

# ESLIC

## Subsea interface cards

### APPLICATION

- Subsea wells with WellWatcher\* permanent monitoring systems

### BENEFITS

- Improved data quality and access because of simplified software interface
- Better data quality and security because of time-stamping of data at subsea interface

### FEATURES

- Time-stamp of data using onboard clock
- Battery backup for onboard clock
- Remote current and voltage adjustments
- Remote cable disconnection
- Gauge coefficient storage
- Voltage and current diagnostics
- Firmware upgradable from surface
- Gauge simulator
- Redundant operational capacity

ESLIC subsea interface cards provide communication and power for WellWatcher permanent monitoring system gauges. The cards can power up to four gauges on the same cable. They send both raw data and ready-to-use pressure and temperature engineering values to the surface.

### Versions

To meet the interface requirements of various industry-leading subsea control module or pod vendors, ESLIC cards come in four versions: ESLIC-101, ESLIC-110, ESLIC-120, and ESLIC-220. The ESLIC-220 version isolates the power supply from the telemetry device on two circuit boards.



*ESLIC subsea interface card.*

The small size and standard format of the cards allow easy integration with many third-party subsea control modules and allow for different physical interface requirements. The use of similar components and firmware for the different versions permits different card versions to be quickly adapted to meet project-driven changes and evolution in pod design.

### Operation

ESLIC cards have an onboard clock to time-stamp data at the interface. In the event of any unexpected interruption in system power, no data will be lost as a result of an incorrect time reference applied either by the subsea pod or the Master Control System (MCS).

Obtaining accurate pressure gauge data depends on accurate gauge coefficient data. Gauge coefficients are loaded and stored directly on the ESLIC card, eliminating the requirement for manual entry in an MCS. Time-stamped data in engineering units are directly output from the ESLIC card and easily retrieved through a serial port at the MCS. Data reliability and retrieval are enhanced by minimizing the software interface between downhole instruments and the delivery point.

### Enhanced reliability

Although ESLIC cards are designed for reliability, subsea operations often require two cards to operate in parallel to provide backup redundancy. In this configuration, one ESLIC card is designated as the main card and the other as the backup. In the event of a main-card failure, operation can be switched to the backup card to ensure that valuable data acquisition is uninterrupted.

### Future flexibility

ESLIC cards are capable of having the firmware upgraded remotely, meaning that even after deployment and commissioning, changes to operation and routine can be performed with ease. Enhancements and optimizations require only a quick upload of the latest firmware via the same communication port used for gathering the well data.

### Diagnostics

By measuring and transmitting diagnostic parameters, an ESLIC card is capable of verifying the integrity of the subsea control module's umbilical link and the downhole signal path. By performing repeated cable current and voltage measurements, the ESLIC card can validate the operation of the digital electronics and card-to-surface communication channels, as well as its own capacity to adequately power the downhole gauge.

A gauge simulator on the ESLIC card sends a predefined gauge telemetry signal through the cable. Amplitude of gauge modulation voltage is measured by the ESLIC card to determine the integrity of the communication with the gauge. This feature is also valuable during interface testing with the subsea electronics module and MCS.

Third parties may access board-level data and diagnostic functions if they meet certain interface requirements outlined in the product manual. Additional diagnostics and troubleshooting can be performed through a transparent link using a proprietary Schlumberger software package.

## ESLIC Subsea Interface Card Specifications

### Gauge interface

Number of channels	One
Max. number of gauges <sup>†</sup>	Four <sup>†</sup> (must not exceed maximum output power of card)
Gauges supported	PQG, DPG, NxQG, XPQG
Input signal voltage, mV rms	70 to 3,000
Input signal frequency, Hz	1,200 (2,400 with 720-Hz capture range)
Max. output current, mA	150
Max. output power, W	
ESLIC-100 series (101, 110, 120)	8.25
ESLIC-220	6.2
Cable voltage status	Short-circuit and open-line detection

### Communication with client infrastructure

Transmission channel	RS-485 two-wire or RS-422 four-wire
Protocol	Modbus <sup>®</sup> remote terminal unit
Baud rate, bps	4,800; 9,600; 19,200; 38,400 (jumper select)
Address range	
ESLIC-100 series (101, 110, 120)	20 to 3F hexadecimal [32 to 63 decimal]
ESLIC-220	0x01 to 0xF7 hexadecimal [1 to 247 decimal (firmware configurable)]

### Mechanical

Dimensions, mm [in]	
ESLIC-100 series (101, 110, 120)	100 × 160 × 13 [3.94 × 6.30 × 0.51]
ESLIC-220	100 × 160 × 26 [3.94 × 6.30 × 1.02]
Format	Eurocard
Connector	
ESLIC-101	Hypertac <sup>®</sup> 53M
ESLIC-110	DIN 96
ESLIC-120	Double DIN 96
ESLIC-220	DIN 96

### Direct current input power

Input, V DC	18–28
Consumption, <sup>‡</sup> W	
ESLIC-100 series (101, 110, 120)	2.1 (on standby)
ESLIC-220	3.25 (on standby)

### Environmental

Operating temperature range, degC [degF]	–20 to 70 [–4 to 158]
Storage temperature range, degC [degF]	–40 to 85 [–40 to 185]

<sup>†</sup> ESLIC cards are capable of handling up to four gauges, although certain gauges may not be compatible with a multiple-gauge configuration.

<sup>‡</sup> ESLIC-100 series card consumption is 2.1 W without gauges, and ESLIC-220 card consumption is 3.25 W without gauges. Consumption varies with cable length and gauge type. The typical consumption value for an ESLIC card with a single permanent WellWatcher Quartz<sup>®</sup> premium high-temperature, high-resolution PT gauge and a 5-km permanent downhole cable is 3.25 W (ESLIC-100 series) or 4.25 W (ESLIC-220). For detailed power consumption information, refer to the product manuals.