- Belt Driven Linear Actuator
- Stroke Lengths up to 48 Inches
- Dynamic loads up to 200 lbs
- Speeds up to $100 \mathrm{in} / \mathrm{sec}$
- Linear Guide Motion
- Compatable with Nema 23 Motor or 60mm Frame Servo Motor
- Additional Accessories Available

*w/ Stepper Motor


| Dimesions |  |  |  |
| :---: | :---: | :---: | :---: |
| Model | L1 | L2 | H1 |
| $12^{\prime \prime}$ | 21 | 20.624 |  |
| $18^{\prime \prime}$ | 27 | 26.624 | Motor Height, |
| $24^{\prime \prime}$ | 33 | 32.624 | See Motor Specs |
| $36^{\prime \prime}$ | 45 | 44.624 | for More Information |
| $48^{\prime \prime}$ | 57 | 56.624 |  |

*Units are in inches
L011255

## *w/ Servo Motor


*w/ no Motor and No Mount


| Dimesions |  |  |  |
| :---: | :---: | :---: | :---: |
| Model | L1 | L2 | H1 |
| $12^{\prime \prime}$ | 21 | 20.624 |  |
| $18^{\prime \prime}$ | 27 | 26.624 | Motor Height, |
| 24 " | 33 | 32.624 | See Motor Specs |
| $36^{\prime \prime}$ | 45 | 44.624 | for More Information |
| $48^{\prime \prime}$ | 57 | 56.624 |  |

*Units are in inches

## Part Number Creation Guide



| Travel |  | 12" | 18" | 24" | 36" | 48" |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Load Capacity | Static (lb) | 1,000 |  |  |  |  |
|  | Dynamic (lb) | 200 |  |  |  |  |
| Max Stroke Length | Inches | 12 | 18 | 24 | 36 | 48 |
| Encoder Outputs | --- | TTL Square Wave, Two Channel A \& B |  |  |  |  |
| Maximum Travel Speed | Inches/ Second | 100 |  |  |  |  |
| Accuracy | Inches | 0.005 |  |  |  |  |
| Material | --- | Aluminum |  |  |  |  |
| Finish | --- | Black/Clear Anodized |  |  |  |  |
| Flatness, Straightness, \& Orthogonality | --- | $<0.001$ [Inch/Inch] ( $<25.4 \mu \mathrm{~m} / \mu \mathrm{m}$ ) |  |  |  |  |
| Rail Material | --- | Stainless Steel |  |  |  |  |
| Inches Per Revolution | Inches | 4.8 |  |  |  |  |
| Belt Pitch | Inches | 0.200 |  |  |  |  |
| Number of Pulley Teeth | --- | 24 |  |  |  |  |
| Duty Cycle | --- | Low to Mid (<50\%) |  |  |  |  |
| Stage Weight (Without Motor) (Without Mount) | Without Limit Switches (lb) | 4.88 | 5.96 | 7.00 | 9.10 | 11.14 |
|  | With Limit Switches (lb) | 4.89 | 5.97 | 7.01 | 9.11 | 11.15 |
| Weight of Mount and Coupling | (lb) | 0.34 |  |  |  |  |
| Moment of Inertia | oz-in-sec ${ }^{2}$ | 0.12 |  |  |  |  |
| Max Moments (Nm) | Mro | 34.9 |  |  |  |  |
|  | Mpo | 30.2 |  |  |  |  |
|  | Myo | 30.2 |  |  |  |  |

## Stepper Motor Specifications:

| Motor Option | Motor Part Number | Bipolar <br> Torque (oz-in) | Series Current <br> (A) | Unipolar Current <br> (A) | Parallel Current <br> (A) | Unipolar Inductance (mH) | Rotor Inertia (oz-in-sec ${ }^{2}$ ) | Weight <br> (lbs) | "L" Length (in) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3A | 23Y006S-LW8 | 76 | 2.10 | 3.0 | 4.2 | 0.6 | 0.0017 | 1.00 | 1.62 |
| 3B | 23Y106S-LW8 | 175 | 2.10 | 3.0 | 4.2 | 1.1 | 0.0042 | 1.55 | 2.21 |
| 3C | 23Y206S-LW8 | 262 | 2.10 | 3.0 | 4.2 | 1.6 | 0.0068 | 2.21 | 3.00 |
| 3E | 23Y006D-LW8 | 76 | 2.10 | 3.0 | 4.2 | 0.6 | 0.0017 | 1.00 | 1.62 |
| 3F | 23Y106D-LW8 | 175 | 2.10 | 3.0 | 4.2 | 1.1 | 0.0042 | 1.55 | 2.21 |
| 3G | 23Y206D-LW8 | 262 | 2.10 | 3.0 | 4.2 | 1.6 | 0.0068 | 2.21 | 3.00 |


| Step Angle Accuracy: | $\pm 5 \%$ (Full Step, No Load) | Insulation Resistance: | 100M Ohm Min, 500VDC |
| :--- | :--- | :--- | :--- |
| Resistance Accuracy: | $\pm 10 \%$ | Dielectric Strength: | 500VAC for 1 minute |
| Inductance Accuracy: | $\pm 20 \%$ | Shaft Radial Play: | $0.02 "$ Max (1.0 lbs) |
| Temperature Rise: | $80^{\circ} \mathrm{C}$ Max (2 Phases On) | End Play: | $0.08 "$ Max (1.0 lbs) |
| Ambient Temperature: | $-20^{\circ}$ to $+50^{\circ} \mathrm{C}$ | Max Radial Force: | $16.9 \mathrm{lbs}\left(0.79^{\prime \prime}\right.$ from Flange) |
| Insulation Type: | Class B | Max Axial Force: | 3.4 lbs-Force |


| Connection | Lead Wire Connection | Lead Wire Color |  |
| :---: | :---: | :---: | :---: |
| 4 - Lead Bipolar Series MBC Series | Phase 1 (A) Phase 3 (Al) Phase $2(B)$ Phase 4 (Bl) Connect Wires with Wire Nut Connect Wires with Wire Nut | Black Orange Red Yellow White/Black \& White/Orange White/Red \& White/Yellow |  |
| 4 - Lead Bipolar Parallel MBC Series | Phase 1 (A) <br> Phase 3 (Al) <br> Phase 2 (B) <br> Phase 4 (BI) | Black \& White/Orange Orange \& White/Black Red \& White/Yellow Yellow \& White/Red |  |
| 6 - Lead Unipolar BLD, TM Series | Phase 1 <br> Phase 3 <br> Phase 2 <br> Phase 4 | Black Orange Red Yellow |  |
|  | Common Phase $1 \& 3$ Common Phase 2 \& 4 | White/Black \& White/Orange White/Red \& White/Yellow |  |



NOTE 1: 23YxxxD-LW8 Models Only

| Motor <br> Option | Motor Part <br> Number | Active <br> Input | Bipolar <br> Torque <br> (oz-in) | Rotor <br> Inertia <br> (oz-in-sec ${ }^{2}$ ) | Weight <br> (lbs) | "L" <br> Length <br> (in) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4G | 23MD006S-00 | Sinking | 76 | 0.0017 | 1.20 | 2.98 |
| 4H | 23MD006S-24 | Sourcing | 76 | 0.0017 | 1.20 | 2.98 |
| 4E | 23MD106S-00 | Sinking | 175 | 0.0042 | 1.75 | 4.03 |
| 4F | 23MD106S-24 | Sourcing | 175 | 0.0042 | 1.75 | 4.03 |
| 4I | 23MD206S-00 | Sinking | 262 | 0.0068 | 2.41 | 4.94 |
| 4J | 23MD206S-24 | Sourcing | 262 | 0.0068 | 2.41 | 4.94 |
| 4M | 23MD006D-00 | Sinking | 76 | 0.0017 | 1.20 | 2.98 |
| 4N | 23MD006D-24 | Sourcing | 76 | 0.0017 | 1.20 | 2.98 |
| 4K | 23MD106D-00 | Sinking | 175 | 0.0042 | 1.75 | 4.03 |
| 4L | 23MD106D-24 | Sourcing | 175 | 0.0042 | 1.75 | 4.03 |
| 4O | 23MD206D-00 | Sinking | 262 | 0.0068 | 2.41 | 4.94 |
| 4P | 23MD206D-24 | Sourcing | 262 | 0.0068 | 2.41 | 4.94 |


| Power Requirements: | $12-24 \mathrm{VDC}$ | Microstepping Res. | 1600 Steps/Rev (Div-by 8) |
| :--- | :--- | :--- | :--- |
| Input Voltage (Inputs): | $3.5-24 \mathrm{VDC}$ | Driver Type: | Bipolar Series |
| Step Angle Accuracy: | $+/-5 \%$ (Full Step, No Load) | Insulation Resistance: | 100 M Ohm Min, 500 VDC |
| Temperature Rise: | $80^{\circ} \mathrm{C} \mathrm{Max} \mathrm{(2} \mathrm{Phases} \mathrm{On)}$ | Dielectric Strength: | 500 VDC for One Minute |
| Ambient Temperature: | $-20^{\circ}$ to $+50^{\circ} \mathrm{C}$ | Radial Play: | $0.02^{\prime \prime}$ at 1.0 lbs |
| Insulation Type: | Class B | End Play: | $0.08^{\prime \prime}$ at 1.0 lbs |
| Max Axial Force: | 3.4 lbs-Force | Max Radial Force: | 16.9 lbs ( $0.79^{\prime \prime}$ from Flange) |



## Stepper Motors with Integrated Driver Specifications: (Cont.)



| 23MDInput Cable - CBL-AA4266 <br> (Sold Seperately) |  |  |
| :---: | :---: | :---: |
| Connector Pin \# | Color | Function |
| 1 | Brown | Direction |
| 2 | Red | Clock |
| 3 | Orange | On/Off |
| 4 | Yellow | MS2 |
| 5 | Green | MS1 |
| 6 | Blue | 12VDC-24VDC |



## Stepper Motors with Integrated Controller and Driver Specifications:

| Motor <br> Option | Motor Part Number | Bipolar <br> Torque <br> (oz-in) | Rotor Inertia <br> $\left(\right.$ oz-in-sec²) $^{2}$ | Weight <br> (lbs) | L <br> Length <br> (in) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{5 E}$ | 23MDSI106S-00-00 | 175 | 0.0042 | 1.73 | 3.504 |
| $\mathbf{5 I}$ | 23MDSI206S-00-00 | 262 | 0.0068 | 2.39 | 4.292 |
| $\mathbf{5 K}$ | 23MDSI106D-00-00 | 175 | 0.0042 | 1.73 | 3.504 |
| $\mathbf{5 0}$ | 23MDSI206D-00-00 | 262 | 0.0068 | 2.39 | 4.292 |


| Power Requirements: | $12-24 \mathrm{VDC}$ | Microstepping Res. | 1600 steps/rev (Div-by 8) |
| :--- | :--- | :--- | :--- |
| Input Voltage (Inputs): | $3.5-24 \mathrm{VDC}$ | Driver Type: | Bipolar Series |
| Step Angle Accuracy: | $+/-5 \%$ (Full Step, No Load) | Insulation Resistance: | 100 M Ohm Min, 500VDC |
| Temperature Rise: | $80^{\circ} \mathrm{C}$ Max (2 Phases On) | Dielectric Strength: | 500 VDC for One Minute |
| Ambient Temperature: | $-20^{\circ}$ to $+50^{\circ} \mathrm{C}$ | Radial Play: | $0.02^{\prime \prime}$ at 1.0 lbs |
| Insulation Type: | Class B | End Play: | $0.08 "$ at 1.0 lbs |
| Max Axial Force: | 3.4 lbs-Force | Max Radial Force: | $16.9 \mathrm{lbs}(0.79 "$ from Flange) |



## Servo Motor Specifications:

| Model | KNC-SRV-SMH60S-0020-30AAK-3LKH <br> KNC-SRV-SMH60S-0020-30ABK-3LKH | KNC-SRV-SMH60S-0040-30AAK-3LKH <br> KNC-SRV-SMH60S-0040-30ABK-3LKH |
| :---: | :---: | :---: |
| Compatible Driver | KNC-SRV-F | 422-LA-000 |
| DC Link Voltage (VDC) | 300 | 300 |
| Rated Power (W) | 200 | 400 |
| Rated Torque (oz-in) | 91 | 180 |
| Rated Speed (RPM) | 3000 | 3000 |
| Rated Current (A) | 1.6 | 3.1 |
| Maximum Torque (oz-in) | 271.9 | 540.9 |
| Maximum Current (A) | 4.8 | 9.3 |
| Standstill Torque (oz-in) | 25 | 50 |
| Standstill Current (A) | 1.79 | 3.38 |
| Resistance Line-Line ( $\Omega$ ) | 8.02 | 3.52 |
| Inductance Line-Line (mH) | 16.3 | 7.8 |
| Electrical Time Constant (ms) | 2.03 | 2.22 |
| Mechanical Time Constant (ms) | 2.26 | 1.35 |
| Reverse Voltage Constant Ke (V/krpm) | 29 | 29 |
| Torque Constant Kt (oz-in/A) | 68 | 68 |
| Rotor Moment of Inertia Jm (oz-in-s²) | $\begin{gathered} 0.00531 \\ 0.00536 \text { (with brake) } \end{gathered}$ | $\begin{gathered} 0.0072 \\ 0.0073 \text { (with brake) } \end{gathered}$ |
| Pole Pair Number | 3 | 3 |
| Maximum Voltage Rising du/dt (KV/ $\mu \mathrm{s}$ ) | 8 | 8 |
| Insulation Class | F | F |
| Maximum Radical Force F ( N ) | 180 | 180 |
| Maximum Axial Force F (N) | 90 | 90 |
| Weight (lbs) | $\begin{gathered} 1.3 \\ 1.8 \text { (with brake) } \end{gathered}$ | $\begin{gathered} 1.8 \\ 2.3 \text { (with brake) } \end{gathered}$ |

## KNC-SRV-SMH60S-0020-30AbK-3LKH and KNC-SRV-SMH60S-0040-30AbK-3LKH




Wire spec. UI20328 4C $\times$ 18AWG(41/0.16T) black


| Encoder Cable |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Three-row 15 Pin <br> DB | Two-row 15 <br> pin DB | Signal | External Wire <br> Color | Motor Wire <br> Color |  |
| PIN 1 | PIN 1 | +5 V | Red (thick) | Red |  |
| PIN 8 | PIN 2 | A | Orange | Blue-black |  |
| PIN 7 | PIN 3 | B | Yellow | Green |  |
| PIN 6 | PIN 4 | Z | Green | Yellow |  |
| PIN 4 | PIN 5 | U | Brown | Brown-black |  |
| PIN 10 | PIN 6 | V | Purple | White-black |  |
| PIN 9 | PIN 7 | W | Blue | Gray-black |  |
| PIN 2 | PIN 9 | GND | Black (thick) | Black |  |
| PIN 13 | PIN 10 | IA | Orange-White | Blue |  |
| PIN 12 | PIN 11 | IB | Yellow-White | Green-Black |  |
| PIN 11 | PIN 12 | IZ | Green-White | Yellow-Black |  |
| PIN 5 | PIN 13 | IU | Brown-White | Brown |  |
| PIN 15 | PIN 14 | N | Purple-White | White |  |
| PIN 14 | PIN 15 | IW | Blue-White | Gray |  |
| PIN 3 empty | PIN 8 empty | -- | -- | -- |  |
| Internal Metal Ring | DB Metal Shell | Sheild | Shield | Metal Shell |  |


| MOT-005-05-KL |  |  |
| :---: | :---: | :---: |
| Cable Color | Signal | PIN \# |


| Model |  | KNC-SRV-SMH60S-0020-30AAK-3LKH KNC-SRV-SMH60S-0020-30ABK-3LKH | KNC-SRV-SMH60S-0040-30AAK-3LKH KNC-SRV-SMH60S-0040-30ABK-3LKH |
| :---: | :---: | :---: | :---: |
| Length of Motor L (mm) |  | $\begin{gathered} 85.3 \pm 1 \\ 119 \pm 1.5(\text { with brake }) \end{gathered}$ | $\begin{gathered} 110.8 \pm 1 \\ 145 \pm 1.5 \text { (with brake) } \end{gathered}$ |
| Position Feedback Device |  | Incremental Encoder 2500PPR |  |
| Cooling Method |  | Totally Enclosed, Non-Ventilated |  |
| Protection Level |  | IP65 for Body, Shaft Sealing IP54 |  |
| Temperature |  | $-20^{\circ} \mathrm{C} \sim 40^{\circ} \mathrm{C}$ |  |
| Environmental Conditions of Operation | Humidity | Below 90\% RH (No Condensing) |  |
|  | Ambient Environment | Away from active gas, combustible gas, oil drops and dust |  |
|  | Altitude | Maximum Altitude 4000 m , Rated Power at 100 m or Below, Above 1000m: Decreasing 1.5\% per 100m Rise |  |

Servo Motor Specifications (Cont.):


## Stepper Encoder Specification:



* Unloaded high level output voltage is 4.80 V typically, 4.2 V minimum.

| Recommended Operating | Min | Max | Units |
| :---: | :---: | :---: | :---: |
| Conditions | -40 | 100 | ${ }^{\circ} \mathrm{C}$ |
| Temperature | 4.5 | 5.5 | Volts |
| Supply Voltage | - | 100 | pF |
| Load Capacitance | - | 100 | kHz |
| Count Frequency |  |  |  |



| Parameter | Description |  |  |
| :---: | :--- | :--- | :---: |
| CPR(N): | The Number of Cycles Per Revolution |  |  |




Stepper Brake Specifications:

| Model \# | Fits <br> NEMA <br> Size | Bore <br> Size <br> (in) | Maximum <br> Torque <br> (oz-in) | Maximum <br> Torque <br> (in-lb) | Electric <br> Power <br> (Watts) | Current <br> (mA) | Voltage <br> (V) | Diameter <br> (in) | Width <br> (in) | Weight <br> (lbs) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 AE | 23 | 0.250 | 80 | 5 | 7 | 375 | 24 | 1.77 | 0.890 | 0.38 |



Brake Attached to NEMA 23 Stepper Motor:


## Equipped with two independent outputs

All models are equipped with two independent outputs-Light-ON and Dark-ON.
Hence, one model suffices even if the output is to be used differently, depending upon the location of use. Also, since two independent outputs have been provided, cumbersome handling of the output conversion control input, or fear of logic inversion due to a cable break, is eliminated. The sensor can be connected to the existing wiring as it is.


Note: Ensure to insulate the unused output wire.

## I/O circuit diagram



Notes: 1) Make sure to connect terminals correctly as the sensor does not incorporate a reverse polarity protection circuit
Further, the output is not incorporated with a short-circuit
protection circuit. Do not connect it directly to a power supply or a
capacitive load. Faulty wiring may result in damage.
2) Ensure to insulate the unused output wire.

Wiring diagram


Output operation

|  | Color code | Output operation |
| :---: | :---: | :---: |
| Output 1 | Black | Light-ON |
| Output 2 | White | Dark-ON |

```
Symbols ... ZD1, ZD2: Surge absorption zener diode
```

Tr1, Tr2 : NPN output transistor

| Supply voltage |  | 5 to 24 V DC $\pm 10 \%$ Ripple P-P $10 \%$ or less |
| :---: | :---: | :---: |
| Current consumption |  | 15 mA or less |
| Output |  |  |
|  | Utilization category | DC-12 or DC-13 |
|  | Output operation | Incorporated with 2 outputs: Light-ON / Dark-ON |
| Response time |  | Under light received condition: $20 \mu$ s or less Under light interrupted condition: $100 \mu$ s or less (Response frequency: 1 kHz or more) (Note 2) |
| Operation indicator |  | Vermilion LED (lights up under light received condition) |
|  | Pollution degree | 3 (Industrial environment) |
|  | Ambient temperature (Note 3, 4) | -25 to $+55^{\circ} \mathrm{C}-13$ to $+131{ }^{\circ} \mathrm{F}$ (No dew condensation or icing allowed), Storage: -30 to $+80^{\circ} \mathrm{C}-22$ to $+176{ }^{\circ} \mathrm{F}$ |
|  | Ambient humidity | 35 to 85 \% RH, Storage: 35 to 85 \% RH |
|  | Ambient illuminance | Fluorescent light: $1,000 \mathrm{~lx}$ at the light-receiving face |
|  | EMC | EN 60947-5-2 |
|  | Voltage withstandability | $1,000 \mathrm{~V}$ AC for one min. between all supply terminals connected together and enclosure |
|  | Insulation resistance | $50 \mathrm{M} \Omega$, or more, with 250 V DC megger between all supply terminals connected together and enclosure |
|  | Vibration resistance | 10 to $2,000 \mathrm{~Hz}$ frequency, 1.5 mm 0.059 in amplitude in $\mathrm{X}, \mathrm{Y}$ and Z directions for two hours each |
|  | Shock resistance | $15,000 \mathrm{~m} / \mathrm{s}^{2}$ acceleration (1,500 G approx.) in $\mathrm{X}, \mathrm{Y}$ and Z directions for three times each |
| Emitting element |  | Infrared LED (Peak emission wavelength: 940 nm 0.037 mil, non-modulated) |
| Material |  | Enclosure: PBT, Slit cover: Polycarbonate |
| Cable |  | $0.09 \mathrm{~mm}^{2} 4$-core cabtyre cable [PM-24-R: $0.1 \mathrm{~mm}^{2}$ flexible, oil and heat resistant cabtyre cable (Note 5)], 1 m 3.281 ft long |
| Cable extension |  | Extension up to total 100 m 328.084 ft is possible with $0.3 \mathrm{~mm}^{2}$, or more, cable. |
| Weight |  | Net weight: 10 g approx. |

## Terms and Conditions

## Limited Warranty

All Anaheim Automation products are warranted against defects in workmanship and materials, when used under normal operating conditions and when used in accordance with the factory's specifications. This warranty is in effect for a period of twelve months from the date of purchase, or eighteen months from the date of manufacture, whichever comes first. Anaheim Automation will repair or replace at its' option, any of its products found to be defective and are within the warranty period. Anaheim Automation is not responsible for removal, installation, or incidental expenses incurred in shipping to and from the factory. Anaheim Automation is not liable, under any circumstances, for any consequential, incidental or indirect damages or expenses associated with the warranted product. Product that is damaged due to misuse, abuse, negligence, exposure, accident, improper installation or hook-up, or has been modified or dismantled, is NOT covered under this warranty.

## Open Accounts

Anaheim Automation extends credit to Government agencies, industrial and distributor accounts with a good published credit rating. Companies may apply for an open account by filling out Anaheim Automation's Credit Application Form, or by supplying credit information on their company's letterhead to Anaheim Automation's Accounting Department. Credit Information supplied by the buyer, or by others on the customer's behalf, shall become part of the Credit Application and any false or misleading information shall constitute fraud. All orders are shipped prepaid, COD, cash, wire-transfer, VISA or Mastercard, until an open account is established.

## Payment Terms for Open Accounts

Terms are Net 30 days. FOB is Anaheim, California.

## Account Management and Remedies

In the event it becomes necessary for Anaheim Automation to file suit to enforce payment of past due invoices, such a suit will be brought in Orange County, California. Anaheim Automation shall be entitled to collection of fees, court costs, and interest at $10 \%$ per annum or such legal maximum rate as is allowed, on all invoice amounts past due. All purchase agreements are governed by the laws of the State of California.

## Shipping

Anaheim Automation ships UPS Ground. If the customer prefers another carrier, or a premium routing method, this information must be clearly stated on the Purchase Order and confirmed, in writing, by Anaheim Automation. The customer must authorize any additional expenses that will incur. If quoted "factory stock," and Anaheim Automation has received a Purchase Order by noon PST, the order will ship the following day. For customers with an urgent request, there exists a possibility to ship later the same day. However, an "expedite fee" is charged, along with any other expenses incurred to fulfill this request.

All promises of shipment or delivery are approximated as closely as possible by Anaheim Automation, but are subject to delivery estimates made by our suppliers, weather conditions, fires, strikes, disputes, accidents, delays in transportation, material, fuel, or labor shortages, or any other cause beyond reasonable control of Anaheim Automation. In no event will Anaheim Automation assume any responsibility for any delays in shipments or deliveries.

## Blanket Orders

All Blanket Orders must be confirmed with a written Purchase Order, and include scheduled release dates. Any changes to the schedule or the quantity purchased, must be agreed upon by Anaheim Automation, Inc., and a written "Change Order" must be in processed to confirm such changes. NOTE: Blanket Orders are Non-Cancelable and Non-Returnable.

## Shortages or Damgaes

All claims for shortages or shipment errors must be made within 15 days after the receipt of the shipment. Anaheim Automation's liability is limited to the value of material value on the invoice. Claims for other loss or damages are filed against the carrier involved in the specific shipment.

## Discontinued Items

Items are subject to change or discontinuance without notice. Ask a Customer Service Representative for advice on any possible substitution for your application.

## Returns (RMA) and Repairs

Anything being returned to Anaheim Automation must have a RMA (Return Materials Authorization) number assigned by the factory, and it must be referenced on all the paperwork accompanying the return/ repair. Items that do not reference the RMA number will not be processed. Do NOT return product using a Debit Memo. No product will be accepted for Credit after 30 days from the date of shipment. Product must be shipped with freight prepaid. Special, custom or modified products are Non-Returnable, and no credit shall be offered.

Product in need of repair must have previous authorization to return it to the factory. It is critical to do so, as the advice the factory can offer is invaluable, and can often save the customer money. The factory will determine upon inspection whether the product is covered under warranty. The factory charges a "flat-rate" fee based on model number, regardless of the problem found. The fee is charged for all returns, including those where no problem is found, as inspection and test is time-consuming.

## Cancellations and Restocking Charges

Cancellation of any order must be approved by Anaheim Automation and will be on terms that protect us from any loss. The restocking charge is $15 \%$ on all product returned. The minimum restocking charge is $\$ 25.00$. Returns must be made within 30 days of receipt of product. Shipping expenses are paid by the customer. All products are subject to factory inspection and must be in resellable condition to receive credit. Special, custom and modified products are Non-Returnable and Non-Cancelable.

## Engineering or Technical Assistance

Technical assistance is available at no charge to help the customer in choosing Anaheim Automation products for a specific application. However, any selection, quotation, or application suggestion offered from Anaheim Automation, its' representatives or distributors, are only to assist the customer, and in all cases, determination of fitness for purpose or use are solely the customers' responsibility. While every effort is made to offer solid advice and to produce technical data and illustrations accurately, such advice and documents are for reference only, and subject to change without notice. Programming of product is the customer's responsibility.

All Sales are made pursuant to the Terms and Conditions herein, are in lieu of any other expressed or implied terms, including but not limited to any implied warranties.

