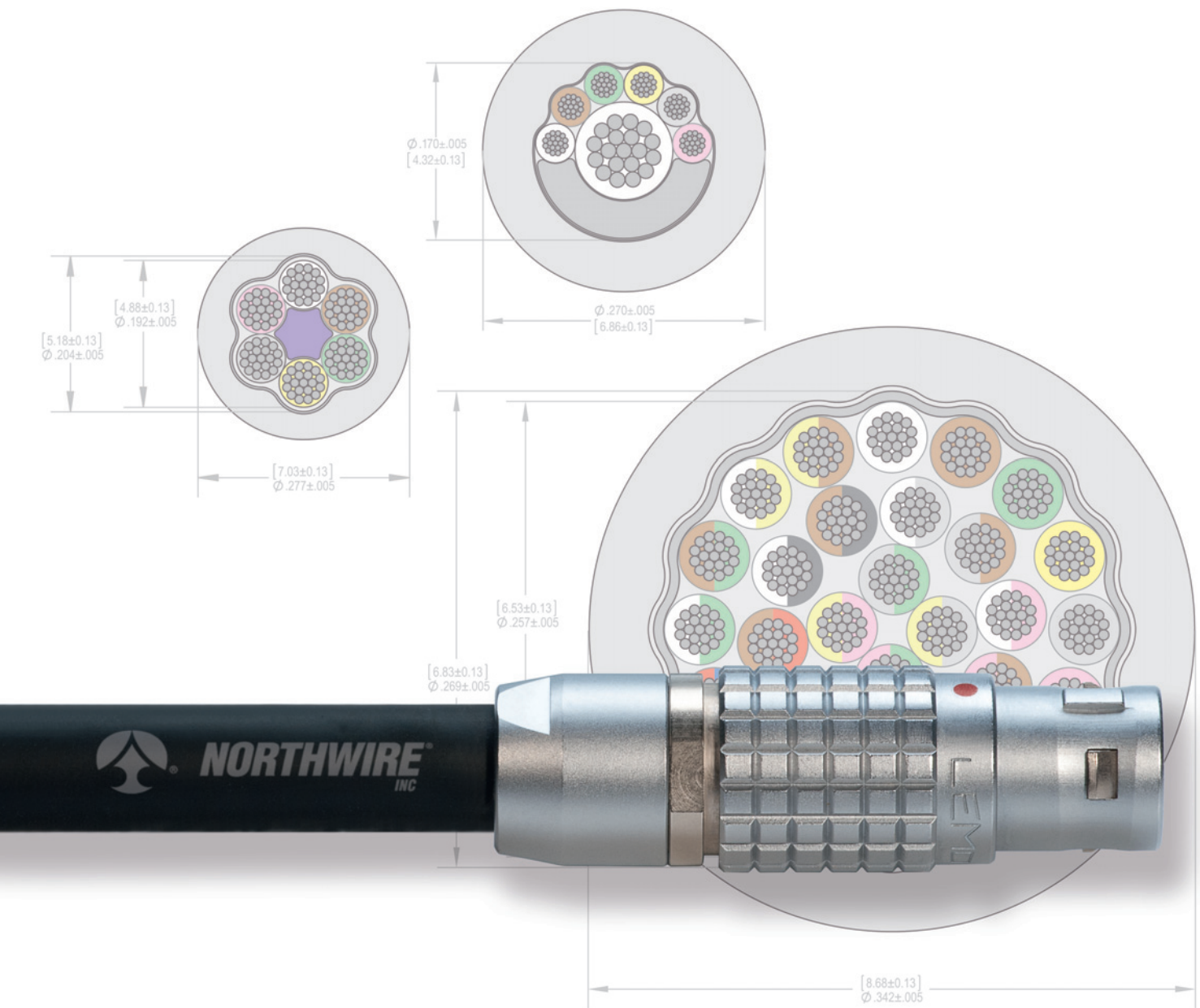


NEW  
Bio-Compatic<sup>®</sup>  
MATERIAL

# WIRES AND CABLES FOR LEMO & REDEL CONNECTORS



## Standard wires and multiconductors cables for LEMO & REDEL connectors

In 2014, LEMO Group acquired the US cable manufacturer Northwire, Inc., for the purpose of better serving both companies' customers through fully integrated, comprehensive cable connector solutions. Northwire and LEMO together are now able to offer custom wire and cable, retractable cables, cable assemblies and connectors hand in hand for a multitude of markets.

### Why choose Northwire?

Northwire leads the industry in quick turnaround, with fast delivery of bulk cable and retractable cords with no minimum order length or quantity requirements.

Northwire cable engineering company is ISO 13485:2003, ISO 9001:2008, and SAE AS9100C certified.

Northwire's quality lab is qualified by CSA GROUP as a testing facility for supervised manufacturer's testing for certification program based on ISO 17025:2005. Testing is conducted by third parties and is certified to meet the standards of UL, CSA, IEEE, SAE and more.

Northwire works closely with strategic supply chain partners to offer USP and FDA approved, RoHS2 and REACH compliant and food grade materials.

Northwire cables expertise also include: retractile, high flex life, energy applications, ITC/PLC, underwater cable, signal-control & communication, UL2250, UL13, UL1277, UL444, UL 62, and many more...

### NORTHWIRE custom technical cable

Innovative solutions exceeding the demands of your changing world.

With many years of rapid response manufacturing expertise, Northwire, Inc. is pleased to offer:

- **Fast quote service**
- **No minimum order quantity or length requirements**
- **Free sample wire and cable**
- **Rapid cable prototyping**

NWI leverages professional certifications in Lean, Six Sigma, Project Management and the American Society for Quality to achieve the highest level of quality with the shortest lead times for custom technical products:

- **Wire, cable & retractile cords**
- **Assemblies, connectors & harnesses**
- **Contract Manufacturing**
- **Cable stocking in Europe and USA**

### Find out more:

<http://www.northwire.com/technical-resources/custom-capabilities/>



### Product safety notice & disclaimers

Please read and follow all instructions specified on the last page or on our [website](#) carefully and consult all relevant national and international safety regulations for your application. Improper handling, cable assembly, or wrong use of connectors can result in hazardous situations.

LEMO products and services are provided "as is." LEMO makes no warranties or representations with regard to LEMO product & services or use of them, express, implied or statutory, including for accuracy, completeness, or security.

In no event shall LEMO be liable for any direct, indirect, punitive, incidental, special consequential damages, to property or life, whatsoever arising out of or connected with the use or misuse of LEMO's products.

# BioCompatic®

## A next-Generation Biocompatibility solution

As Northwire's R&D engineers and Subject Matter Experts (SMEs) developed the project charter for the alternative to traditional silicone jacketing, the voice of the customer and the demands of the market shaped the solution.

Biocompatibility and resilience were vital, but this new product had to be market-ready much faster than silicone – and at a lower cost.

***BioCompatic achieves optimal biocompatibility under USP Class VI, ISO 10993-5, REACH, and RoHS2 by passing a battery of tests that include analysis of cytotoxicity, systemic toxicity, intracutaneous response, muscle implantation response, and beyond.***

Additionally, BioCompatic cable systems offer features such as:

- **High flexibility and durability for a long lifetime**
- **Excellent endurance to sterilization**
- **Bisphenol, phthalate, and halogen free**
- **Resistance to chemicals, abrasion, crush, and cut**
- **Retractable options**
- **Wide range of durometer hardness**
- **Low co-efficient of friction – soft and smooth surfaces that do not bind or catch on itself or patients**
- **Custom printing that withstands autoclave and other sterilization procedures**

With Northwire's rapid response capabilities and mindful design, BioCompatic saves customers time and money. No curing process is needed, shortening lead times and lowering expenses.

Combined with the cable's robust resistance to environmental factors and sterilization, BioCompatic offers a quick, reliable, and cost-effective path to market.

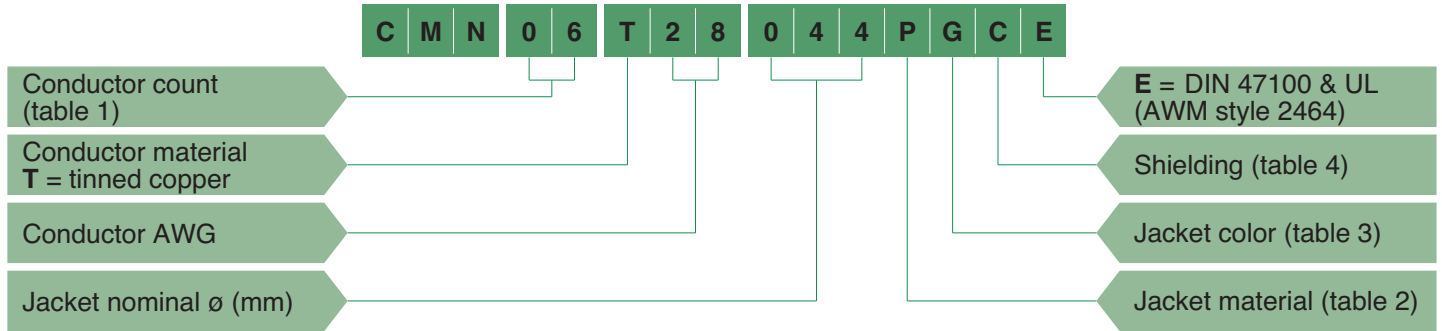
### Ideal for a diverse range of use

Due to its ability to meet stringent biocompatibility requirements while retaining strength and flexibility, BioCompatic is well suited to a wide variety of life science and medical cable assembly applications, including:

- **Patient monitoring cables**
- **Endoscopic reusable/ sterilized assemblies**
- **Imaging cables**
- **Diagnostic tools**
- **Catheter applications**
- **Dental cables**
- **Surgical cables – power & signal • Single-use cables**
- **Drug delivery systems**
- **Defibrillation systems**
- **Therapeutic cables**

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## Standard & BioCompatic® multiconductor cable part numbering system



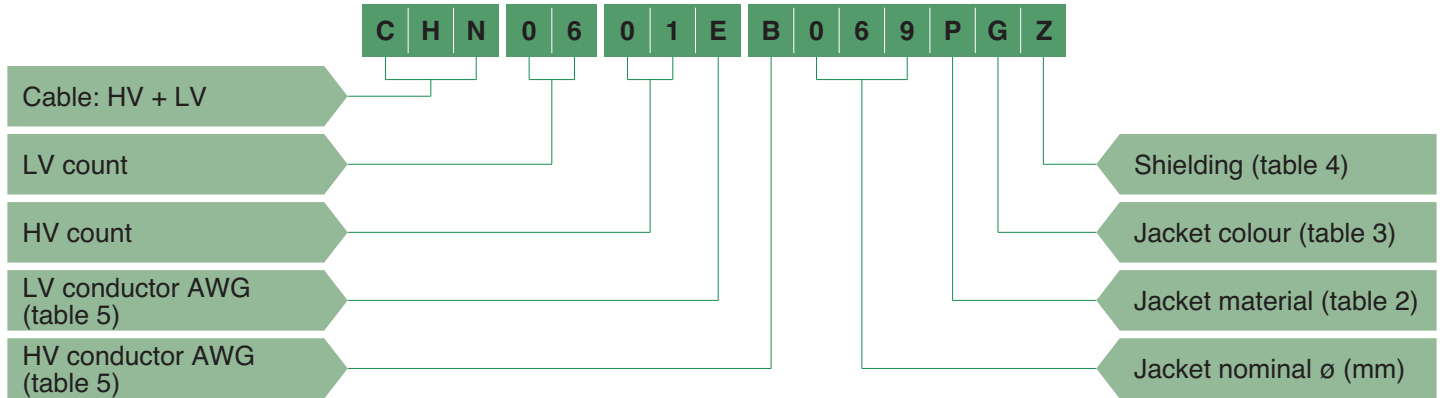
### Part Number Example

**CMN.06.T28.044PGCE** = 6 Tin copper conductors cable AWG 28, grey PVC jacket, outer diameter 4.4 mm, shielded, DIN 47100 version & UL, RoHS.

**CMN.10.T22.068QGZE** = 10 Tin copper conductors cable AWG 22, grey medical grade TPR (BioCompatic®), outer diameter 6.8 mm, DIN 47100, non UL, non shielded, RoHS.



## Hybrid HV + LV cable part numbering system



### Part Number Example

**CHN.06.01E.B069PGZ** = 6 LV conductors cable AWG 22 and 1 HV conductor cable AWG14, grey PVC jacket, outer diameter 6.9 mm, non shielded, RoHS.

**CHN.14.01A.F070PGZ** = 14 LV conductors cable AWG 12 and 1 HV conductor cable AWG28, grey PVC jacket, outer diameter 7.0 mm, non shielded, RoHS.



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**Table 1**

| Code | Total number of conductors same AWG |
|------|-------------------------------------|
| 02   | 2 conductors                        |
| ...  | ...                                 |
| 99   | 99 conductors                       |

**Table 2**

| Code | Jacket material                             |
|------|---|
| P    | PVC flexible with Polypropylene insulation  |
| Q    | Medical Grade TPR (SBS/SEBS) (Biocompatic®) |
| ...  | Other jacket material on request            |

**Table 3**

| Code | Jacket color                  |   |
|------|-------------------------------|---|
| A    | Blue                          | ○ |
| B    | White                         | ○ |
| G    | Grey RAL 7001                 | ● |
| J    | Yellow                        | ○ |
| N    | Black RAL 9005                | ● |
| R    | Red                           | ○ |
| V    | Green                         | ○ |
| ...  | Other jacket color on request |   |

● First choice alternative  
○ Special order alternative

**Table 4**

| Code | Shielding                        |
|------|----------------------------------|
| C    | Boxwave braid (80% min coverage) |
| Z    | Unshielded                       |
| ...  | Other shielding on request       |

**Table 5**

| Code | AWG |
|------|-----|
| A    | 6   |
| B    | 8   |
| C    | 10  |
| D    | 12  |
| E    | 14  |
| F    | 16  |
| G    | 18  |
| H    | 20  |
| I    | 22  |
| J    | 24  |
| K    | 26  |
| L    | 28  |
| M    | 30  |

## Cable Characteristics

### Standard PVC cables

| Characteristics      | AWG                |     |      |      |      |     |     |
|----------------------|--------------------|-----|------|------|------|-----|-----|
|                      | 30                 | 28  | 22   | 20   | 18   | 14  | 12  |
| Resistivity (mOhm/m) | 365                | 232 | 57.4 | 35.7 | 22.6 | 9.2 | 5.6 |
| Bend radius          | 15x outer diameter |     |      |      |      |     |     |
| Operating voltage    | 300 V              |     |      |      |      |     |     |
| Max. temperature     | 80°C               |     |      |      |      |     |     |

### Biocompatic™ Medical grade TPR cables (not UL listed)

| Test description   | Results                            |          |
|--|------------------------------------|----------|
| Autoclave steam sterilization 150 cycles (30 min at 134°C) | Pass                               |          |
| Chemical resistance (10 min exposure)                      | Betadine (NEAT) / Cidex OPA (NEAT) | Pass     |
|  | Virex II 256 (0.4%)                | Pass     |
|  | Clorox Healthcare Bleach (100%)    | Pass     |
|  | Isopropyl Alcohol (99%)            | Pass     |
|  | Hydrochloric Acid (36%)            | Pass     |
| Crush test (50lb. Gurney Wheel Crushes)                    | Round 1 (cycles)                   | 94.988   |
|  | Round 2 (cycles)                   | 143.500+ |

## Wire construction and dimensions

| AWG | Stranding     | Copper<br>ø wire max (mm) | Wire section mm <sup>2</sup> |
|-----|---------------|---------------------------|------------------------------|
| 12  | 19 x 0.48 mm  | 2.29                      | 3.080                        |
| 14  | 19 x 0.38 mm  | 1.78                      | 1.940                        |
| 18  | 19 x 0.25 mm  | 1.21                      | 0.890                        |
| 20  | 19 x 0.180 mm | 0.88                      | 0.510                        |
| 22  | 19 x 0.15 mm  | 0.74                      | 0.340                        |
| 28  | 19 x 0.10 mm  | 0.38                      | 0.089                        |
| 30  | 19 x 0.064 mm | 0.30                      | 0.055                        |

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## PVC multiconductor cable part numbers for LEMO connectors



### LEMO connectors

### NORTHWIRE cables

BioCompatic®

|    | Type | # contacts | Pin ø | Collet type | Bend relief   | AWG | Rated current <sup>1)</sup> | Cond. OD | Jacket | Jacket OD | Cable part number for PVC        |   |
|----|------|------------|-------|-------------|---------------|-----|-----------------------------|----------|--------|-----------|----------------------------------|---|
| 00 | 302  | 2          | 0.5   | D35         | GMD.00.028.DG | 28  | 2.4                         | 0.39     | PVC    | 3.0       | CMN.02.T28.030PGCE <sup>1)</sup> |   |
|    | 303  | 3          | 0.5   | D35         | GMD.00.028.DG | 28  | 2.4                         | 0.39     | PVC    | 3.1       | CMN.03.T28.031PGCE <sup>1)</sup> |   |
|    | 304  | 4          | 0.5   | D35         | GMD.00.028.DG | 28  | 2.4                         | 0.39     | PVC    | 3.1       | CMN.04.T28.031PGCE <sup>1)</sup> |   |
|    | 305  | 5          | 0.35  | D35         | GMD.00.028.DG | 30  | 1.6                         | 0.30     | PVC    | 2.9       | CMN.05.T30.029PGCE <sup>1)</sup> |   |
|    | 306  | 6          | 0.35  | D35         | GMD.00.028.DG | 30  | 1.4                         | 0.30     | PVC    | 3.1       | CMN.06.T30.031PGCE <sup>1)</sup> |   |
| 0B | 302  | 2          | 0.9   | D52         | GMA.0B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 4.7       | CMN.02.T22.047PGCE               |   |
|    | 303  | 3          | 0.9   | D52         | GMA.0B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 4.9       | CMN.03.T22.049PGCE               |   |
|    | 304  | 4          | 0.7   | D52         | GMA.0B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 4.7       | CMN.04.T22.047PGCE               |   |
|    | 305  | 5          | 0.7   | D52         | GMA.0B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 5.1       | CMN.05.T22.051PGCE               |   |
|    | 306  | 6          | 0.5   | D52         | GMA.0B.045.DG | 28  | 2.1                         | 0.39     | PVC    | 4.4       | CMN.06.T28.044PGCE               |   |
|    | 307  | 7          | 0.5   | D52         | GMA.0B.045.DG | 28  | 2.1                         | 0.39     | PVC    | 4.4       | CMN.07.T28.044PGCE               |   |
|    | 309  | 9          | 0.5   | D52         | GMA.0B.045.DG | 28  | 2.1                         | 0.39     | PVC    | 5.1       | CMN.09.T28.051PGCE               |   |
|    | 312  | 12         | 0.35  | D56         | GMA.0B.045.DG | 28  | 2.1                         | 0.39     | PVC    | 5.4       | CMN.12.T28.054PGCE               |   |
| 1B | 302  | 2          | 1.3   | D52         | GMA.1B.045.DG | 20  | 8.0                         | 0.90     | PVC    | 4.7       | CMN.02.T20.047PGCE               |   |
|    | 303  | 3          | 1.3   | D52         | GMA.1B.045.DG | 20  | 8.0                         | 0.90     | PVC    | 4.9       | CMN.03.T20.049PGCE               |   |
|    | 304  | 4          | 0.9   | D52         | GMA.1B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 4.7       | CMN.04.T22.047PGCE               |   |
|    | 305  | 5          | 0.9   | D52         | GMA.1B.045.DG | 22  | 6.4                         | 0.72     | PVC    | 5.1       | CMN.05.T22.051PGCE               | ● |
|    | 306  | 6          | 0.7   | D62         | GMA.1B.054.DG | 22  | 5.6                         | 0.72     | PVC    | 5.5       | CMN.06.T22.055PGCE               |   |
|    | 307  | 7          | 0.7   | D62         | GMA.1B.054.DG | 22  | 5.6                         | 0.72     | PVC    | 5.5       | CMN.07.T22.055PGCE               |   |
|    | 308  | 8          | 0.7   | D62         | GMA.1B.054.DG | 22  | 5.6                         | 0.72     | PVC    | 5.9       | CMN.08.T22.059PGCE               |   |
|    | 310  | 10         | 0.5   | D52         | GMA.1B.045.DG | 28  | 2.1                         | 0.39     | PVC    | 5.2       | CMN.10.T28.052PGCE               |   |
|    | 314  | 14         | 0.5   | D62         | GMA.1B.054.DG | 28  | 2.1                         | 0.39     | PVC    | 5.6       | CMN.14.T28.056PGCE               | ● |
|    | 316  | 16         | 0.5   | D62         | GMA.1B.054.DG | 28  | 1.5                         | 0.39     | PVC    | 5.9       | CMN.16.T28.059PGCE               |   |
| 2B | 302  | 2          | 2.0   | D72         | GMA.2B.070.DG | 14  | 21.6                        | 1.80     | PVC    | 7.2       | CMN.02.T14.072PGCE               | ● |
|    | 303  | 3          | 1.6   | D62         | GMA.2B.060.DG | 18  | 12.0                        | 1.22     | PVC    | 5.5       | CMN.03.T18.055PGCE               | ● |
|    | 304  | 4          | 1.3   | D62         | GMA.2B.060.DG | 20  | 8.0                         | 0.90     | PVC    | 5.3       | CMN.04.T20.053PGCE               | ● |
|    | 305  | 5          | 1.3   | D62         | GMA.2B.060.DG | 20  | 8.0                         | 0.90     | PVC    | 5.7       | CMN.05.T20.057PGCE               | ● |
|    | 306  | 6          | 1.3   | D62         | GMA.2B.060.DG | 20  | 7.0                         | 0.90     | PVC    | 6.2       | CMN.06.T20.062PGCE               | ● |
|    | 307  | 7          | 1.3   | D62         | GMA.2B.060.DG | 20  | 7.0                         | 0.90     | PVC    | 6.2       | CMN.07.T20.062PGCE               | ● |
|    | 308  | 8          | 0.9   | D62         | GMA.2B.060.DG | 22  | 5.6                         | 0.72     | PVC    | 5.9       | CMN.08.T22.059PGCE               | ● |

**Note:** <sup>1)</sup> not UL AWM 2464 certified.

<sup>2)</sup> Rated current = current carrying capacities of conductor (Amp).

● Also available in BioCompatic®

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## PVC multiconductor cable part numbers for LEMO connectors



### LEMO connectors

### NORTHWIRE cables

|           | Type       | # contacts | Pin ø | Collet type | Bend relief   | AWG | Rated current <sup>1)</sup> | Cond. OD | Jacket | Jacket OD | Cable part number for PVC              | BioCompatic® |
|-----------|------------|------------|-------|-------------|---------------|-----|-----------------------------|----------|--------|-----------|--|--------------|
| <b>2B</b> | <b>310</b> | 10         | 0.9   | <b>D72</b>  | GMA.2B.070.DG | 22  | 5.6                         | 0.72     | PVC    | 6.8       | <b>CMN.10.T22.068PGCE</b>              | ●            |
|           | <b>312</b> | 12         | 0.7   | <b>D72</b>  | GMA.2B.070.DG | 22  | 5.6                         | 0.72     | PVC    | 7.0       | <b>CMN.12.T22.070PGCE</b>              | ●            |
|           | <b>314</b> | 14         | 0.7   | <b>D72</b>  | GMA.2B.070.DG | 22  | 5.6                         | 0.72     | PVC    | 6.8       | <b>CMN.14.T22.068PGCE<sup>1)</sup></b> |              |
|           | <b>316</b> | 16         | 0.7   | <b>D82</b>  | GMA.2B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 7.9       | <b>CMN.16.T22.079PGCE</b>              |              |
|           | <b>318</b> | 18         | 0.7   | <b>D82</b>  | GMA.2B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.0       | <b>CMN.18.T22.080PGCE</b>              |              |
|           | <b>319</b> | 19         | 0.7   | <b>D82</b>  | GMA.2B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.0       | <b>CMN.19.T22.080PGCE</b>              |              |
|           | <b>326</b> | 26         | 0.5   | <b>D72</b>  | GMA.2B.070.DG | 28  | 1.5                         | 0.39     | PVC    | 7.0       | <b>CMN.26.T28.070PGCE</b>              |              |
|           | <b>332</b> | 32         | 0.5   | <b>D92</b>  | GMA.2B.080.DG | 28  | –                           | 0.39     | PVC    | 8.4       | <b>CMN.32.T28.084PGCE</b>              |              |
| <b>3B</b> | <b>302</b> | 2          | 3.0   | <b>D92</b>  | GMA.3B.070.DG | 12  | 28.8                        | 2.34     | PVC    | 7.8       | <b>CMN.02.T12.078PGCE</b>              |              |
|           | <b>303</b> | 3          | 2.0   | <b>D92</b>  | GMA.3B.070.DG | 14  | 21.6                        | 1.80     | PVC    | 7.8       | <b>CMN.03.T14.078PGCE</b>              |              |
|           | <b>304</b> | 4          | 2.0   | <b>D92</b>  | GMA.3B.080.DG | 14  | 21.6                        | 1.80     | PVC    | 8.3       | <b>CMN.04.T14.083PGCE</b>              |              |
|           | <b>305</b> | 5          | 1.6   | <b>D72</b>  | GMA.3B.060.DG | 18  | 12.0                        | 1.22     | PVC    | 6.5       | <b>CMN.05.T18.065PGCE</b>              |              |
|           | <b>306</b> | 6          | 1.6   | <b>D72</b>  | GMA.3B.060.DG | 18  | 10.5                        | 1.22     | PVC    | 7.0       | <b>CMN.06.T18.070PGCE</b>              |              |
|           | <b>307</b> | 7          | 1.6   | <b>D72</b>  | GMA.3B.060.DG | 18  | 10.5                        | 1.22     | PVC    | 7.0       | <b>CMN.07.T18.070PGCE</b>              |              |
|           | <b>308</b> | 8          | 1.3   | <b>D72</b>  | GMA.3B.060.DG | 20  | 7.0                         | 0.90     | PVC    | 6.7       | <b>CMN.08.T20.067PGCE</b>              |              |
|           | <b>310</b> | 10         | 1.3   | <b>D92</b>  | GMA.3B.070.DG | 20  | 7.0                         | 0.90     | PVC    | 8.0       | <b>CMN.10.T20.080PGCE</b>              |              |
|           | <b>312</b> | 12         | 0.9   | <b>D72</b>  | GMA.3B.070.DG | 22  | 5.6                         | 0.72     | PVC    | 7.0       | <b>CMN.12.T22.070PGCE</b>              |              |
|           | <b>314</b> | 14         | 0.9   | <b>D92</b>  | GMA.3B.080.DG | 22  | 5.6                         | 0.72     | PVC    | 8.1       | <b>CMN.14.T22.081PGCE</b>              |              |
|           | <b>316</b> | 16         | 0.9   | <b>D92</b>  | GMA.3B.070.DG | 22  | 4.0                         | 0.72     | PVC    | 7.9       | <b>CMN.16.T22.079PGCE</b>              |              |
|           | <b>318</b> | 18         | 0.9   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.0       | <b>CMN.18.T22.080PGCE</b>              |              |
|           | <b>320</b> | 20         | 0.7   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.4       | <b>CMN.20.T22.084PGCE</b>              |              |
|           | <b>322</b> | 22         | 0.7   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.8       | <b>CMN.22.T22.088PGCE</b>              |              |
|           | <b>324</b> | 24         | 0.7   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.2       | <b>CMN.24.T22.082PGCE<sup>1)</sup></b> |              |
|           | <b>326</b> | 26         | 0.7   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.2       | <b>CMN.26.T22.082PGCE<sup>1)</sup></b> |              |
|           | <b>330</b> | 30         | 0.7   | <b>D92</b>  | GMA.3B.080.DG | 22  | 4.0                         | 0.72     | PVC    | 8.7       | <b>CMN.30.T22.087PGCE<sup>1)</sup></b> |              |

**Note:** <sup>1)</sup> not UL AWM 2464 certified.

<sup>2)</sup> Rated current = current carrying capacities of conductor (Amp).

● Also available in BioCompatic®

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## BioCompatic® multiconductor cable part numbers for REDEL connectors



### REDEL connectors

### NORTHWIRE cables

|    | Type | # contacts | Pin ø             | Collet type | Bend relief   | AWG | Rated current <sup>1)</sup> | Cond. OD | Jacket | Jacket OD | Cable part number for TPR        | BioCompatic® | PVC |
|----|------|------------|-------------------|-------------|---------------|-----|-----------------------------|----------|--------|-----------|----------------------------------|--------------|-----|
| 1P | M0.2 | 2          | 1.3               | C52         | GMA.1B.045.DG | 20  | 8.0                         | 0.88     | TPR    | 4.8       | CMN.02.T20.048QGZE               | ●            | ●   |
|    | M0.4 | 4          | 0.9               | C52         | GMA.1B.045.DG | 22  | 6.4                         | 0.74     | TPR    | 4.8       | CMN.04.T22.048QGZE               | ●            | ●   |
|    | M0.5 | 5          | 0.9               | C52         | GMA.1B.051.RG | 22  | 6.4                         | 0.74     | TPR    | 5.1       | CMN.05.T22.051QGZE               | ●            | ●   |
|    | M0.6 | 6          | 0.7               | C39         | GMA.1B.035.DG | 26  | 2.8                         | 0.48     | TPR    | 3.7       | CMN.06.T26.037QGZE               | ●            | ○   |
|    | M0.7 | 7          | 0.7               | C39         | GMA.1B.035.DG | 26  | 2.8                         | 0.48     | TPR    | 3.7       | CMN.07.T26.037QGZE               | ●            | ○   |
|    | M0.8 | 8          | 0.7               | C52         | GMA.1B.040.DG | 26  | 2.8                         | 0.48     | TPR    | 4.2       | CMN.08.T26.042QGZE               | ●            | ○   |
|    | M0.9 | 9          | 0.5               | C52         | GMA.1B.051.RG | 28  | 2.1                         | 0.38     | TPR    | 5.1       | CMN.09.T28.051QGZE               | ●            | ○   |
|    | M1.0 | 10         | 0.5               | C65         | GMA.1B.054.DG | 28  | 2.1                         | 0.38     | TPR    | 5.3       | CMN.10.T28.053QGZE               | ●            | ●   |
|    | M1.4 | 14         | 0.5               | C65         | GMA.1B.054.DG | 28  | 2.1                         | 0.38     | TPR    | 5.6       | CMN.14.T28.056QGZE               | ●            | ●   |
| 2P | M0.2 | 2          | 2.0               | C72         | GMA.2B.070.DG | 14  | 21.6                        | 1.78     | TPR    | 7.2       | CMN.02.T14.072QGZE               | ○            | ●   |
|    | M0.3 | 3          | 1.6               | C72         | GMA.2B.050.DG | 18  | 12.0                        | 1.21     | TPR    | 5.5       | CMN.03.T18.055QGZE               | ○            | ●   |
|    | M0.4 | 4          | 1.3               | C72         | GMA.2B.050.DG | 20  | 8.0                         | 0.88     | TPR    | 5.3       | CMN.04.T20.053QGZE               | ●            | ●   |
|    | M0.5 | 5          | 1.3               | C72         | GMA.2B.057.RG | 20  | 8.0                         | 0.88     | TPR    | 5.7       | CMN.05.T20.057QGZE               | ○            | ●   |
|    | M0.6 | 6          | 1.3               | C72         | GMA.2B.060.DG | 20  | 7.0                         | 0.88     | TPR    | 6.2       | CMN.06.T20.062QGZE               | ●            | ●   |
|    | M0.7 | 7          | 1.3               | C72         | GMA.2B.060.DG | 20  | 7.0                         | 0.88     | TPR    | 6.2       | CMN.07.T20.062QGZE               | ○            | ●   |
|    | M0.8 | 8          | 0.9               | C72         | GMA.2B.060.DG | 22  | 5.6                         | 0.74     | TPR    | 5.9       | CMN.08.T22.059QGZE               | ○            | ●   |
|    | M1.0 | 10         | 0.9               | C72         | GMA.2B.063.RG | 22  | 5.6                         | 0.74     | TPR    | 6.8       | CMN.10.T22.068QGZE               | ○            | ●   |
|    | M1.2 | 12         | 0.7               | C72         | GMA.2B.070.DG | 22  | 5.6                         | 0.74     | TPR    | 7.0       | CMN.12.T22.070QGZE               | ○            | ●   |
|    | M1.6 | 16         | 0.7               | C92         | GMA.2B.070.DG | 22  | 4.0                         | 0.74     | TPR    | 7.6       | CMN.16.T22.076QGZE               | ●            | ●   |
|    | M1.9 | 19         | 0.7               | C92         | GMA.2B.080.DG | 22  | 4.0                         | 0.74     | TPR    | 7.9       | CMN.19.T22.079QGZE               | ●            | ●   |
|    | M2.6 | 26         | 0.5               | C72         | GMA.2B.050.DG | 30  | 1.0                         | 0.30     | TPR    | 5.4       | CMN.26.T30.054QGZE               | ●            | ○   |
|    | M3.2 | 32         | 0.5               | C72         | GMA.2B.057.RG | 30  | 0.7                         | 0.30     | TPR    | 5.8       | CMN.32.T30.058---- <sup>4)</sup> |              |     |
|    | M3.4 | 34         | 0.5               | C72         | GMA.2B.060.DG | 30  | 0.7                         | 0.30     | TPR    | 6.0       | CMN.34.T30.060QGZE               | ●            | ○   |
| SP | M04  | 4          | 1.3               | 6           | –             | 20  | 8.0                         | 0.88     | TPR    | 5.3       | CMN.04.T20.053---- <sup>4)</sup> |              |     |
|    | M06  | 6          | 0.9 <sup>3)</sup> | 6           | –             | 20  | 7.0                         | 0.88     | TPR    | 6.2       | CMN.06.T20.062QGZE               | ○            | ●   |
|    | M08  | 8          | 0.9               | 6           | GMA.1B.054.DG | 22  | 5.6                         | 0.74     | TPR    | 5.9       | CMN.08.T22.059QGZE               | ○            | ●   |
|    | M10  | 10         | 0.7               | 7           | GMA.1B.065.DG | 22  | 5.6                         | 0.74     | TPR    | 6.8       | CMN.10.T22.068QGZE               | ○            | ●   |
|    | M13  | 13         | 0.7               | 7           | –             | 22  | 5.6                         | 0.74     | TPR    | 7.2       | CMN.13.T22.072QGZE               | ●            | ○   |
|    | M16  | 16         | 0.5               | 5           | GMA.1B.045.DG | 30  | 1.0                         | 0.30     | TPR    | 4.7       | CMN.16.T30.047QGZE               | ●            | ○   |
|    | M18  | 18         | 0.5               | 5           | GMA.1B.045.DG | 30  | 1.0                         | 0.30     | TPR    | 4.8       | CMN.18.T30.048---- <sup>4)</sup> |              |     |
|    | M22  | 22         | 0.5               | 6           | GMA.1B.054.DG | 30  | 1.0                         | 0.30     | TPR    | 5.4       | CMN.22.T30.054---- <sup>4)</sup> |              |     |

#### Note:

- 1) Rated current = current carrying capacities of conductor (Amp).
- 2) Bucket.
- 3) For crimp contact only.
- 4) Outer diameter on request.

● Available in BioCompatic® or in PVC  
○ On request

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## BioCompatic® hybrid cable part numbers for REDEL connectors



### REDEL connectors

### NORTHWIRE cables

|           | Type       | # contacts | Pin ø                 | Collet type | Bend relief | AWG   | Rated <sup>1)</sup> current | Cond. OD  | Jacket | Jacket OD | Cable part number         | BioCompatic® | PVC |
|-----------|------------|------------|-----------------------|-------------|-------------|-------|-----------------------------|-----------|--------|-----------|---------------------------|--------------|-----|
| <b>3P</b> | <b>306</b> | 6+1        | 0.8+ø 2 <sup>2)</sup> | <b>D75</b>  | –           | 24/14 | –                           | 1.78/     | TPR    | 6.9       | <b>CHN.06.01E.B069QGZ</b> |              |     |
|           | <b>310</b> | 10+1       | 0.8+ø 2 <sup>2)</sup> | <b>D75</b>  | –           | 24/14 | –                           | 1.78/     | TPR    | 6.9       | <b>CHN.10.01E.B069QGZ</b> |              |     |
|           | <b>314</b> | 14+1       | 0.8+ø 2 <sup>2)</sup> | <b>D75</b>  | –           | 24/14 | –                           | 1.78/     | TPR    | 7.0       | <b>CHN.14.01E.B070QGZ</b> |              |     |
|           | <b>318</b> | 18+1       | 0.6+ø 2 <sup>2)</sup> | <b>D75</b>  | –           | 26/14 | –                           | 1.78/0.48 | TPR    | 7.0       | <b>CHN.18.01E.B070QGZ</b> |              |     |

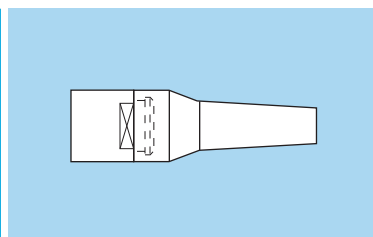
**Note:**

<sup>1)</sup> Rated current = current carrying capacities of conductor (Amp).

<sup>2)</sup> Bucket.

● Available in BioCompatic® or in PVC  
○ On request

## Accessories



### GM● Bend relief

The last letter «G» of the part number indicates the grey color of the bend relief.

For ordering a bend relief with another color, see table below and replace the letter «G» by the letter of the required color.

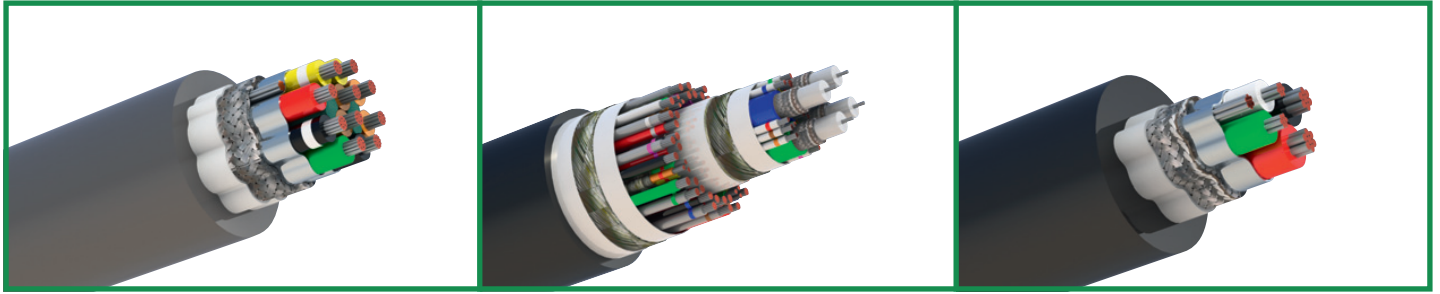
| Ref.     | Color         | Ref.     | Color          | Ref.     | Color  |
|----------|---------------|----------|----------------|----------|--------|
| <b>A</b> | Blue          | <b>J</b> | Yellow         | <b>R</b> | Red    |
| <b>B</b> | White         | <b>M</b> | Brown          | <b>S</b> | Orange |
| <b>G</b> | Grey RAL 7001 | <b>N</b> | Black RAL 9005 | <b>V</b> | Green  |

- Material: TPU (Thermoplastic Polyurethane)
- Temperature range in dry atmosphere: -40°C +80°C

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## Custom cables

Northwire also specialises in manufacturing custom cables. From AWG 2 to AWG 36 wire size and from 0V to 2000V.



## Infinite Custom Options Available

Since 1972, our valued customers rely on our subject matter experts to navigate complex domestic and international standards, agency compliance, environmental regulations, electrical, mechanical, ergonomic, aesthetic, harsh duty, and end-user requirements. Custom options include, but not limited to the following:

### Fillers

- PP | TPES | Nylon | Cotton | Paper

### Shielding- EMI/RFI Protection

- Braid | Basket Weave | Spiral | Serve
- Copper | Stainless Steel

### Mechanical Strength Render

- Aramid | Carbon | Glass Fibers
- Flame Resistant Meta-Aramid Fiber
- Galvanized Carbon Steel
- Glass Reinforced Plastic

### Tape and Paper Separation Options

- FEP | Foam PP | Paper | TPES | PTFE | Spun Nylon  
Aluminum Foil | Aluminized Polyester

### Water Blocking

- Conductors | Fillers | Tapes

### Extrusion and Molding Materials

- Fluoropolymers
  - ECTFE (Ethylene Chlorotrifluoroethylene)
  - ETFE (Ethylene Tetrafluoroethylene)
  - FEP (Fluorinated Ethylene Propylene)
  - PFA (Perfluoroalkoxy)
  - PVDF (Polyvinylidene Fluoride)
- Polyester Elastomer
- PE (Polyethylene) Solid or Foam
- XLPE (Cross-Link PE) Solid or Foam
- HDPE (High Density PE)
- LDPE (Low Density PE)
- LLDPE (Linear Low Density PE)
- MDPE (Medium Density PE)
- TPES (Polyester)
- PP (Polypropylene)
- FRPP (Flame Resistant PP)
- PUR (Polyurethane)
- TPE (Thermoplastic Elastomer)
- TPR (Thermoplastic Rubber)
- PVC (Polyvinyl Chloride)
  - Flexible | Semi-Conductive | Semi-Rigid

## Cable Assembly Expertise and Capabilities

LEMO and Northwire have their own connector termination facilities with fully trained technicians to guarantee the quality of the terminations provided. Whilst our emphasis is naturally on the termination of our own connectors, we have extensive experience of termination of connectors from other manufacturers.

The facilities have the capability for termination of copper based cable assemblies. Copper based systems can fail through poor or inexperienced termination whether with solder or crimp contacts especially with high density contact configurations and use of lead-free solders.

As well as the manual skills required to terminate a cable assembly, the achievement of quality requires the necessary equipment for both termination and testing. LEMO/NORTHWIRE cable facilities are equipped with the latest cable preparation, termination and test equipment, both manual and automatic. Each electrical cable assembly is fully tested for pin-pin continuity, as well as having a high voltage test to ensure that there are no potential breakdown problems. Every cable assembly is fully inspected to ensure that it meets the requirements specified.

### One-Stop-Shop Supplier

Integrated connectors, cable, harness, cable assemblies and overmolding solutions.

### Engineering Expertise

Standard and customized high quality solutions for complex assemblies. Design, prototyping and 100% testing to ensure highest quality.

### World-Wide Support

With several cable assembly locations in USA, Europe and Asia, LEMO/NORTHWIRE has a solution for every customer.

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## Product safety notice

**PLEASE READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY AND CONSULT ALL RELEVANT NATIONAL AND INTERNATIONAL SAFETY REGULATIONS FOR YOUR APPLICATION. IMPROPER HANDLING, CABLE ASSEMBLY, OR WRONG USE OF CONNECTORS CAN RESULT IN HAZARDOUS SITUATIONS.**

### 1. SHOCK AND FIRE HAZARD

Incorrect wiring, the use of damaged components, presence of foreign objects (such as metal debris), and / or residue (such as cleaning fluids), can result in short circuits, overheating, and / or risk of electric shock. Mated components should never be disconnected while live as this may result in an exposed electric arc and local overheating, resulting in possible damage to components.

### 2. HANDLING

Connectors and their components should be visually inspected for damage prior to installation and assembly. Suspect components should be rejected or returned to the factory for verification. Connector assembly and installation should only be carried out by properly trained personnel. Proper tools must be used during installation and / or assembly in order to obtain safe and reliable performance.


### 3. USE


Connectors with exposed contacts should never be live (or on the current supply side of a circuit). Under general conditions voltages above 30 VAC and 42 VDC are considered hazardous and proper measures should be taken to eliminate all risk of transmission of such voltages to any exposed metal part of the connector.

### 4. TEST AND OPERATING VOLTAGES

The maximum admissible operating voltage depends upon the national or international standards in force for the application in question. Air and creepage distances impact the operating voltage; reference values are indicated in the catalog however these may be influenced by PC board design and / or wiring harnesses. The test voltage indicated in the catalog is 75% of the mean breakdown voltage; the test is applied at 500 V/s and the test duration is 1 minute.

### 5. CE MARKING

CE marking  means that the appliance or equipment bearing it complies with the protection requirements of one or several European safety directives.

CE marking  applies to complete products or equipment, **but not to electromechanical components, such as connectors.**

### 6. PRODUCT IMPROVEMENTS

The LEMO Group reserves the right to modify and improve to our products or specifications without providing prior notification.

### 7. **WARNING (Prop 65 State of California)**

Proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects or other reproductive harm. LEMO products are exempt from proposition 65 warnings because they are manufactured, marketed, and sold solely for commercial and industrial use. For further information, please visit <https://www.lemo.com/quality/LEMO-Prop-65-compliance-declaration.pdf>.

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