Engineering Note

Hydronix Limited, 7 Riverside Business Centre, Walnut Tree Close, Guildford,
Surrey GU1 4UG, England
☎ +44 (0)1483 468900 🖹 +44 (0)1483 468919

Title:	Sensor Cable wiring information (Hydronix Part no. 0090A)
Document reference (DRC):	EN0035 v2.0
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Products affected:	HP02, HM05, HT01, ORB1
Summary:	Connection information for wiring Hydronix probes and sensors

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1) Summary

The new 4m Sensor Cable (part no 0090A) has been designed to take the place of the existing standard (0071) and compatibility (0069) cables. It is also possible to replace these cables in existing installations, if required.

The new cable will enable simpler upgrading of equipment and has the advantage of making the RS485 signals available in the control room, regardless of whether they are to be used. This allows the user to be able to adjust the parameters of any sensor using Hydro-Link software. The new cable also permits the use of a second analogue output where it is supported by the sensor.

2) Connection information

Using a sensor in compatibility mode requires the addition of a 500Ω resistor (supplied) to be connected between the 1st analogue common (output) and the 1st analogue return. Once the sensor is set to compatibility mode, this will produce the correctly characterised 0 – 10 V signal to allow the Hydro-Control IV or Hydro-View to operate while still allowing the RS485 access and configuration. The same method is used if the user wishes to convert the 0 – 20mA output to linear 0 – 10V (with the sensor set to 0 – 10V output type using Hydro-Link software).

Twisted Pair Number	MIL spec pins	Sensor & Probe connections	Cable colour
1	A	+15-30V DC	Red
1	B	0V	Black
2	C	1st Digital input	Yellow
2	--	-	Black (Cut back)
3	D	1st Analogue Positive (+)	Blue
3	E	1st Analogue Return (-)	Black
4	F	RS485 A	White
4	G	RS485 B	Black
5	J	2nd Digital input	Green
5	--	-	Black (Cut back)
6	D	2nd Analogue Positive (+)	Brown
6	K	2nd Analogue Return (-)	Black
	H	Screen	Screen

It is recommended that the cable is connected, using a sealed junction box with secure protected connections, to a cable of similar type (see Cable Specifications). The junction box should be of a metal construction and bolted to a metal framework. If it is not possible to secure the box to framework, then the box must be earthed.

Cables should be placed as far away from Equipment or Mixer power cables as possible to reduce signal interference.

The two analogue outputs are current sinks and use a common positive.

3) Cable Specification

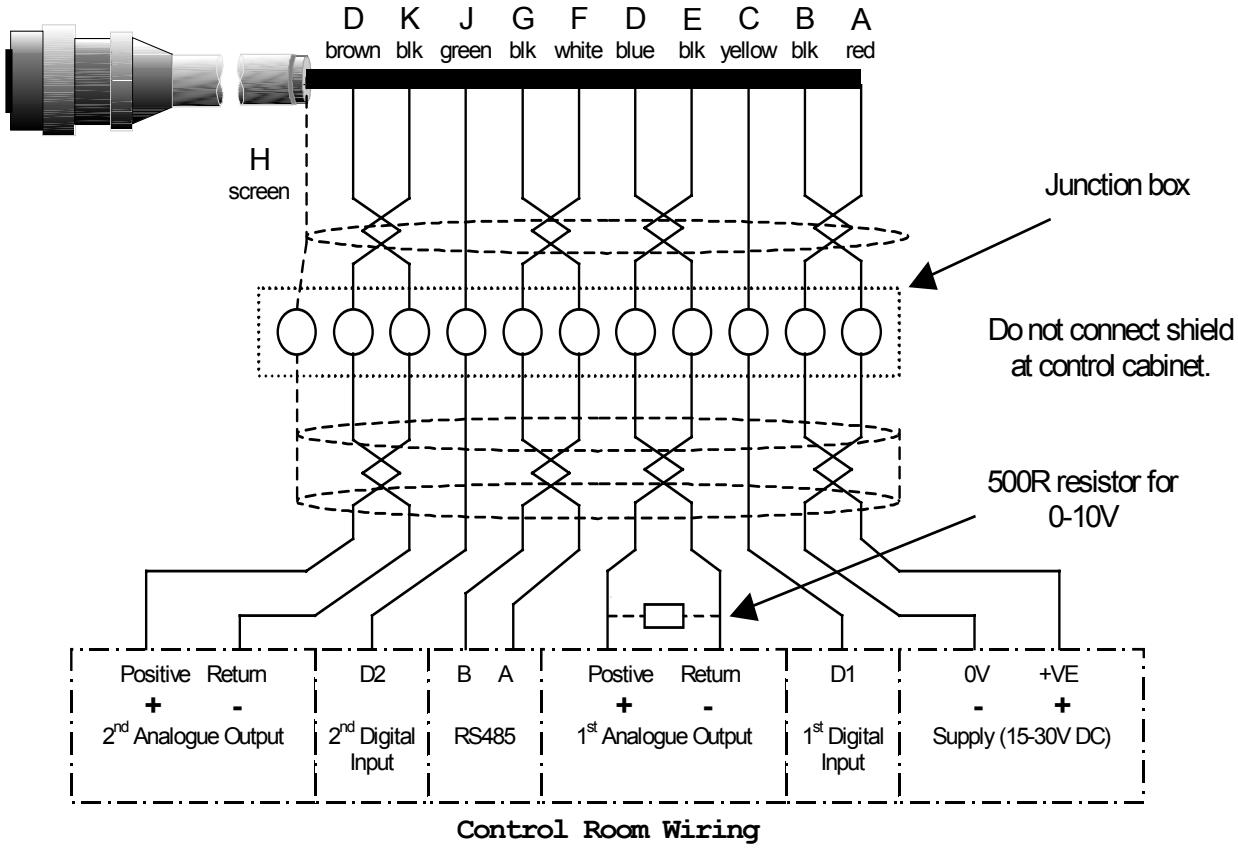
Six twisted pairs (12 cores total) screened (shielded) cable with 22 AWG, 0.35mm^2 conductors.

Screen (shield): Braid with 65% minimum coverage plus aluminium/polyester foil

Maximum cable run: 100m, separate to any heavy equipment power cables.

Cable Type	Manufacturer	Manufacturer Part Number
6 twisted pair PVC insulated cable	Belden	8306
6 twisted pair PVC insulated cable	Alpha	6377

4) Wiring Diagram



Control Room Wiring