# QL40,SFM bi-directional spinner flowmeter

This QL series probe measures impeller rotation caused by fluid flow in the borehole. It uses a magnetically coupled pick-up which drives a low friction, high resolution encoder located inside the lower pressure housing. The encoder produces 256 pulses per shaft rotation. It has quadrature sensing electronics that instantaneously detect flow direction changes.

The QL40 SFM is a bottom sub, and can be combined with other logging tools in the QL (Quick Link) product line or operated as a stand alone tool. Weight bars with centralizers are recommended to improve log response and repeatability in large boreholes or low flow environments

#### Application

- · Pumping Flow profiles in screened or perforated cased holes
- · Identification of hydrostratigraphic units
- · Confirmation of predicted transmissive zones in open hole





alle the state of

0	т	ool	S	n/r pe	nin ed	_	_	30	Depth 1m:500m	_	Spinner Run 1 cps 5000
			s							U	Spinner Run 2
0		ool			niņ			30		0	cps 5000 Spinner Run 3
							11			_	
			_	n/r	pur		_	30		0	cps 5000
		_			1_	Ш	-	1			
	-	-	-	Н	-	Н	+	1		⊢	
						П	$\pm$	í			
	-	-	-		-	Н	٠,	<i> </i>		⊢	
	-	-		Н	Н	$\vdash$	٦,	-	120	$\vdash$	<del>                                     </del>
+						П		i			
		_					-	1			
-	-	-1		Н	ì	Н	+	,		⊢	
$^{+}$	_	_	_	Н	Т	H	+	1		$\vdash$	
					1			í			
4	_	_		Ш	_	Н	4	l		L	
+	-	-1	-	Н		Н	+	f H		$\vdash$	
$^{+}$	7	-1	_	Н	-	$\vdash$	٠,		140	$\vdash$	
		_(		В		П	-1				
-		-1		- 3		П	-3				
+	-	-9	-	Н		Н	-[	$\perp$		$\vdash$	
+	_	-1		Н	-	$\vdash$	- 13			$\vdash$	<del>                                     </del>
$^{+}$	7					Н	- 8				
$\perp$		-					- 3				
$\perp$	_	_			)	ш	-1)	$\perp$		<u> </u>	
+	-	-	-	Н	⊢	$\vdash$	-13		160	⊢	<del>                                      </del>
$\pm$		_				Н	-13	Ш		$\vdash$	
								ı			
4		-1					- 1	t			
+	-	-	-	Н	}_	Н	+	+		⊢	
-	-	-			;		_			$\vdash$	<u> </u>
							-				
					į.						
+	_	_	_		-	Н	-		180	⊢	<del></del>
+	-	-	-	Н	1	Н				⊢	1/ 1 /1 /1 1 1 1 1 1
+	-	Ħ		Н		Н	-13				
		-					1				
$\perp$	_				-	П	$\perp$	$\vdash$		H	
+	-	-	-	Н		Н	-13			$\vdash$	/
+	-			Н		Н	-15	1			11 1 1 1 1 1 1 1
								i 🗌			
				Ц	_	ш	-	<b>\</b>	200	L	
+	-	-		Н	1	Н	-	}		$\vdash$	
+	٦	-		Н		$\vdash$				$\vdash$	1 1 1 1 1 1 1 1 1
						П		ш			
$\perp$		4				П	Τ,	$\perp$		$\vdash$	
+	-	-1		н		Н	-1	$\perp$		<u> </u>	-\
+	-	-1				$\vdash$	- 5			$\vdash$	
							1				
	Ų	_			5	Rui	4		220		Spinner Run 3
0								30		0	
	Ţ	ool				Rui	12			_	opinner nun z
0	т	ool	s	n/r De	nin ed	Rui	n 3	30	Depth	0	cps 5000 Spinner Run 1
0	÷							30	1m:500m	n	cps 5000
_			_	1		_		JU			G/0 5000









#### Principle of measurement

A buoyant impeller mounted on a hollow stainless steel shaft is suspended between two precision ground ceramic bearnings. A balanced transfer bulkhead fitted with magnets couples motion and direction from the impeller through a sealed sensor body inside the probe. A low friction high resolution encoder detects this information and transfers it digitally to a counter circuit that sends the information by wireline modem to the surface.

#### Measurements / Features

The probe is supplied with two different cages to provide optimum results in a variety of borehole diameters. 60 and 75 mm diameter varied pitch impellers are available.

### **Technical Specifications**

Diameter: 40 mm (1.57") excluding cage

the state of

Length: 90 cm (35.4")

Weight: 3.2 kg (7 lbs)

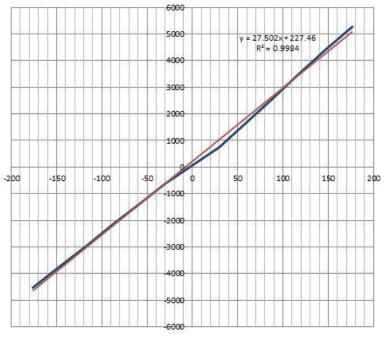
· Max. temp: 70°C (158°F)

· Max. pressure: 200 bar (2900 psi)

## **Operating Conditions**

Open or cased borehole Water filled Centralization recommended.

## Flow rate in gpm vs. spinner speed in cps



Typical flow response curve for up and down runs in 6" casing



The specifications are not contractual and are subject to modification without notice.

Mount Sopris Instrument Co. Inc. | 4975 E. 41 st Ave. Denver | C0 80216 | USA | Ph. 303 279 3211 | www.mountsopris.com

