO Status Settings<br>DC 0V 40mA / +24V<br>20mA max | RS-232 Baud rate : 9600 bps<br>H : Maximum output optical axis was obstructed conversion value.<br>HL : Maximum output and Minimum output optical axis was obstructed conversion value.<br>0 : All output was obstructed conversion corresponding bit value. | DC 0~10V analog output, 10mA max<br>Model 1 : Maximum output optical axis was obstructed conversion voltage value. |

### GA-VMS System



GA Measuring Light Curtain volume Measurement application, Items move along the conveyor belt, automatic measurement length, width, height. Cross-sectional dimension measurements are instantly converted into 3D rectangular measurement data passing through the light curtain. Easy-to-use interface and low-cost, be able to take massive manual measurement error and human input error, reduce costs and working time, is automated production line right-hand person.

Example :

Maximum Measuring Length : 20m An error of 2.5mm  
conveyor speed 10m/minute.  
Maximum Measuring High : 2m An error of 2.5mm  
Maximum Measuring Width : 2m An error of 2.5mm

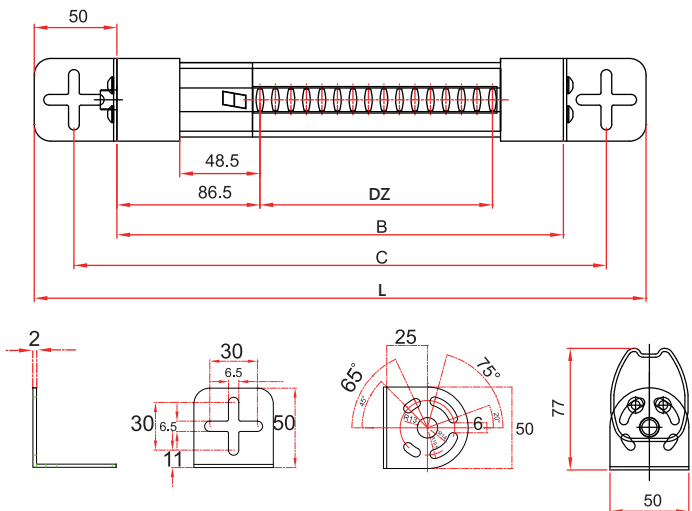
Customized to meet different customer needs.

## GA0 Model & Specification

Optical Axis Pitch : 9.38mm

Range : 0.5m ~ 5m

| Model   | Beams | Detection Zone (DZ)(mm) | Overall Length (B)(mm) | Install Length (C)(mm) | Assembly Length (L)(mm) |
|---------|-------|-------------------------|------------------------|------------------------|-------------------------|
| GA0-16  | 16    | 140                     | 271                    | 321                    | 371                     |
| GA0-32  | 32    | 290                     | 421                    | 471                    | 521                     |
| GA0-48  | 48    | 440                     | 571                    | 621                    | 671                     |
| GA0-64  | 64    | 590                     | 721                    | 771                    | 821                     |
| GA0-80  | 80    | 740                     | 871                    | 921                    | 971                     |
| GA0-96  | 96    | 890                     | 1021                   | 1071                   | 1121                    |
| GA0-112 | 112   | 1040                    | 1171                   | 1221                   | 1271                    |
| GA0-128 | 128   | 1190                    | 1321                   | 1371                   | 1421                    |
| GA0-144 | 144   | 1340                    | 1471                   | 1521                   | 1571                    |
| GA0-160 | 160   | 1490                    | 1621                   | 1671                   | 1721                    |
| GA0-176 | 176   | 1640                    | 1771                   | 1821                   | 1871                    |
| GA0-192 | 192   | 1790                    | 1921                   | 1971                   | 2021                    |
| GA0-208 | 208   | 1940                    | 2071                   | 2121                   | 2171                    |
| GA0-224 | 224   | 2090                    | 2221                   | 2271                   | 2321                    |
| GA0-240 | 240   | 2240                    | 2371                   | 2421                   | 2471                    |
| GA0-256 | 256   | 2390                    | 2521                   | 2571                   | 2621                    |



## GA3 Model & Specification

Optical Axis Pitch : 37.52mm

Range : 0.5m ~ 5m

| Model  | Beams | Detection Zone (DZ)(mm) | Overall Length (B)(mm) | Install Length (C)(mm) | Assembly Length (L)(mm) |
|--------|-------|-------------------------|------------------------|------------------------|-------------------------|
| GA3-4  | 4     | 113                     | 271                    | 321                    | 371                     |
| GA3-8  | 8     | 263                     | 421                    | 471                    | 521                     |
| GA3-12 | 12    | 413                     | 571                    | 621                    | 671                     |
| GA3-16 | 16    | 563                     | 721                    | 771                    | 821                     |
| GA3-20 | 20    | 713                     | 871                    | 921                    | 971                     |
| GA3-24 | 24    | 863                     | 1021                   | 1071                   | 1121                    |
| GA3-28 | 28    | 1013                    | 1171                   | 1221                   | 1271                    |
| GA3-32 | 32    | 1163                    | 1321                   | 1371                   | 1421                    |
| GA3-36 | 36    | 1313                    | 1471                   | 1521                   | 1571                    |
| GA3-40 | 40    | 1463                    | 1621                   | 1671                   | 1721                    |
| GA3-44 | 44    | 1613                    | 1771                   | 1821                   | 1871                    |
| GA3-48 | 48    | 1763                    | 1921                   | 1971                   | 2021                    |
| GA3-52 | 52    | 1913                    | 2071                   | 2121                   | 2171                    |
| GA3-56 | 56    | 2063                    | 2221                   | 2271                   | 2321                    |
| GA3-60 | 60    | 2213                    | 2371                   | 2421                   | 2471                    |
| GA3-64 | 64    | 2363                    | 2521                   | 2571                   | 2621                    |

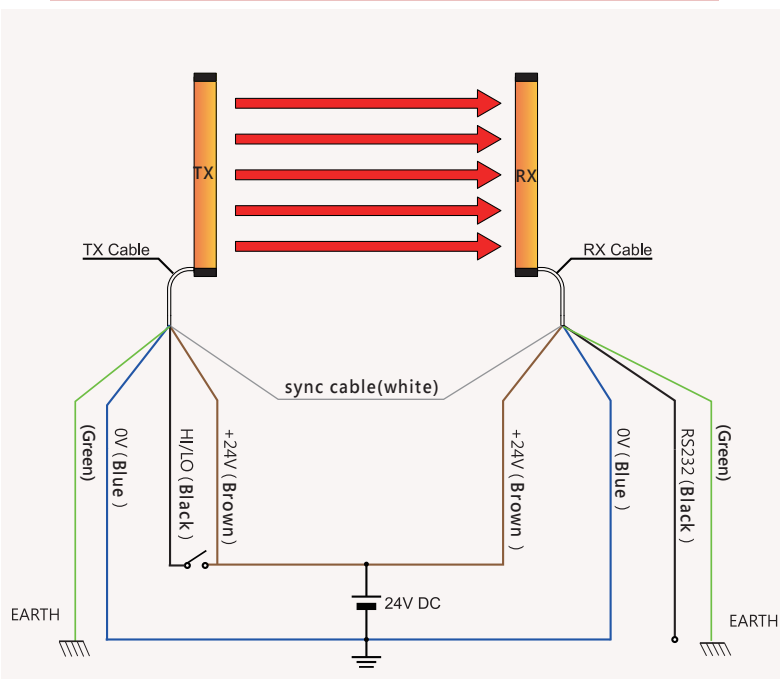
## GA1 Model & Specification

Optical Axis Pitch : 18.76mm

Range : 0.5m ~ 5m

| Model   | Beams | Detection Zone (DZ)(mm) | Overall Length (B)(mm) | Install Length (C)(mm) | Assembly Length (L)(mm) |
|---------|-------|-------------------------|------------------------|------------------------|-------------------------|
| GA1-8   | 8     | 131                     | 271                    | 321                    | 371                     |
| GA1-16  | 16    | 281                     | 421                    | 471                    | 521                     |
| GA1-24  | 24    | 431                     | 571                    | 621                    | 671                     |
| GA1-32  | 32    | 581                     | 721                    | 771                    | 821                     |
| GA1-40  | 40    | 731                     | 871                    | 921                    | 971                     |
| GA1-48  | 48    | 881                     | 1021                   | 1071                   | 1121                    |
| GA1-56  | 56    | 1031                    | 1171                   | 1221                   | 1271                    |
| GA1-64  | 64    | 1181                    | 1321                   | 1371                   | 1421                    |
| GA1-72  | 72    | 1331                    | 1471                   | 1521                   | 1571                    |
| GA1-80  | 80    | 1481                    | 1621                   | 1671                   | 1721                    |
| GA1-88  | 88    | 1631                    | 1771                   | 1821                   | 1871                    |
| GA1-96  | 96    | 1781                    | 1921                   | 1971                   | 2021                    |
| GA1-104 | 104   | 1931                    | 2071                   | 2121                   | 2171                    |
| GA1-112 | 112   | 2081                    | 2221                   | 2271                   | 2321                    |
| GA1-120 | 120   | 2231                    | 2371                   | 2421                   | 2471                    |
| GA1-128 | 128   | 2381                    | 2521                   | 2571                   | 2621                    |
| GA1-136 | 136   | 2531                    | 2671                   | 2721                   | 2771                    |
| GA1-144 | 144   | 2681                    | 2821                   | 2871                   | 2921                    |
| GA1-152 | 152   | 2831                    | 2971                   | 3021                   | 3071                    |

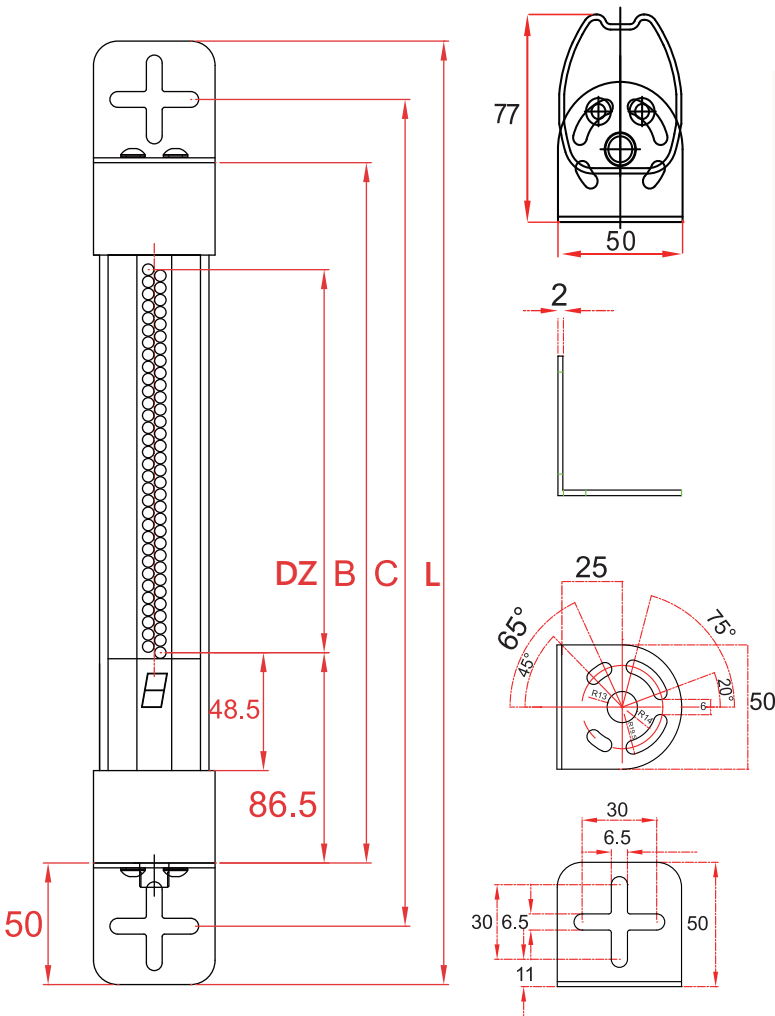
## GA0、GA1、GA3 wiring example



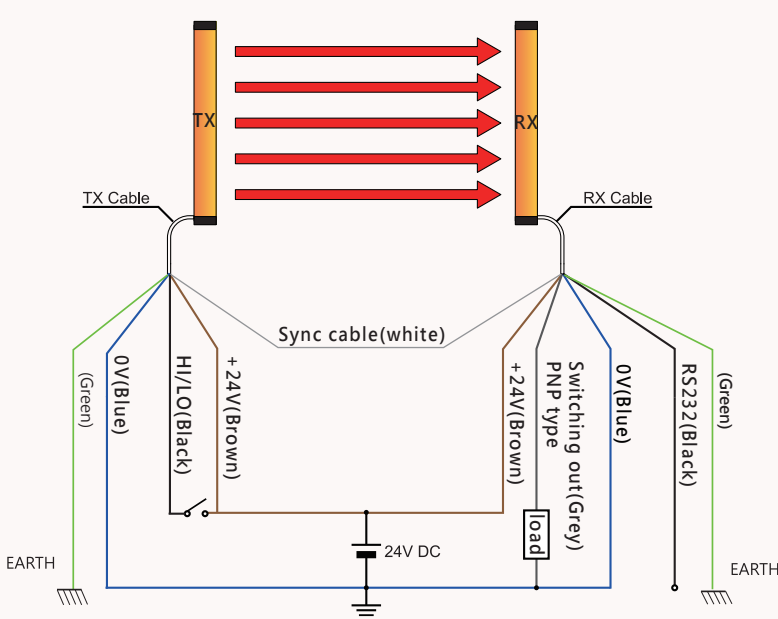
- (1) Power :  
Vin +24V DC transmitter and receiver ( Brown+24V , Blue 0V), we suggest using independently power module. It could avoid surging, recommend independent power module and case connects with Gnd.
- (2) Output :  
The safety light curtain has set of RS232 or Analog Output.

| GA25 Model & Specification |       |                         |                        |                        |                         |
|----------------------------|-------|-------------------------|------------------------|------------------------|-------------------------|
| Optical Axis Pitch : 2.5mm |       |                         |                        |                        |                         |
| Range : 0.5m ~ 5m          |       |                         |                        |                        |                         |
| Model                      | Beams | Detection Zone (DZ)(mm) | Overall Length (B)(mm) | Install Length (C)(mm) | Assembly Length (L)(mm) |
| GA25-16                    | 16    | 37.5                    | 169                    | 219                    | 269                     |
| GA25-32                    | 32    | 77.5                    | 209                    | 259                    | 309                     |
| GA25-48                    | 48    | 117.5                   | 249                    | 299                    | 349                     |
| GA25-64                    | 64    | 157.5                   | 289                    | 339                    | 389                     |
| GA25-128                   | 128   | 317.5                   | 449                    | 499                    | 549                     |
| GA25-192                   | 192   | 477.5                   | 609                    | 659                    | 709                     |
| GA25-256                   | 256   | 637.5                   | 769                    | 819                    | 869                     |
| GA25-320                   | 320   | 797.5                   | 929                    | 979                    | 1029                    |
| GA25-384                   | 384   | 957.5                   | 1089                   | 1139                   | 1189                    |
| GA25-448                   | 448   | 1117.5                  | 1249                   | 1299                   | 1349                    |
| GA25-512                   | 512   | 1277.5                  | 1409                   | 1459                   | 1509                    |
| GA25-576                   | 576   | 1437.5                  | 1569                   | 1619                   | 1669                    |
| GA25-640                   | 640   | 1597.5                  | 1729                   | 1779                   | 1829                    |
| GA25-704                   | 704   | 1757.5                  | 1889                   | 1939                   | 1989                    |
| GA25-768                   | 768   | 1917.5                  | 2049                   | 2099                   | 2149                    |
| GA25-832                   | 832   | 2077.5                  | 2209                   | 2259                   | 2309                    |
| GA25-896                   | 896   | 2237.5                  | 2369                   | 2419                   | 2469                    |
| GA25-960                   | 960   | 2397.5                  | 2529                   | 2579                   | 2629                    |

| GA50 Model & Specification |       |                         |                        |                        |                         |
|----------------------------|-------|-------------------------|------------------------|------------------------|-------------------------|
| Optical Axis Pitch : 2.5mm |       |                         |                        |                        |                         |
| Range : 0.5m ~ 5m          |       |                         |                        |                        |                         |
| Model                      | Beams | Detection Zone (DZ)(mm) | Overall Length (B)(mm) | Install Length (C)(mm) | Assembly Length (L)(mm) |
| GA50-8                     | 8     | 35                      | 169                    | 219                    | 269                     |
| GA50-16                    | 16    | 75                      | 209                    | 259                    | 309                     |
| GA50-24                    | 24    | 115                     | 249                    | 299                    | 349                     |
| GA50-32                    | 32    | 155                     | 289                    | 339                    | 389                     |
| GA50-64                    | 64    | 315                     | 449                    | 499                    | 549                     |
| GA50-96                    | 96    | 475                     | 609                    | 659                    | 709                     |
| GA50-128                   | 128   | 635                     | 769                    | 819                    | 869                     |
| GA50-160                   | 160   | 795                     | 929                    | 979                    | 1029                    |
| GA50-192                   | 192   | 955                     | 1089                   | 1139                   | 1189                    |
| GA50-224                   | 224   | 1115                    | 1249                   | 1299                   | 1349                    |
| GA50-256                   | 256   | 1275                    | 1409                   | 1459                   | 1509                    |
| GA50-288                   | 288   | 1435                    | 1569                   | 1619                   | 1669                    |
| GA50-320                   | 320   | 1595                    | 1729                   | 1779                   | 1829                    |
| GA50-352                   | 352   | 1755                    | 1889                   | 1939                   | 1989                    |
| GA50-384                   | 384   | 1915                    | 2049                   | 2099                   | 2149                    |
| GA50-416                   | 416   | 2075                    | 2209                   | 2259                   | 2309                    |
| GA50-448                   | 448   | 2235                    | 2369                   | 2419                   | 2469                    |
| GA50-480                   | 480   | 2395                    | 2529                   | 2579                   | 2629                    |



GA25 、GA50 Wiring example



- (1) Power :  
Vin +24V DC transmitter and receiver ( Brown+24V , Blue 0V), we suggest using independently power module. It could avoid surging, recommend independent power module and case connects with Gnd.
- (2) Output :  
The safety light curtain has set of RS232 or Analog Output.  
Discrete transistor safety signal output Switching output, (PNP type) normal operation Output DC+24V of voltage signal.  
(NPNtype) normal operation Output DC 0V of voltage signal.

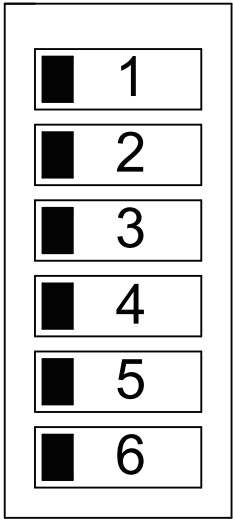
Indicator Light

|                 |      |
|-----------------|------|
| Indicator Light | Meam |
|-----------------|------|

|                                                                                   |                       |                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | LED 7-segment display | 7-segment display provides unusual display, matching light singal can datermine unusual shield the indicator light of position. 1~16 beam distinguish 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G mean shield the optical axis eyes of position. |
|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GA25 / GA50 RX DIP Switch Function settings

OFF    ON



DIP switches 1 & 2 - RS-232 Baud rate setting

|                   |                           |
|-------------------|---------------------------|
| 1 (OFF) 2 (OFF) : | 9600 bits/sec             |
| 1 (ON) 2 (OFF) :  | 19.2K bits/sec            |
| 1 (OFF) 2 (ON) :  | 57.6K bits/sec            |
| 1 (ON) 2 (ON) :   | 115.2K bits/sec Fast Mode |

DIP switches 3 & 4 - Analog / RS-232 Output Data Formatting setting

RS-232 , D/A Output Data Formatting setting.

Mode 1 - 3 (OFF) 4 (OFF) : Output the bit values corresponding to all the optical axis transformations that are blocked.

Mode 2 - 3 (ON) 4 (OFF) : Output the values to maximum the optical axis transformations that are blocked.

Mode 3 - 3 (ON) 4 (OFF) : Output the values to minimum the optical axis transformations that are blocked.

Mode 4 - 3 (ON) 4 (OFF) : Output the values to maximum and minimum the optical axis transformations that are blocked.

DIP switches 5 - Test mode settings

|           |                                                                                       |
|-----------|---------------------------------------------------------------------------------------|
| 5 (OFF) : | normal mode                                                                           |
| 5 (ON) :  | Test mode only outputs RS232 when occluded.<br>Fast mode + Test mode only D/A output. |

DIP switches 6 - Switching output NC / NO Status Settings

|           |                                              |
|-----------|----------------------------------------------|
| 6 (OFF) : | Normal output is 0V, shielded output is 24V. |
| 6 (ON) :  | Normal output is 24V, shielded output is 0V. |