

## FM2XSH 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>Inner Sheath</b>        | HFFR  |
| <b>Overall Screen</b>      | Galvanised Steel Wire Braid   |
| <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) |
|---|----------------------------|-------------------------|--------------------------|
| 2x2x0.5   | 11.7                       | 19                      | 162                      |
| 2x2x0.5   | 11,7                       | 19                      | 162                      |
| 2x3x0.5   | 12.4                       | 28                      | 191                      |

|          |      |     |      |
|----------|------|-----|------|
| 2x3x0.5  | 12,4 | 28  | 191  |
| 2x4x0.5  | 13,4 | 38  | 231  |
| 2x4x0.5  | 13,4 | 38  | 231  |
| 3x2x0.5  | 12,3 | 28  | 189  |
| 3x2x0.5  | 12,3 | 28  | 189  |
| 3x3x0.5  | 13,1 | 43  | 230  |
| 3x3x0.5  | 13,1 | 43  | 230  |
| 3x4x0.5  | 14,3 | 57  | 281  |
| 3x4x0.5  | 14,3 | 57  | 281  |
| 4x2x0.5  | 13,4 | 38  | 223  |
| 4x2x0.5  | 13,4 | 38  | 223  |
| 4x3x0.5  | 14,3 | 57  | 279  |
| 4x3x0.5  | 14,3 | 57  | 279  |
| 4x4x0.5  | 15,6 | 76  | 338  |
| 4x4x0.5  | 15,6 | 76  | 338  |
| 5x2x0.5  | 14,7 | 47  | 262  |
| 5x2x0.5  | 14,7 | 47  | 262  |
| 5x3x0.5  | 15,7 | 71  | 327  |
| 5x3x0.5  | 15,7 | 71  | 327  |
| 5x4x0.5  | 17,0 | 95  | 402  |
| 5x4x0.5  | 17,0 | 95  | 402  |
| 7x2x0.5  | 16,0 | 66  | 319  |
| 7x2x0.5  | 16,0 | 66  | 319  |
| 7x3x0.5  | 17,0 | 99  | 408  |
| 7x3x0.5  | 17,0 | 99  | 408  |
| 7x4x0.5  | 18,5 | 133 | 507  |
| 7x4x0.5  | 18,5 | 133 | 507  |
| 10x2x0.5 | 20,2 | 95  | 442  |
| 10x2x0.5 | 20,2 | 95  | 442  |
| 10x3x0.5 | 21,6 | 142 | 570  |
| 10x3x0.5 | 21,6 | 142 | 570  |
| 12x2x0.5 | 20,9 | 114 | 495  |
| 12x2x0.5 | 20,9 | 114 | 495  |
| 16x2x0.5 | 23,2 | 152 | 610  |
| 16x2x0.5 | 23,2 | 152 | 610  |
| 19x2x0.5 | 24,5 | 180 | 692  |
| 19x2x0.5 | 24,5 | 180 | 692  |
| 24x2x0.5 | 28,8 | 227 | 868  |
| 24x2x0.5 | 28,8 | 227 | 868  |
| 27x2x0.5 | 29,4 | 256 | 938  |
| 27x2x0.5 | 29,4 | 256 | 938  |
| 37x2x0.5 | 33,0 | 351 | 1210 |
| 37x2x0.5 | 33,0 | 351 | 1210 |
| 2x2x0.75 | 13,1 | 29  | 195  |
| 2x2x0.75 | 13,1 | 29  | 195  |
| 2x3x0.75 | 13,9 | 43  | 240  |

|           |      |     |      |
|-----------|------|-----|------|
| 2x3x0.75  | 13,9 | 43  | 240  |
| 2x4x0.75  | 15.1 | 58  | 286  |
| 2x4x0.75  | 15,1 | 58  | 286  |
| 3x2x0.75  | 13.8 | 43  | 233  |
| 3x2x0.75  | 13,8 | 43  | 233  |
| 3x3x0.75  | 14.8 | 65  | 293  |
| 3x3x0.75  | 14,8 | 65  | 293  |
| 3x4x0.75  | 16.1 | 86  | 359  |
| 3x4x0.75  | 16,1 | 86  | 359  |
| 4x2x0.75  | 15.1 | 58  | 281  |
| 4x2x0.75  | 15,1 | 58  | 281  |
| 4x3x0.75  | 16.2 | 86  | 353  |
| 4x3x0.75  | 16,2 | 86  | 353  |
| 4x4x0.75  | 17.7 | 115 | 436  |
| 4x4x0.75  | 17,7 | 115 | 436  |
| 5x2x0.75  | 16.5 | 72  | 328  |
| 5x2x0.75  | 16,5 | 72  | 328  |
| 5x3x0.75  | 17.7 | 108 | 420  |
| 5x3x0.75  | 17,7 | 108 | 420  |
| 5x4x0.75  | 19.4 | 144 | 521  |
| 5x4x0.75  | 19,4 | 144 | 521  |
| 7x2x0.75  | 18.0 | 101 | 408  |
| 7x2x0.75  | 18,0 | 101 | 408  |
| 7x3x0.75  | 19.4 | 151 | 528  |
| 7x3x0.75  | 19,4 | 151 | 528  |
| 7x4x0.75  | 21.2 | 202 | 665  |
| 7x4x0.75  | 21,2 | 202 | 665  |
| 10x2x0.75 | 23.0 | 144 | 572  |
| 10x2x0.75 | 23,0 | 144 | 572  |
| 10x3x0.75 | 24.8 | 216 | 745  |
| 10x3x0.75 | 24,8 | 216 | 745  |
| 12x2x0.75 | 23.9 | 173 | 644  |
| 12x2x0.75 | 23,9 | 173 | 644  |
| 16x2x0.75 | 26.5 | 231 | 755  |
| 16x2x0.75 | 26,5 | 231 | 755  |
| 19x2x0.75 | 28.0 | 274 | 866  |
| 19x2x0.75 | 28,0 | 274 | 866  |
| 24x2x0.75 | 33.0 | 346 | 1151 |
| 24x2x0.75 | 33,0 | 346 | 1151 |
| 27x2x0.75 | 33.8 | 389 | 1244 |
| 27x2x0.75 | 33,8 | 389 | 1244 |
| 37x2x0.75 | 37.9 | 533 | 1560 |
| 37x2x0.75 | 37,9 | 533 | 1560 |
| 2x2x1     | 13.7 | 39  | 216  |
| 2x2x1     | 13,7 | 39  | 216  |
| 2x3x1     | 14.6 | 58  | 267  |

|         |      |     |      |
|---------|------|-----|------|
| 2x3x1   | 14,6 | 58  | 267  |
| 2x4x1   | 15,9 | 78  | 322  |
| 2x4x1   | 15,9 | 78  | 322  |
| 3x2x1   | 14,6 | 58  | 265  |
| 3x2x1   | 14,6 | 58  | 265  |
| 3x3x1   | 15,5 | 88  | 331  |
| 3x3x1   | 15,5 | 88  | 331  |
| 3x4x1   | 16,9 | 117 | 409  |
| 3x4x1   | 16,9 | 117 | 409  |
| 4x2x1   | 16,0 | 78  | 318  |
| 4x2x1   | 16,0 | 78  | 318  |
| 4x3x1   | 17,0 | 117 | 406  |
| 4x3x1   | 17,0 | 117 | 406  |
| 4x4x1   | 18,5 | 156 | 505  |
| 4x4x1   | 18,5 | 156 | 505  |
| 5x2x1   | 17,5 | 97  | 373  |
| 5x2x1   | 17,5 | 97  | 373  |
| 5x3x1   | 18,6 | 146 | 481  |
| 5x3x1   | 18,6 | 146 | 481  |
| 5x4x1   | 20,4 | 195 | 599  |
| 5x4x1   | 20,4 | 195 | 599  |
| 7x2x1   | 19,1 | 136 | 467  |
| 7x2x1   | 19,1 | 136 | 467  |
| 7x3x1   | 20,4 | 204 | 613  |
| 7x3x1   | 20,4 | 204 | 613  |
| 7x4x1   | 22,3 | 273 | 770  |
| 7x4x1   | 22,3 | 273 | 770  |
| 10x2x1  | 24,4 | 195 | 659  |
| 10x2x1  | 24,4 | 195 | 659  |
| 10x3x1  | 26,2 | 292 | 820  |
| 10x3x1  | 26,2 | 292 | 820  |
| 12x2x1  | 25,2 | 234 | 742  |
| 12x2x1  | 25,2 | 234 | 742  |
| 16x2x1  | 28,1 | 311 | 880  |
| 16x2x1  | 28,1 | 311 | 880  |
| 19x2x1  | 29,7 | 370 | 1068 |
| 19x2x1  | 29,7 | 370 | 1068 |
| 24x2x1  | 35,0 | 467 | 1337 |
| 24x2x1  | 35,0 | 467 | 1337 |
| 27x2x1  | 35,9 | 526 | 1459 |
| 27x2x1  | 35,9 | 526 | 1459 |
| 37x2x1  | 40,4 | 720 | 1847 |
| 37x2x1  | 40,4 | 720 | 1847 |
| 2x2x1.5 | 15,4 | 57  | 271  |
| 2x2x1.5 | 15,4 | 57  | 271  |
| 2x3x1.5 | 16,4 | 85  | 336  |

|          |      |      |      |
|----------|------|------|------|
| 2x3x1.5  | 16,4 | 85   | 336  |
| 2x4x1.5  | 18,0 | 114  | 413  |
| 2x4x1.5  | 18,0 | 114  | 413  |
| 3x2x1.5  | 16,3 | 85   | 332  |
| 3x2x1.5  | 16,3 | 85   | 332  |
| 3x3x1.5  | 17,5 | 128  | 425  |
| 3x3x1.5  | 17,5 | 128  | 425  |
| 3x4x1.5  | 19,2 | 171  | 529  |
| 3x4x1.5  | 19,2 | 171  | 529  |
| 4x2x1.5  | 17,9 | 114  | 405  |
| 4x2x1.5  | 17,9 | 114  | 405  |
| 4x3x1.5  | 19,2 | 171  | 525  |
| 4x3x1.5  | 19,2 | 171  | 525  |
| 4x4x1.5  | 21,1 | 228  | 657  |
| 4x4x1.5  | 21,1 | 228  | 657  |
| 5x2x1.5  | 19,6 | 142  | 479  |
| 5x2x1.5  | 19,6 | 142  | 479  |
| 5x3x1.5  | 21,0 | 214  | 624  |
| 5x3x1.5  | 21,0 | 214  | 624  |
| 5x4x1.5  | 23,2 | 285  | 786  |
| 5x4x1.5  | 23,2 | 285  | 786  |
| 7x2x1.5  | 21,5 | 199  | 605  |
| 7x2x1.5  | 21,5 | 199  | 605  |
| 7x3x1.5  | 23,1 | 299  | 802  |
| 7x3x1.5  | 23,1 | 299  | 802  |
| 7x4x1.5  | 25,4 | 399  | 965  |
| 7x4x1.5  | 25,4 | 399  | 965  |
| 10x2x1.5 | 27,7 | 285  | 807  |
| 10x2x1.5 | 27,7 | 285  | 807  |
| 10x3x1.5 | 29,7 | 427  | 1145 |
| 10x3x1.5 | 29,7 | 427  | 1145 |
| 12x2x1.5 | 28,6 | 342  | 970  |
| 12x2x1.5 | 28,6 | 342  | 970  |
| 16x2x1.5 | 31,9 | 455  | 1224 |
| 16x2x1.5 | 31,9 | 455  | 1224 |
| 19x2x1.5 | 33,7 | 541  | 1403 |
| 19x2x1.5 | 33,7 | 541  | 1403 |
| 24x2x1.5 | 39,9 | 683  | 1723 |
| 24x2x1.5 | 39,9 | 683  | 1723 |
| 27x2x1.5 | 41,2 | 769  | 2029 |
| 27x2x1.5 | 41,2 | 769  | 2029 |
| 37x2x1.5 | 46,5 | 1053 | 2644 |
| 37x2x1.5 | 46,5 | 1053 | 2644 |
| 2x2x2.5  | 16,8 | 92   | 335  |
| 2x2x2.5  | 16,8 | 92   | 335  |
| 2x3x2.5  | 18,1 | 138  | 424  |

|          |      |      |      |
|----------|------|------|------|
| 2x3x2.5  | 18,1 | 138  | 424  |
| 2x4x2.5  | 19,8 | 183  | 526  |
| 2x4x2.5  | 19,8 | 183  | 526  |
| 3x2x2.5  | 17,8 | 138  | 421  |
| 3x2x2.5  | 17,8 | 138  | 421  |
| 3x3x2.5  | 19,2 | 206  | 548  |
| 3x3x2.5  | 19,2 | 206  | 548  |
| 3x4x2.5  | 21,1 | 275  | 683  |
| 3x4x2.5  | 21,1 | 275  | 683  |
| 4x2x2.5  | 19,7 | 183  | 517  |
| 4x2x2.5  | 19,7 | 183  | 517  |
| 4x3x2.5  | 21,2 | 275  | 681  |
| 4x3x2.5  | 21,2 | 275  | 681  |
| 4x4x2.5  | 23,3 | 367  | 859  |
| 4x4x2.5  | 23,3 | 367  | 859  |
| 5x2x2.5  | 21,6 | 229  | 618  |
| 5x2x2.5  | 21,6 | 229  | 618  |
| 5x3x2.5  | 23,2 | 344  | 819  |
| 5x3x2.5  | 23,2 | 344  | 819  |
| 5x4x2.5  | 25,6 | 459  | 987  |
| 5x4x2.5  | 25,6 | 459  | 987  |
| 7x2x2.5  | 23,6 | 321  | 790  |
| 7x2x2.5  | 23,6 | 321  | 790  |
| 7x3x2.5  | 25,4 | 482  | 1016 |
| 7x3x2.5  | 25,4 | 482  | 1016 |
| 7x4x2.5  | 28,1 | 642  | 1306 |
| 7x4x2.5  | 28,1 | 642  | 1306 |
| 10x2x2.5 | 30,5 | 459  | 1126 |
| 10x2x2.5 | 30,5 | 459  | 1126 |
| 10x3x2.5 | 32,9 | 688  | 1523 |
| 10x3x2.5 | 32,9 | 688  | 1523 |
| 12x2x2.5 | 31,5 | 550  | 1283 |
| 12x2x2.5 | 31,5 | 550  | 1283 |
| 16x2x2.5 | 35,3 | 734  | 1629 |
| 16x2x2.5 | 35,3 | 734  | 1629 |
| 19x2x2.5 | 37,3 | 871  | 1826 |
| 19x2x2.5 | 37,3 | 871  | 1826 |
| 24x2x2.5 | 44,6 | 1101 | 2482 |
| 24x2x2.5 | 44,6 | 1101 | 2482 |
| 27x2x2.5 | 45,7 | 1238 | 2712 |
| 27x2x2.5 | 45,7 | 1238 | 2712 |
| 37x2x2.5 | 51,4 | 1697 | 3558 |
| 37x2x2.5 | 51,4 | 1697 | 3558 |

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