

## IWIC

### IWIS WellNet Interface Card

#### APPLICATION

- Power and data acquisition for WellWatcher WellNet\* gauges in compliance with the IWIS standard

#### BENEFITS

- Reduced overall project costs and design time through use of more-modular equipment
- Reduced future costs, project technical risks, and time because of IWIS compliance, which permits deploying new measurement systems without having to modify the subsea infrastructure

#### FEATURES

- Accurate, reliable data acquisition
- Reduced or eliminated data loss in the event of power failure because of data time stamping
- 100% IWIS compliance
- Bidirectional communication
- Remote soft-reset capability
- Voltage and current diagnostics
- Surface-to-card firmware upgrades
- Redundancy capability
- Remote current and voltage adjustments
- Remote cable disconnection
- OPC server for facilitating interface-to-user application
- OPC client for system configuration, commissioning, and troubleshooting

The IWIC WellNet interface card provides communication and power for WellWatcher WellNet gauges in compliance with IWIS specifications. WellWatcher WellNet stations are part of the WellWatcher\* family of permanent downhole monitoring systems. They provide continuous pressure, temperature, and flow rate measurements dependably and reliably and make it possible to characterize production and reservoirs in real time.

The IWIC card communicates to downhole equipment via a proprietary WellWatcher WellNet communication protocol. The WellWatcher WellNet system offers high-speed downhole telemetry for monitoring and controlling a well. The card allows the user to collect high-speed downhole data from WellWatcher WellNet multisensor stations, up to 64 nodes, for permanent monitoring while tools such as an electric flow control valve are being operated, all through a single electric line. The card is equipped with the downhole WellWatcher WellNet redundancy sub. It provides excellent system reliability because it allows any potential sensor damage point in the system to be skipped.

The IWIC provides the client network with ready-to-use engineering values. It supports all WellWatcher WellNet stations, and the data gathered from the gauges are readily accessible through the OPC server provided with the card, helping ensure that any OPC client application can use the data directly without conversion.

By measuring and transmitting diagnostic parameters, the IWIC can verify the integrity of the client data link and the downhole signal path. It can also validate the digital electronics and card-to-client communication channels, as well as its own capacity to power the downhole gauge, by performing cable current and voltage measurements.

#### OPERATION

An onboard clock time-stamps data at the card. In the event of an unexpected interruption in power, no data are lost as a result of an incorrect time reference. In addition, the card outputs time-stamped data in engineering units directly to the client master control system via the Modbus® protocol. This feature further reduces possible sources of data error by minimizing software interfaces. It also results in more reliable data at the delivery point.

WellWatcher WellNet gauges output engineering values, so the IWIC and client system have no calibration coefficients to store; thus, no conversions are required, eliminating the possibility of data errors caused by mistakes in coefficient entry.

#### REDUNDANCY

Two cards can be used in parallel for redundancy. The secondary card can take over immediately if necessary to ensure that valuable well data is always available.

#### COMPLIANT BUT FLEXIBLE

The IWIC complies with stringent mechanical, electrical, communications, and testing standards. At the same time, it allows firmware to be upgraded remotely, meaning that even after deployment and commissioning, changes to the card's operation can be made with ease. Future enhancements and optimizations will require only a quick upload of the latest firmware via the same communication port used for gathering the well data.

#### EXPERIENCE

Schlumberger has installed more than 7,000 permanent downhole pressure and temperature gauges over the past 20 years and has established numerous engineering and performance benchmarks for downhole monitoring. Continual performance improvement has given Schlumberger one of the most reliable track records in the industry for these types of gauges.



*The IWIC provides the client network with ready-to-use engineering values.*

# IWIC WellNet Interface Card

## Specifications

### Gauge interface

|                                   |   |
|-----------------------------------|---|
| Number of channels                | 1   |
| Max. number of nodes <sup>†</sup> | 64  |
| Tools supported                   | All WellWatcher WellNet tools, including 2 WellWatcher Quartz* gauges, 6 WellWatcher Quartz gauges, WellWatcher Flux* digital sensor array system (64 sensors), WellWatcher WellNet redundancy sub, and TRFC-E tubing-retrievable electric flow control valve |
| Max. nominal output voltage       | 175 V DC  |
| Max. output current/power         | 200 mA/35 W   |
| Cable voltage status              | Short-circuit and open-line detection   |

### Communication with client infrastructure

|                      |  |
|----------------------|--|
| Transmission channel | RS-422 four-wire isolated (ISO 13628-6 standard)             |
| Protocol             | Point-to-point protocol/IP V4/TCP; Modbus/TCP                |
| Baud rate            | 4,800, 9,600, 19,200, 38,400, 57,600 bps (user configurable) |

### Mechanical

|                       |   |
|-----------------------|---|
| Dimensions/format, mm | 100 × 160 (dual slot/Eurocard)          |
| Connector/pin out     | 96-pin DIN 41612 (ISO 13628-6 standard) |

### Power

|                        |                             |
|------------------------|-----------------------------|
| DC input voltage level | 20–28 V DC                  |
| Max. power consumption | 24 W (ISO 13628-6 standard) |

### Environmental

|                                    |                        |
|------------------------------------|------------------------|
| Operating temperature, degC [degF] | –20 to 70 [–4 to 158]  |
| Storage temperature, degC [degF]   | –40 to 70 [–40 to 158] |
| Environmental qualification        | ISO 13628-6 standard   |

<sup>†</sup> Use of an electric flow control valve requires the addition of a WellWatcher WellNet station high-power supply module.



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