

## Customer Specification

**PART NO. SF61221CY**

## Construction

|                       |  |                                                                                                                                                                                                                                                                                                                                                                                                 |  |      |                    |             |  |
|-----------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------|--------------------|-------------|--|
|                       |  |                                                                                                                                                                                                                                                                                                                                                                                                 |  |      | Diameters (In)     |             |  |
| 1) Component 1        |  | 4 X 1 COND                                                                                                                                                                                                                                                                                                                                                                                      |  |      |                    |             |  |
| a) Conductor          |  | 14 (41/30) AWG Tinned Copper                                                                                                                                                                                                                                                                                                                                                                    |  |      | 0.073              |             |  |
| b) Insulation         |  | 0.016" Wall, Nom. PVC/ 0.005" Wall NYLON                                                                                                                                                                                                                                                                                                                                                        |  |      | 0.115              |             |  |
| (1) Print             |  | ALPHANUMERIC NUMBERS - 1-ONE ALTERNATING AND INVERTED                                                                                                                                                                                                                                                                                                                                           |  |      |                    |             |  |
| (2) Color Code        |  | Alpha Wire Color Code KX                                                                                                                                                                                                                                                                                                                                                                        |  |      |                    |             |  |
| Cond                  |  | Color                                                                                                                                                                                                                                                                                                                                                                                           |  | Cond |                    | Color       |  |
| 1                     |  | GREEN/YELLOW                                                                                                                                                                                                                                                                                                                                                                                    |  | 3    |                    | BLACK#2     |  |
| 2                     |  | BLACK#1                                                                                                                                                                                                                                                                                                                                                                                         |  | 4    |                    | BLACK#3     |  |
| 2) Component 2        |  | 2 X 1 PAIR                                                                                                                                                                                                                                                                                                                                                                                      |  |      |                    |             |  |
| a) Conductor          |  | 18 (19/30) AWG Tinned Copper                                                                                                                                                                                                                                                                                                                                                                    |  |      | 0.050              |             |  |
| b) Insulation         |  | 0.016" Wall, Nom. PVC/ 0.005" Wall NYLON                                                                                                                                                                                                                                                                                                                                                        |  |      | 0.092              |             |  |
| (1) Color Code        |  | Alpha Wire Color Code A                                                                                                                                                                                                                                                                                                                                                                         |  |      |                    |             |  |
| Pair                  |  | Color                                                                                                                                                                                                                                                                                                                                                                                           |  | Pair |                    | Color       |  |
| 1                     |  | BLACK-RED                                                                                                                                                                                                                                                                                                                                                                                       |  | 2    |                    | BLACK-WHITE |  |
| c) Pair               |  | 2/Cond Cabled Together                                                                                                                                                                                                                                                                                                                                                                          |  |      |                    |             |  |
| (1) Twists:           |  | 6.0 Twists/foot (min)                                                                                                                                                                                                                                                                                                                                                                           |  |      |                    |             |  |
| Individually Applied: |  |                                                                                                                                                                                                                                                                                                                                                                                                 |  |      |                    |             |  |
| d) Shield:            |  | Flex Alum/Mylar Tape, 25% Overlap, Min.                                                                                                                                                                                                                                                                                                                                                         |  |      |                    |             |  |
| (1) Foil Direction    |  | Foil Facing Out                                                                                                                                                                                                                                                                                                                                                                                 |  |      |                    |             |  |
| (2) Drain Wire        |  | 22 (7/30) AWG Tinned Copper                                                                                                                                                                                                                                                                                                                                                                     |  |      |                    |             |  |
| (3) Braid             |  | Tinned Copper,85% Coverage, Min.                                                                                                                                                                                                                                                                                                                                                                |  |      |                    |             |  |
| e) Jacket             |  | 0.016" Wall, Nom.,TPE                                                                                                                                                                                                                                                                                                                                                                           |  |      | 0.242 (0.253 Max.) |             |  |
| (1) Color(s)          |  | NATURAL                                                                                                                                                                                                                                                                                                                                                                                         |  |      |                    |             |  |
| (2) Print             |  | ALPHANUMERIC NUMBERS - 1-ONE ALTERNATING AND INVERTED                                                                                                                                                                                                                                                                                                                                           |  |      |                    |             |  |
| 3) Cable Assembly     |  | 6 Components Cabled                                                                                                                                                                                                                                                                                                                                                                             |  |      |                    |             |  |
| a) Twists:            |  | 2.7 Twists/foot (min)                                                                                                                                                                                                                                                                                                                                                                           |  |      |                    |             |  |
| b) Orientation:       |  | Components to be arranged from INSIDE LAYER to OUTSIDE LAYER                                                                                                                                                                                                                                                                                                                                    |  |      |                    |             |  |
| c) Core Wrap          |  | Polyester Fabric Tape, 25% Overlap, Min.                                                                                                                                                                                                                                                                                                                                                        |  |      |                    |             |  |
| 4) Shield:            |  | A/P/A Tape, 25% Overlap, Min.                                                                                                                                                                                                                                                                                                                                                                   |  |      |                    |             |  |
| a) Drain Wire         |  | 22 (7/30) AWG Tinned Copper                                                                                                                                                                                                                                                                                                                                                                     |  |      |                    |             |  |
| b) Braid              |  | Tinned Copper,85% Coverage, Min.                                                                                                                                                                                                                                                                                                                                                                |  |      |                    |             |  |
| 5) Jacket             |  | 0.065" Wall, Nom.,TPE                                                                                                                                                                                                                                                                                                                                                                           |  |      | 0.657+/- 0.032     |             |  |
| a) Color(s)           |  | ORANGE                                                                                                                                                                                                                                                                                                                                                                                          |  |      |                    |             |  |
| b) Jacket Separator   |  | Tissue Tape, 25% Overlap, Min.                                                                                                                                                                                                                                                                                                                                                                  |  |      |                    |             |  |
| c) Print              |  | ALPHA WIRE-* P/N SF61221CY<br>4C14 THHN 2PR18 TFFN E324185 (UL) WTTC 90C<br>1000 VOLT OR (UL) TC-ER 90C 600V OIL RES I/II SUN<br>RES OR C(UL) CIC CONTROL/TC 90C PVC/NYLON INS<br>SHIELDED FT4 4C14 2PR18 OR C(RU) AWM<br>I/II A/B 90C 600V FT4 CE ROHS<br>(DATE CODE) (SEQ FOOTAGE)<br>* = Factory Code<br>[Note: Product may have c(UL) or CSA markings depending upon plant of manufacture.] |  |      |                    |             |  |

Applicable Specifications

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| Physical & Mechanical Properties |                                                         |
|----------------------------------|---------------------------------------------------------|
| 1) Temperature Range             | -30 to 90°C(static), -5 to 90°C (dynamic)               |
| 2) Bend Radius                   | 10X Cable Diameter(static), 10X Cable Diameter(dynamic) |
| 3) Pull Tension                  | 226 Lbs, Maximum                                        |
| 4) Sunlight Resistance           | Yes                                                     |
| Electrical Properties            |                                                         |
| (For Engineering purposes only)  |                                                         |
| 1) Voltage Rating                | 600 V <sub>RMS</sub>                                    |
| 2) Component 1                   |                                                         |
| a) Capacitance                   | 48 pF/ft @1 kHz, Nominal Conductor to Conductor         |
| b) Ground Capacitance            | 86 pF/ft @1 kHz, Nominal                                |
| c) Inductance                    | 0.17 µH/ft, Nominal                                     |
| d) Conductor DCR                 | 2.9 Ω/1000ft @20°C, Nominal                             |
| e) OA Shield DCR                 | 1.24 Ω/1000ft @20°C, Nominal                            |
| 3) Component 2                   |                                                         |
| a) Mutual Capacitance            | 43 pF/ft @1 kHz, Nominal                                |
| b) Ground Capacitance            | 77 pF/ft @1 kHz, Nominal                                |
| c) Characteristic Impedance      | 48 Ω                                                    |
| d) Inductance                    | 0.19 µH/ft, Nominal                                     |
| e) Conductor DCR                 | 6.1 Ω/1000ft @20°C, Nominal                             |
| f) Component Shield DCR          | 2.9 Ω/1000ft @20°C, Nominal                             |
| g) OA Shield DCR                 | 1.24 Ω/1000ft @20°C, Nominal                            |
|                                  |                                                         |

## Other

| Packaging                                                                                                | Flange x Traverse x Barrel (inches)         |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------|
| a) 1000 FT                                                                                               | 30 x 14 x 12 Continuous length              |
| b) 500 FT                                                                                                | 24 x 14 x 12 Continuous length              |
| c) 100 FT                                                                                                | 18 x 9 x 8 Continuous length                |
|                                                                                                          | <i>[Spool dimensions may vary slightly]</i> |
| Notes:                                                                                                   |                                             |
| a) Suitable for use in Industrial Machinery per the requirements of NFPA-79                              |                                             |
| b) Suitable for intermittent or light duty flexing where cycle count will be less than 1,000,000 cycles. |                                             |
|                                                                                                          |                                             |

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# EU/UK/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: SF61221CY

SF61221CY, RoHS-Compliant Commencing With 2/9/2009 Production

Note: all colors and put-ups

This document certifies that the Alpha part number cited above, including all packaging materials, 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). This product also complies with UK - RoHS. 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. This product is also in compliance with China RoHS 2 per GB/T 26572-2011.

## Substance

Lead  
Mercury  
Cadmium  
Hexavalent Chromium  
Polybrominated Biphenyls (PBB)  
Polybrominated Diphenyl Ethers (PBDE) ,  
Including Deca-BDE  
Bis(2-ethylhexyl) phthalate (DEHP)  
Butyl benzyl phthalate (BBP)  
Dibutyl phthalate (DBP)  
Diisobutyl phthalate (DIBP)

## Maximum Control Value

0.1% by weight (1000 ppm)  
0.1% by weight (1000 ppm)  
0.01% by weight (100 ppm)  
0.1% by weight (1000 ppm )  
0.1% by weight (1000 ppm)  
  
0.1% by weight (1000 ppm)  
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0.1% by weight (1000 ppm)

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Authorized Signatory for the Alpha Wire:

Dave Watson, Director of Engineering 5/6/2024

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