



# Information sheet for planners and electricians

## Cable specifications

### 1. Which cable is suited to the application?

Cables differ mainly with regard to the following aspects:

- Electrical resistance
- Shield
- Twisting / Stranding
- Mechanical properties
- Availability
- Price

According to the application, certain characteristics are more important than others. Thus, the best cable has to be chosen individually for each single application. The regulations of the Swiss standard NIN 2005 4.1.4.1.2 (includes the combination of high and low voltage systems) have to be observed. Instead of the recommended cables also cables with identical characteristics can be used.

Application	Key properties	Cable type (recommended)
<p><b>Temperature sensor cable for 2-wire technology</b></p> <p><b>Caution:</b> The cables of the flow and return flow sensor should always be the same length! Use 4-wire technology whenever possible. In accordance with EN 1434-2 Section 3.3.4, the supplied cable of the flow and return flow sensor must not be shortened or lengthened.</p>	<ul style="list-style-type: none"> <li>■ Strand</li> <li>■ Low resistance</li> <li>■ Material: PVC (wires and sheathing)</li> <li>■ Temperature resistant to + 80 °C</li> <li>■ Without shielding</li> </ul>	<p><i>Temperature sensor type: Pt 500</i> <i>Temperature sensor type: TF500</i></p> <ul style="list-style-type: none"> <li>■ ≤ 2,5 m: 2 x 0,25 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 3,8 mm</li> <li>■ ≤ 5,0 m: 2 x 0,50 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 4,6 mm</li> <li>■ ≤ 7,5 m: 2 x 0,75 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 5,2 mm</li> <li>■ ≤ 10,0 m: 2 x 1,00 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 5,5 mm</li> </ul> <p>Do not use longer cables!</p> <p><i>Temperature sensor type: Pt 100</i> <i>Temperature sensor type: THF-105, 140 or 230</i></p> <ul style="list-style-type: none"> <li>■ ≤ 2,5 m: 2 x 0,25 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 3,8 mm</li> <li>■ ≤ 5,0 m: 2 x 0,50 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 4,6 mm</li> <li>■ ≤ 7,5 m: 2 x 0,75 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 5,2 mm</li> <li>■ ≤ 10,0 m: 2 x 1,00 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 5,5 mm</li> </ul> <p>Do not use longer cables!</p>
<p><b>Temperature sensor cable for 4-wire technology</b></p> <p><b>Note:</b> Flow and return flow sensor cables can have different lengths!</p>	<ul style="list-style-type: none"> <li>■ Strand</li> <li>■ Low resistance</li> <li>■ Material: PVC (wires and sheathing)</li> <li>■ Temperature resistant to + 80 °C</li> <li>■ Without shielding</li> </ul>	<p><i>Temperature sensor type: Pt 500</i> <i>Temperature sensor type: TFK500</i></p> <ul style="list-style-type: none"> <li>■ ≤ 100 m: 4 x 0,25 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 4,3 mm</li> </ul> <p>Do not use longer cables!</p> <p><i>Temperature sensor type: Pt 100</i> <i>Temperature sensor type: THF-105, 140 or 230</i></p> <ul style="list-style-type: none"> <li>■ ≤ 10,0 m: 4 x 0,50 mm<sup>2</sup>     ∅<sub>outer</sub>: app. 5,4 mm</li> </ul> <p>Do not use longer cables!</p>
<p><b>Remote supply / Remote transmission of pulses</b></p>	<ul style="list-style-type: none"> <li>■ Strand</li> <li>■ Low resistance</li> <li>■ Material: PVC (wires and sheathing)</li> <li>■ Temperature resistant to + 80 °C</li> <li>■ Shielding mesh: copper</li> <li>■ Stranded pairs</li> <li>■ Resistant to inductive and capacitive effects</li> </ul>	<ul style="list-style-type: none"> <li>■ ≤ 2,5 m: 2 x 0,25 mm<sup>2</sup></li> <li>■ ≤ 100 m: 2 x 0,75 mm<sup>2</sup></li> <li>■ ≤ 200 m: 2 x 1,50 mm<sup>2</sup></li> </ul> <p>The max. cable length is depending on the used pulse collector (e.g. calculator for thermal metering). Therefore please contact the manufacturer of the used pulse collector.</p>

Application	Key properties	Cable type (recommended)
Remote transmission of data (M-Bus to EN 13757-2 / EN 1434-3)	<ul style="list-style-type: none"> <li>■ Risers: Low resistance</li> <li>■ Stub cables: Available and inexpensive</li> <li>■ Not shielded</li> </ul>	<b>Risers:</b> <ul style="list-style-type: none"> <li>■ TT, 2*1,5 mm<sup>2</sup></li> </ul> <b>Stub cables up to 50 m:</b> <ul style="list-style-type: none"> <li>■ U-72, 1*4*0,8 mm, not shielded</li> </ul> <b>Lengths to EN 1434-3:</b> <ul style="list-style-type: none"> <li>■ app. 350 m between central unit and terminal device</li> <li>■ app. 1000 m total</li> </ul> Longer cable lengths only after consulting GWF

Cables must not be laid near engines and motors, live cables or other electromagnetic fields.

## 2. Supplementary cable data

U-72 (not shielded)		
1*4*0,8 mm	Loop resistance	38 Ω/km
	Sheath	PVC
	Capacitance	800 Hz 70 nF/km
	Cores	white and blue, turquoise and purple

Thermoplastic cable TT (not shielded)		
2*1,5 mm <sup>2</sup>	Resistance	14 Ω/km
	Current carrying capacity	20 A
	Outside diameter	7,4 mm