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# Customer Specification

## PART NO. M12104RW

### Construction

|                                     |              | Diameters (In)   |       |              |       |
|-------------------------------------|--------------|--|-------|--------------|-------|
| 1) Component 1                      |              | 4 X 1 COND   |       |              |       |
| a) Conductor                        |              | 12 (65/30) AWG Bare Copper                                   |       | 0.093        |       |
| b) Insulation                       |              | 0.016" Wall, Nom. PVC/ 0.005" Wall NYLON                     |       | 0.135        |       |
| (1) Print                           |              | ALPHANUMERIC NUMBERS - 1-ONE ALTERNATING AND INVERTED        |       |              |       |
| (2) Color Code                      |              | Alpha Wire Color Code RX                                     |       |              |       |
| Cond                                | Color        | Cond   | Color | Cond         | Color |
| 1                                   | GREEN/YELLOW | 3  | RED#2 |              |       |
| 2                                   | RED#1        | 4  | RED#3 |              |       |
| 2) Cable Assembly                   |              | 4 Components Cabled  |       |              |       |
| a) Twists:                          |              | 2.7 Twists/foot (min)  |       |              |       |
| b) Orientation:                     |              | Components to be arranged from OUTSIDE LAYER to INSIDE LAYER |       | c) Core Wrap |       |
| Clear Mylar Tape, 25% Overlap, Min. |              | 3) Jacket  |       |              |       |
| 0.055" Wall, Nom.,PVC               |              | 0.440+/- 0.020   |       | a) Color(s)  |       |
| SLATE                               |              | b) Print   |       |              |       |

### Applicable Specifications

|                      |                                     |  |
|----------------------|-------------------------------------|--|
| 1) UL                | TC                                  | 90°C Dry / 75°C Wet / 600 V <sub>RMS</sub> |
|                      | EXPOSED RUN                         |  |
|                      | SUN RES                             |  |
|                      | PLTC                                | 90°C                                       |
|                      | DIRECT BURIAL                       |  |
|                      | OIL RES I                           |  |
|                      | MTW                                 | 90°C Dry / 60°C Wet / 600 V <sub>RMS</sub> |
|                      | WTTC                                | 90°C / 1000 V <sub>RMS</sub>               |
| 2) CSA International | FT4                                 |  |
|                      | AWM I/II A/B                        | 90°C / 600 V <sub>RMS</sub>                |
| 3) Other             | Conductors ASTM Class K             |  |
|                      | Conductors IEC Class 5 on AWG size  |  |
| 4) CE:               | EU Low Voltage Directive 2014/35/EC |  |

### Environmental

|  |   |
|--|---|
| 1) CE: EU Directive 2011/65/EU(RoHS2): |   |
|  | This product complies with European Directive 2011/65/EU (RoHS Directive) of the European Parliament and of the Council of 8 June 2011. No Exemptions are required for RoHS Compliance on this item. Consult Alpha Wire's web site for RoHS C of C. |
| 2) REACH Regulation (EC 1907/2006):    |   |
|  | This product does not contain Substances of Very High Concern (SVHC) listed on the European Union's REACH candidate list in excess of 0.1% mass of the item. For up-to-date information, please see Alpha's REACH SVHC Declaration.                 |
| 3) California Proposition 65:          |   |
|  | The outer surface materials used in the manufacture of this part meet the requirements of California Proposition 65.  |

## Properties

|   |   |
|---|---|
| Physical & Mechanical Properties                      |   |
| 1) Temperature Range                                  | -30 to 90°C(static), -5 to 90°C (dynamic)             |
| 2) Bend Radius  | 8X Cable Diameter(static), 8X Cable Diameter(dynamic) |
| 3) Pull Tension                                       | 204 Lbs, Maximum                                      |
| 4) Sunlight Resistance                                | Yes   |
| 5) Direct Burial                                      | Yes   |
| Electrical Properties (For Engineering purposes only) |   |
| 1) Voltage Rating                                     | 600 V <sub>RMS</sub>                                  |
| 2) Capacitance  | 36 pF/ft @1 kHz, Nominal Conductor to Conductor       |
| 3) Inductance   | 0.16 μH/ft, Nominal                                   |
| 4) Conductor DCR                                      | 1.64 Ω/1000ft @20°C, Nominal                          |

## Other

|  |                                     |
|--|-------------------------------------|
| <b>Packaging</b>   | Flange x Traverse x Barrel (inches) |
| a) Bulk(Made-to-order)   |                                     |
| <b>Notes:</b>  |                                     |
| a) Suitable for intermittent or light duty flexing where cycle count will be less than 1,500,000 cycles. |                                     |

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# EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: M12104RW

M12104RW , RoHS-Compliant Commencing With 8/1/2005 Production

Note: all colors and put-ups

This document certifies that the Alpha part number cited above is manufactured in accordance with Directive 2011/65/EU of the European Parliament, better known as the RoHS Directive (commonly known as RoHS 2), with regards to restrictions of the use of certain hazardous substances used in the manufacture of electrical and electronic equipment. This certification extends to amending Directive 2015/863/EU which expanded the list of restricted substances to 10 items (commonly known as RoHS 3) The reader is referred to these Directives for the specific definitions and extents of the Directives. **No Exemptions are required for RoHS Compliance on this item.** Additionally, Alpha certifies that the listed part number is in compliance with China RoHS "Marking for Control of Pollution by Electronic Information Products" standard SJ/T 11364-2014.

| Substance                               | Maximum Control Value      |
|---|----------------------------|
| Lead                                    | 0.1% by weight (1000 ppm)  |
| Mercury                                 | 0.1% by weight (1000 ppm)  |
| Cadmium                                 | 0.01% by weight (100 ppm)  |
| Hexavalent Chromium                     | 0.1% by weight (1000 ppm ) |
| Polybrominated Biphenyls (PBB)          | 0.1% by weight (1000 ppm)  |
| Polybrominated Diphenyl Ethers (PBDE) , |                            |
| Including Deca-BDE                      | 0.1% by weight (1000 ppm)  |
| Bis(2-ethylhexyl) phthalate (DEHP)      | 0.1% by weight (1000 ppm)  |
| Butyl benzyl phthalate (BBP)            | 0.1% by weight (1000 ppm)  |
| Dibutyl phthalate (DBP)                 | 0.1% by weight (1000 ppm)  |
| Diisobutyl phthalate (DIBP)             | 0.1% by weight (1000 ppm)  |

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Authorized Signatory for the Alpha Wire:

Dave Watson, Director of Engineering & QA

2/9/2017

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