

5.2.1.1 External Logging Format

A) Survey mode

The string is 62 characters long with individual field definitions as follows. The SDC logs all distances in units of centimetres, skew angles in units of degrees, and signal voltages in units of microvolts using the scientific notation. The values in the packet are rounded and it is possible that they will not precisely match those on the Run Display screen.

Table 5-1: External logging format – Survey mode

Start character (Note 1)	:	SQ	±LLLL	VVVV	AAAA	±CCCC	±SSS	1111	2222	3333	4444	5555	6666	QQ	[CR]	[LF]
Packet identifier (Note 2)																
QC flag (Note 3)																
Lateral offset (Note 4)																
Space character																
Vertical range to target (Note 5)																
Space character																
Coil altitude (Note 6)																
Target depth of cover (Note 7)																
Skew angle (Note 8)																
Space character																
Signal strength on channel 1 (Note 9)																
Space character																
Signal strength on channel 2 (Note 9)																
Space character																
Signal strength on channel 3 (Note 9)																
Space character																
Signal strength on channel 4 (Note 9)																
Space character																
Signal strength on channel 5 (Note 9)																
Space character																
Signal strength on channel 6 (Note 9)																
Space character																
QC check code (Note 10)																
Carriage return line-feed termination																

Notes:

1. The Start character is a colon.
2. 'S' identifies a packet from the Survey mode. The SDC transmits this type of packet whenever it is displaying the Run Display screen.
3. The Quality Control (QC) flag will be a space character when RESET, or a question mark (?) when SET. See also the QC check code later in this packet.
4. The lateral offset (LAT) is measured from the centre of the coil array. Positive values indicate a target to starboard of the centre line. The field will contain question marks if the target is out of range.
5. The vertical range to target (VRT) is the distance between the reference line of the coil array (identified in Figure 3-2) and the target. The value is always positive. There are several conditions that will cause the field to contain question marks:
 - ❑ The target is out of range
 - ❑ The 350 System cannot compute an accurate position for the target
 - ❑ Coil saturation has occurred because the tone signal is too strong
6. Coil altitude (ALT) information comes from an altimeter if the System includes one. Otherwise, the information in this field will be the fixed coil height if available. The field will contain question marks if there is no fixed height or altimeter information available.
7. The SDC calculates the target depth of cover (COV) using $COV = VRT - ALT$. A positive value indicates the target is covered. Zero or negative values indicate an exposed target. There are several conditions that will cause the field to contain question marks:

- ❑ The target is out of range
 - ❑ The 350 System cannot compute an accurate position for the target
 - ❑ Coil saturation has occurred because the tone signal is too strong
 - ❑ There is no fixed coil height or information available to the SDC from an altimeter
8. Skew angle between the target and the ROV in the range -90° to $+90^\circ$. Zero skew is the ideal situation where the ROV aligns on the same heading as the direction of the target. Skew is positive when the ROV heading is to starboard of the target direction. The field will contain question marks if the 350 System cannot measure the skew angle.
9. The signal strengths, in microvolts, measured on channel 1 (starboard lateral – SL), channel 2 (starboard vertical – SV), channel 3 (port lateral – PL), channel 4 (port vertical – PV), channel 5 (starboard fore-aft – SF) and channel 6 (port fore-aft – PF).

Information included in the above signal strength fields may have a very large dynamic range, extending from less than $1\mu\text{V}$ to more than 7 volts. To allow for simple encoding of this range, the System displays and logs values using scientific notation:

The signal value format is: abbc where the actual value is $a.bb \text{ e}+c \mu\text{V}$

For example:

- ❑ The field +1234 represents a value of 1.23×10^4 microvolts (or 12.3 mV). The SDC would display this on the Run Display screen as +1.23e4 in the lower left-hand data panel.
 - ❑ The field +2416 represents a value 2.41×10^6 microvolts (or 2.41 volts). The SDC would display this on the Run Display screen as +2.41e6 in the lower left-hand data panel.
10. The QC check code provides additional status information that explains any occurrence of the QC flag being set. The check code consists of a two-digit number in the range 01 to 07 and 99 with the meanings defined in Table 5–2.

Table 5–2: QC check code meaning – Survey mode

QC Check Code	Meaning
00	Target in range. SL and PL $\geq 50\mu\text{V}$; LAT $\leq \pm 2\text{m}$. Quality flag is RESET.
01	Target in range. SL or PL $< 50\mu\text{V}$; LAT $\leq \pm 2\text{m}$. Quality flag is SET.
02	Target in range. SL or PL $\geq 50\mu\text{V}$; LAT $> \pm 2\text{m}$. Quality flag is SET.
03	Target in range. SL or PL $< 50\mu\text{V}$; LAT $> \pm 2\text{m}$. Quality flag is SET.
04	Starboard tracking data only; LAT = ????, VRT = ????, SKEW = ???. Quality flag is SET.
05	Port tracking data only; LAT = -????, VRT = ????, SKEW = ???. Quality flag is SET.
06	Skew angle not available. Skew angle = ???. Quality flag is SET.

Table 5-2: QC check code meaning – Survey mode

B) Forward Search mode

The string is 48 characters long with individual field definitions as follows. The SDC logs all distances in units of centimetres and signal voltages in units of microvolts using the scientific notation. The values in the packet are rounded and it is possible that they will not precisely match those on the Forward Search screen.

Table 5-3: External logging format – Forward search mode

[illegible]

Notes:

1. The Start character is a colon.
2. 'F' identifies a packet from the Forward search mode. The SDC transmits this type of packet whenever it is displaying the Forward Search screen.
3. The Quality Control (QC) flag will be a space character when RESET, or a question mark (?) when SET. See also the QC check code later in this packet.
4. The forward search range (FWD) is measured from the reference line of the coil array (identified in Figure 3–2). There are several conditions that will cause the field to contain question marks:
 - ❑ The target is out of range
 - ❑ The 350 System cannot compute an accurate position for the target
 - ❑ Coil saturation has occurred because the tone signal is too strong
5. Coil altitude (ALT) information comes from an altimeter if the System includes one. Otherwise, the information in this field will be the fixed coil height if available. Forward

search mode is available only if information is available concerning the height of the coils above the seabed, and so this field will always contain information.

6. The signal strengths, in microvolts, measured on channel 1 (starboard lateral – SL), channel 2 (starboard vertical – SV), channel 3 (port lateral – PL), channel 4 (port vertical – PV), channel 5 (starboard fore-aft – SF) and channel 6 (port fore-aft – PF).

Information included in the above signal strength fields may have a very large dynamic range, extending from less than $1\mu\text{V}$ to more than 7 volts. To allow for simple encoding of this range, the System displays and logs values using the scientific notation explained on page 7.

7. The QC check code provides additional status information that explains any occurrence of the QC flag being set. The check code consists of a two-digit number with the meanings defined in Table 5–4.

Table 5–4: QC check code meaning – Forward search mode

QC Check Code	Meaning
00	Target in range. SF and PF $\geq 50\mu\text{V}$; LAT $\leq \pm 2\text{m}$. Quality flag is RESET.
07	Saturation in one or more coils. Quality flag is SET.
08	Target in range. SF or PF $< 50\mu\text{V}$. Quality flag is SET.
99	Target out of range. FWD = 9999. Quality flag is SET.