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# Customer Specification

## PART NO. M9746020

Construction

|                       |               |                                                                                                                                                                                                                                                           |               | Diameters (In)     |       |
|-----------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|-------|
| 1) Component 1        |               | 2 X 1 PAIR                                                                                                                                                                                                                                                |               |                    |       |
| a) Conductor          |               | 16 (7/.0192) AWG BC                                                                                                                                                                                                                                       |               | 0.058              |       |
| b) Insulation         |               | 0.016" Wall, Nom. PVC                                                                                                                                                                                                                                     |               | 0.090              |       |
| (1) Print             |               | ALPHA NUMERIC NUMBERS - WHITE CONDUCTOR ONLY<br>(ONE-1) ALTERNATE INVERTED 2"SPACING(CTR. TO CTR.)                                                                                                                                                        |               |                    |       |
| (2) Color Code        |               | Alpha Wire Color Code BW                                                                                                                                                                                                                                  |               |                    |       |
| Pair                  | Color         | Pair                                                                                                                                                                                                                                                      | Color         | Pair               | Color |
| 1                     | BLACK-WHITE#1 | 2                                                                                                                                                                                                                                                         | BLACK-WHITE#2 |                    |       |
| c) Pair               |               | 2/Cond Cabled Together                                                                                                                                                                                                                                    |               |                    |       |
| (1) Twists:           |               | 4.8 Twists/foot (min)                                                                                                                                                                                                                                     |               |                    |       |
| Individually Applied: |               |                                                                                                                                                                                                                                                           |               |                    |       |
| d) Shield:            |               | Foil Free Alum/Mylar Tape, 25% Overlap, Min.                                                                                                                                                                                                              |               |                    |       |
| (1) Foil Direction    |               | Foil Facing In                                                                                                                                                                                                                                            |               |                    |       |
| (2) Drain Wire        |               | 18 (7/.0152) AWG TC                                                                                                                                                                                                                                       |               |                    |       |
| 2) Component 2        |               | 1 X 1 COND                                                                                                                                                                                                                                                |               |                    |       |
| a) Conductor          |               | 22 (7/30) AWG BC                                                                                                                                                                                                                                          |               | 0.030              |       |
| b) Insulation         |               | 0.016" Wall, Nom. PVC                                                                                                                                                                                                                                     |               | 0.062              |       |
| (1) Color(s)          |               |                                                                                                                                                                                                                                                           |               |                    |       |
| Cond                  | Color         | Cond                                                                                                                                                                                                                                                      | Color         | Cond               | Color |
| 1                     | ORANGE        |                                                                                                                                                                                                                                                           |               |                    |       |
| 3) Cable Assembly     |               | 3 Components Cabled                                                                                                                                                                                                                                       |               |                    |       |
| a) Twists:            |               | 2.5 Twists/foot (min)                                                                                                                                                                                                                                     |               |                    |       |
| b) Core Wrap          |               | Clear Mylar Tape, 25% Overlap, Min.                                                                                                                                                                                                                       |               |                    |       |
| 4) Shield:            |               | Alum/Mylar Tape, 25% Overlap, Min.                                                                                                                                                                                                                        |               |                    |       |
| a) Foil Direction     |               | Foil Facing In                                                                                                                                                                                                                                            |               |                    |       |
| b) Drain Wire         |               | 18 (7/.0152) AWG TC                                                                                                                                                                                                                                       |               |                    |       |
| 5) Jacket             |               | 0.053" Wall, Nom.,PVC                                                                                                                                                                                                                                     |               | 0.439 (0.456 Max.) |       |
| a) Color(s)           |               | BLACK                                                                                                                                                                                                                                                     |               |                    |       |
| b) Ripcord            |               | 1 End 810 Denier Nylon                                                                                                                                                                                                                                    |               |                    |       |
| c) Print              |               | ALPHA WIRE-* P/N M9746020 2PR 16 AWG 1C 22 AWG<br>SHIELDED EXXXXX (UL) TYPE PLTC/ITC 105C SUN RES<br>OR CL3 105C OR C(UL) CMG 105C FT4 CE ROHS<br>* = Factory Code<br>[Note: Product may have c(UL) or CSA markings depending upon plant of manufacture.] |               |                    |       |

## Applicable Specifications

|                      |                                     |       |
|----------------------|-------------------------------------|-------|
| 1) UL                | CL3                                 | 105°C |
|                      | PLTC                                | 105°C |
|                      | ITC                                 | 105°C |
|                      | SUN RES                             |       |
| 2) CSA International | C(UL) TYPE CMG                      | 105°C |
|                      | FT4                                 |       |
| 3) CE:               | EU Low Voltage Directive 2006/95/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                                  | -20 to 105°C                 |
| 2) Bend Radius                                        | 10X Cable Diameter           |
| 3) Pull Tension                                       | 125 Lbs, Maximum             |
| 4) Sunlight Resistance                                | Yes                          |
| Electrical Properties (For Engineering purposes only) |                              |
| 1) Voltage Rating                                     | 300 V <sub>RMS</sub>         |
| 2) Component 1                                        |                              |
| a) Mutual Capacitance                                 | 61 pf/ft @1 kHz, Nominal     |
| b) Ground Capacitance                                 | 110 pf/ft @1 kHz, Nominal    |
| c) Characteristic Impedance                           | 37 Ω                         |
| d) Inductance                                         | 0.17 μH/ft, Nominal          |
| e) Conductor DCR                                      | 4.2 Ω/1000ft @20°C, Nominal  |
| f) Component Shield DCR                               | 6.1 Ω/1000ft @20°C, Nominal  |
| g) OA Shield DCR                                      | 5.6 Ω/1000ft @20°C, Nominal  |
| 3) Component 2                                        |                              |
| a) Ground Capacitance                                 | 105 pf/ft @1 kHz, Nominal    |
| b) Inductance                                         | 0.06 μH/ft, Nominal          |
| c) Conductor DCR                                      | 15.3 Ω/1000ft @20°C, Nominal |
| d) OA Shield DCR                                      | 5.6 Ω/1000ft @20°C, Nominal  |

## Other

|                        |                                             |
|------------------------|---------------------------------------------|
| <b>Packaging</b>       | Flange x Traverse x Barrel (inches)         |
| a) 1000 FT             | 24 x 14 x 12 Continuous length              |
| b) 500 FT              | 18 x 12 x 8 Continuous length               |
| c) 100 FT              | 12 x 10 x 5 Continuous length               |
| d) Bulk(Made-to-order) |                                             |
|                        | <i>[Spool dimensions may vary slightly]</i> |

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## EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: M9746020

M9746020 , RoHS-Compliant Commencing With 1/1/2006 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:

A handwritten signature in black ink, appearing to read 'Dave Watson'.

Dave Watson, Director of Engineering & QA

2/9/2017

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