

## FM2XCH FE180



### Areas of Use

Used for communication and instrumentation purpose in electronic systems of marine vehicles. Screening layer protects the transmitting signal against electromagnetic interferences. Halogen-Free and Flame Retardant construction ensure non-corrosive and highly visible environment during a fire. Also, min.180 minutes of circuit integrity under fire conditions is achieved by its special design.

### Cable Construction

|                            |   |
|----------------------------|---|
| <b>Conductor</b>           | Stranded Annealed Copper (IEC/EN 60228, Class 2) (tinned copper and/or Class 5 versions are available upon request) |
| <b>Flame Barrier</b>       | Mica Tape   |
| <b>Insulation</b>          | XLPE (IEC 60092-360)  |
| <b>Core Colors</b>         | Pair: Black / White, Numbered Quad: Black / White / Red / Blue, Numbered  |
| <b>Lay-up</b>              | Cores are stranded in layers  |
| <b>Separator</b>           | PET Foil (HFFR filler upon request)   |
| <b>Overall Screen</b>      | Annealed Copper Wire Braiding (90% Coverage)  |
| <b>Outer Sheath</b>        | HFFR (IEC 60092-360 SHF1), RAL 6018 - Green   |
| <b>Reference Standards</b> | IEC 60092-376   |

### Technical Properties

|                                    |   |
|------------------------------------|---|
| <b>Operating Voltage</b>           | 150/250 (300) V                             |
| <b>Test Voltage</b>                | 1.5 kV (a.c) 3.6 kV (d.c)                   |
| <b>Conductor Resistance</b>        | IEC/EN 60228                                |
| <b>Insulation Resistance</b>       | >5000 M.Ωxkm                                |
| <b>Temperature Range</b>           | -40 °C.....+90 °C                           |
| <b>Flame Retardancy</b>            | IEC/EN 60332-1-2, IEC/EN 60332-3-22 (CAT A) |
| <b>Fire Resistance</b>             | IEC 60331-21                                |
| <b>Smoke Density</b>               | IEC/EN 61034-1+2                            |
| <b>Amount of Halogen Acid Gas</b>  | IEC/EN 60754-1                              |
| <b>Corrosive Gases Measurement</b> | IEC/EN 60754-2                              |
| <b>Min. Bending Radius (Fixed)</b> | 8 x Cable Diameter                          |

### Cross Section

| Configuration / Cross-Section (mm/mm <sup>2</sup> ) | Cable Diameter (mm) (± 5%) | Copper Weight (kg / km) | ~ Cable Weight (kg / km) |
|---|----------------------------|-------------------------|--------------------------|
| 1x2x0.5   | 7.4                        | 34                      | 76                       |
| 1x2x0.5   | 7,4                        | 34                      | 76                       |
| 1x3x0.5   | 7.7                        | 42                      | 90                       |

|          |      |     |     |
|----------|------|-----|-----|
| 1x3x0.5  | 7,7  | 42  | 90  |
| 1x4x0.5  | 8.3  | 49  | 105 |
| 1x4x0.5  | 8,3  | 49  | 105 |
| 2x2x0.5  | 10.4 | 59  | 129 |
| 2x2x0.5  | 10,4 | 59  | 129 |
| 2x3x0.5  | 11.4 | 73  | 160 |
| 2x3x0.5  | 11,4 | 73  | 160 |
| 2x4x0.5  | 14.5 | 129 | 248 |
| 2x4x0.5  | 14,5 | 129 | 248 |
| 3x2x0.5  | 10.9 | 72  | 154 |
| 3x2x0.5  | 10,9 | 72  | 154 |
| 3x3x0.5  | 12.2 | 92  | 195 |
| 3x3x0.5  | 12,2 | 92  | 195 |
| 3x4x0.5  | 15.3 | 154 | 296 |
| 3x4x0.5  | 15,3 | 154 | 296 |
| 4x2x0.5  | 12.0 | 86  | 184 |
| 4x2x0.5  | 12,0 | 86  | 184 |
| 4x3x0.5  | 13.3 | 112 | 235 |
| 4x3x0.5  | 13,3 | 112 | 235 |
| 4x4x0.5  | 16.8 | 181 | 352 |
| 4x4x0.5  | 16,8 | 181 | 352 |
| 5x2x0.5  | 13.0 | 100 | 214 |
| 5x2x0.5  | 13,0 | 100 | 214 |
| 5x3x0.5  | 15.0 | 165 | 315 |
| 5x3x0.5  | 15,0 | 165 | 315 |
| 5x4x0.5  | 18.4 | 211 | 413 |
| 5x4x0.5  | 18,4 | 211 | 413 |
| 7x2x0.5  | 14.6 | 159 | 302 |
| 7x2x0.5  | 14,6 | 159 | 302 |
| 7x3x0.5  | 16.3 | 204 | 389 |
| 7x3x0.5  | 16,3 | 204 | 389 |
| 7x4x0.5  | 20.0 | 267 | 517 |
| 7x4x0.5  | 20,0 | 267 | 517 |
| 10x2x0.5 | 18.4 | 211 | 414 |
| 10x2x0.5 | 18,4 | 211 | 414 |
| 10x3x0.5 | 20.7 | 276 | 540 |
| 10x3x0.5 | 20,7 | 276 | 540 |
| 12x2x0.5 | 19.1 | 238 | 463 |
| 12x2x0.5 | 19,1 | 238 | 463 |
| 16x2x0.5 | 21.1 | 287 | 563 |
| 16x2x0.5 | 21,1 | 287 | 563 |
| 19x2x0.5 | 22.3 | 325 | 637 |
| 19x2x0.5 | 22,3 | 325 | 637 |
| 24x2x0.5 | 26.2 | 400 | 798 |
| 24x2x0.5 | 26,2 | 400 | 798 |
| 27x2x0.5 | 26.7 | 432 | 859 |

|           |      |     |      |
|-----------|------|-----|------|
| 27x2x0.5  | 26,7 | 432 | 859  |
| 37x2x0.5  | 29.9 | 550 | 1097 |
| 37x2x0.5  | 29,9 | 550 | 1097 |
| 1x2x0.75  | 8.2  | 43  | 93   |
| 1x2x0.75  | 8,2  | 43  | 93   |
| 1x3x0.75  | 8.6  | 53  | 111  |
| 1x3x0.75  | 8,6  | 53  | 111  |
| 1x4x0.75  | 9.4  | 64  | 132  |
| 1x4x0.75  | 9,4  | 64  | 132  |
| 2x2x0.75  | 11.8 | 75  | 162  |
| 2x2x0.75  | 11,8 | 75  | 162  |
| 2x3x0.75  | 13.1 | 98  | 205  |
| 2x3x0.75  | 13,1 | 98  | 205  |
| 2x4x0.75  | 16.6 | 162 | 311  |
| 2x4x0.75  | 16,6 | 162 | 311  |
| 3x2x0.75  | 12.5 | 94  | 197  |
| 3x2x0.75  | 12,5 | 94  | 197  |
| 3x3x0.75  | 14.3 | 154 | 289  |
| 3x3x0.75  | 14,3 | 154 | 289  |
| 3x4x0.75  | 17.7 | 198 | 378  |
| 3x4x0.75  | 17,7 | 198 | 378  |
| 4x2x0.75  | 14.1 | 143 | 270  |
| 4x2x0.75  | 14,1 | 143 | 270  |
| 4x3x0.75  | 15.7 | 184 | 347  |
| 4x3x0.75  | 15,7 | 184 | 347  |
| 4x4x0.75  | 19.4 | 238 | 456  |
| 4x4x0.75  | 19,4 | 238 | 456  |
| 5x2x0.75  | 15.4 | 169 | 318  |
| 5x2x0.75  | 15,4 | 169 | 318  |
| 5x3x0.75  | 17.2 | 214 | 405  |
| 5x3x0.75  | 17,2 | 214 | 405  |
| 5x4x0.75  | 21.2 | 280 | 539  |
| 5x4x0.75  | 21,2 | 280 | 539  |
| 7x2x0.75  | 16.8 | 206 | 388  |
| 7x2x0.75  | 16,8 | 206 | 388  |
| 7x3x0.75  | 18.7 | 269 | 507  |
| 7x3x0.75  | 18,7 | 269 | 507  |
| 7x4x0.75  | 23.2 | 352 | 676  |
| 7x4x0.75  | 23,2 | 352 | 676  |
| 10x2x0.75 | 21.3 | 280 | 540  |
| 10x2x0.75 | 21,3 | 280 | 540  |
| 10x3x0.75 | 24.0 | 371 | 715  |
| 10x3x0.75 | 24,0 | 371 | 715  |
| 12x2x0.75 | 22.1 | 317 | 606  |
| 12x2x0.75 | 22,1 | 317 | 606  |
| 16x2x0.75 | 24.5 | 389 | 748  |

|           |      |     |      |
|-----------|------|-----|------|
| 16x2x0.75 | 24,5 | 389 | 748  |
| 19x2x0.75 | 25.9 | 443 | 851  |
| 19x2x0.75 | 25,9 | 443 | 851  |
| 24x2x0.75 | 30.4 | 548 | 1069 |
| 24x2x0.75 | 30,4 | 548 | 1069 |
| 27x2x0.75 | 31.1 | 600 | 1162 |
| 27x2x0.75 | 31,1 | 600 | 1162 |
| 37x2x0.75 | 35.0 | 766 | 1490 |
| 37x2x0.75 | 35,0 | 766 | 1490 |
| 1x2x1     | 8.6  | 51  | 104  |
| 1x2x1     | 8,6  | 51  | 104  |
| 1x3x1     | 9.1  | 62  | 124  |
| 1x3x1     | 9,1  | 62  | 124  |
| 1x4x1     | 9.8  | 76  | 150  |
| 1x4x1     | 9,8  | 76  | 150  |
| 2x2x1     | 12.4 | 88  | 182  |
| 2x2x1     | 12,4 | 88  | 182  |
| 2x3x1     | 14.2 | 146 | 266  |
| 2x3x1     | 14,2 | 146 | 266  |
| 2x4x1     | 17.4 | 185 | 346  |
| 2x4x1     | 17,4 | 185 | 346  |
| 3x2x1     | 13.1 | 111 | 222  |
| 3x2x1     | 13,1 | 111 | 222  |
| 3x3x1     | 15.2 | 181 | 327  |
| 3x3x1     | 15,2 | 181 | 327  |
| 3x4x1     | 18.6 | 233 | 429  |
| 3x4x1     | 18,6 | 233 | 429  |
| 4x2x1     | 14.9 | 167 | 305  |
| 4x2x1     | 14,9 | 167 | 305  |
| 4x3x1     | 16.6 | 221 | 397  |
| 4x3x1     | 16,6 | 221 | 397  |
| 4x4x1     | 20.5 | 286 | 526  |
| 4x4x1     | 20,5 | 286 | 526  |
| 5x2x1     | 16.3 | 196 | 358  |
| 5x2x1     | 16,3 | 196 | 358  |
| 5x3x1     | 18.2 | 258 | 467  |
| 5x3x1     | 18,2 | 258 | 467  |
| 5x4x1     | 22.5 | 339 | 623  |
| 5x4x1     | 22,5 | 339 | 623  |
| 7x2x1     | 17.8 | 249 | 446  |
| 7x2x1     | 17,8 | 249 | 446  |
| 7x3x1     | 19.8 | 330 | 589  |
| 7x3x1     | 19,8 | 330 | 589  |
| 7x4x1     | 24.6 | 432 | 787  |
| 7x4x1     | 24,6 | 432 | 787  |
| 10x2x1    | 22.6 | 339 | 623  |

|         |      |      |      |
|---------|------|------|------|
| 10x2x1  | 22,6 | 339  | 623  |
| 10x3x1  | 25,4 | 456  | 832  |
| 10x3x1  | 25,4 | 456  | 832  |
| 12x2x1  | 23,3 | 384  | 700  |
| 12x2x1  | 23,3 | 384  | 700  |
| 16x2x1  | 26,0 | 481  | 874  |
| 16x2x1  | 26,0 | 481  | 874  |
| 19x2x1  | 27,4 | 551  | 998  |
| 19x2x1  | 27,4 | 551  | 998  |
| 24x2x1  | 32,3 | 681  | 1253 |
| 24x2x1  | 32,3 | 681  | 1253 |
| 27x2x1  | 33,1 | 746  | 1363 |
| 27x2x1  | 33,1 | 746  | 1363 |
| 37x2x1  | 37,6 | 1064 | 1868 |
| 37x2x1  | 37,6 | 1064 | 1868 |
| 1x2x1.5 | 9,6  | 65   | 130  |
| 1x2x1.5 | 9,6  | 65   | 130  |
| 1x3x1.5 | 10,2 | 82   | 158  |
| 1x3x1.5 | 10,2 | 82   | 158  |
| 1x4x1.5 | 11,1 | 101  | 192  |
| 1x4x1.5 | 11,1 | 101  | 192  |
| 2x2x1.5 | 14,5 | 148  | 267  |
| 2x2x1.5 | 14,5 | 148  | 267  |
| 2x3x1.5 | 16,2 | 189  | 339  |
| 2x3x1.5 | 16,2 | 189  | 339  |
| 2x4x1.5 | 19,9 | 245  | 448  |
| 2x4x1.5 | 19,9 | 245  | 448  |
| 3x2x1.5 | 15,4 | 185  | 328  |
| 3x2x1.5 | 15,4 | 185  | 328  |
| 3x3x1.5 | 17,3 | 241  | 424  |
| 3x3x1.5 | 17,3 | 241  | 424  |
| 3x4x1.5 | 21,3 | 308  | 557  |
| 3x4x1.5 | 21,3 | 308  | 557  |
| 4x2x1.5 | 16,9 | 220  | 392  |
| 4x2x1.5 | 16,9 | 220  | 392  |
| 4x3x1.5 | 19,0 | 292  | 514  |
| 4x3x1.5 | 19,0 | 292  | 514  |
| 4x4x1.5 | 23,5 | 382  | 685  |
| 4x4x1.5 | 23,5 | 382  | 685  |
| 5x2x1.5 | 18,5 | 260  | 463  |
| 5x2x1.5 | 18,5 | 260  | 463  |
| 5x3x1.5 | 20,8 | 349  | 613  |
| 5x3x1.5 | 20,8 | 349  | 613  |
| 5x4x1.5 | 25,8 | 456  | 818  |
| 5x4x1.5 | 25,8 | 456  | 818  |
| 7x2x1.5 | 20,3 | 333  | 584  |

|          |      |      |      |
|----------|------|------|------|
| 7x2x1.5  | 20,3 | 333  | 584  |
| 7x3x1.5  | 22,7 | 448  | 779  |
| 7x3x1.5  | 22,7 | 448  | 779  |
| 7x4x1.5  | 28,3 | 589  | 1045 |
| 7x4x1.5  | 28,3 | 589  | 1045 |
| 10x2x1.5 | 26,0 | 457  | 822  |
| 10x2x1.5 | 26,0 | 457  | 822  |
| 10x3x1.5 | 29,3 | 628  | 1111 |
| 10x3x1.5 | 29,3 | 628  | 1111 |
| 12x2x1.5 | 26,8 | 521  | 927  |
| 12x2x1.5 | 26,8 | 521  | 927  |
| 16x2x1.5 | 29,9 | 658  | 1166 |
| 16x2x1.5 | 29,9 | 658  | 1166 |
| 19x2x1.5 | 31,6 | 754  | 1332 |
| 19x2x1.5 | 31,6 | 754  | 1332 |
| 24x2x1.5 | 37,8 | 1025 | 1776 |
| 24x2x1.5 | 37,8 | 1025 | 1776 |
| 27x2x1.5 | 38,6 | 1124 | 1935 |
| 27x2x1.5 | 38,6 | 1124 | 1935 |
| 37x2x1.5 | 43,5 | 1448 | 2497 |
| 37x2x1.5 | 43,5 | 1448 | 2497 |
| 1x2x2.5  | 10,5 | 87   | 161  |
| 1x2x2.5  | 10,5 | 87   | 161  |
| 1x3x2.5  | 11,1 | 113  | 201  |
| 1x3x2.5  | 11,1 | 113  | 201  |
| 1x4x2.5  | 12,2 | 140  | 245  |
| 1x4x2.5  | 12,2 | 140  | 245  |
| 2x2x2.5  | 16,0 | 191  | 330  |
| 2x2x2.5  | 16,0 | 191  | 330  |
| 2x3x2.5  | 17,9 | 254  | 429  |
| 2x3x2.5  | 17,9 | 254  | 429  |
| 2x4x2.5  | 22,1 | 329  | 568  |
| 2x4x2.5  | 22,1 | 329  | 568  |
| 3x2x2.5  | 17,0 | 250  | 416  |
| 3x2x2.5  | 17,0 | 250  | 416  |
| 3x3x2.5  | 19,1 | 329  | 542  |
| 3x3x2.5  | 19,1 | 329  | 542  |
| 3x4x2.5  | 23,7 | 431  | 724  |
| 3x4x2.5  | 23,7 | 431  | 724  |
| 4x2x2.5  | 18,7 | 303  | 504  |
| 4x2x2.5  | 18,7 | 303  | 504  |
| 4x3x2.5  | 21,0 | 411  | 673  |
| 4x3x2.5  | 21,0 | 411  | 673  |
| 4x4x2.5  | 26,2 | 541  | 899  |
| 4x4x2.5  | 26,2 | 541  | 899  |
| 5x2x2.5  | 20,5 | 364  | 602  |

|          |      |      |      |
|----------|------|------|------|
| 5x2x2.5  | 20,5 | 364  | 602  |
| 5x3x2.5  | 23.1 | 496  | 807  |
| 5x3x2.5  | 23,1 | 496  | 807  |
| 5x4x2.5  | 28.8 | 652  | 1083 |
| 5x4x2.5  | 28,8 | 652  | 1083 |
| 7x2x2.5  | 22.4 | 468  | 763  |
| 7x2x2.5  | 22,4 | 468  | 763  |
| 7x3x2.5  | 25.3 | 649  | 1041 |
| 7x3x2.5  | 25,3 | 649  | 1041 |
| 7x4x2.5  | 31.7 | 860  | 1402 |
| 7x4x2.5  | 31,7 | 860  | 1402 |
| 10x2x2.5 | 28.9 | 654  | 1085 |
| 10x2x2.5 | 28,9 | 654  | 1085 |
| 10x3x2.5 | 32.6 | 910  | 1484 |
| 10x3x2.5 | 32,6 | 910  | 1484 |
| 12x2x2.5 | 29.9 | 753  | 1234 |
| 12x2x2.5 | 29,9 | 753  | 1234 |
| 16x2x2.5 | 33.4 | 963  | 1567 |
| 16x2x2.5 | 33,4 | 963  | 1567 |
| 19x2x2.5 | 35.7 | 1196 | 1890 |
| 19x2x2.5 | 35,7 | 1196 | 1890 |
| 24x2x2.5 | 42.2 | 1487 | 2384 |
| 24x2x2.5 | 42,2 | 1487 | 2384 |
| 27x2x2.5 | 43.2 | 1634 | 2601 |
| 27x2x2.5 | 43,2 | 1634 | 2601 |
| 37x2x2.5 | 48.6 | 2153 | 3407 |
| 37x2x2.5 | 48,6 | 2153 | 3407 |

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