C37.94 Optical Data Interface Unit

The Avara C37.94 Optical Data Interface Unit provides IEEE C37.94 compliant interfaces for the DynaFlex Multiservice Access platform. It can be used to interface to distance based and current differential protection relays. The card is designed for use with the Avara DynaFlex platform as well as with the Nokia Dynanet Multiplexer.

In order to deliver a secure and uninterrupted supply of electricity, power authorities world-wide generally use a tele-protection scheme to enable protection relays to communicate with one another to selectively isolate faults on HV lines, transformers, reactors and other important items of the electrical plant.

In deploying such schemes, the reliability of the communications link interconnecting the protection relays is critical and must be resilient to the effects encountered in high voltage areas such as high frequency induction and ground potential rise.

In many cases, the critical link between the protection relay and the communications multiplexer has been implemented using third party media converters which converts electrical signals to optical and back again and are generally unmanaged, making these solutions less reliable and fault diagnosis difficult.

The IEEE C37.94 standard defines a programmable Nx64 Kbps (N = 1…12) multi mode optical fibre interface between tele-protection and digital multiplexer equipment, for distances of up to 2km.

The Avara C37.94 optical interface card addresses these issues by providing a fully integrated plug-in card for the Dynanet PDH Multiplexer: Allowing protection relays with C37.94 compliant interfaces to be directly connected to the unit and be managed under the same system. Hence, the status of the multiplexer, the interface card and the optical line can be constantly monitored.

The C37.94 interface card has 4 independent IEEE C37.94 compliant interfaces. Up to 12 time slots are assignable per interface. The unit connects to 50 or 62.5 Micron fibre via an industry standard ST receptacle.

The C37.94 interface card fits in to Dynanet and Avara's M4 mechanics and communicates to the management system and Network transmission elements via the backplane.

The C37.94 interface card also meets all required standards to comply with environmental requirements to meet the global market.

Additionally, the interface card has also been designed and built to be in line with the IEC61850 recommendations with respect to susceptibility requirements for operating in an electrical sub-station environment:

- Electrostatic discharge
- Fast transients
- Radiated emissions
- Surge
- Dielectric strength

The C37.94 interface card supports the Q1 protocol.

Technical Highlights

- Compliant with IEEE C37.94 fibre standard
- Slim form factor
- 4x IEEE C37.94 Channels, ST connector (50 or 62.5 um MM)
- DB2 & DM2+ Compatibility
- Programmable Timeslot allocation
- Q1 Managed through DB2 or DM2+
- Sub-Rack mount and powered
- -20 to -72 VDC Power Supply
- -20 °C to +65 °C operation

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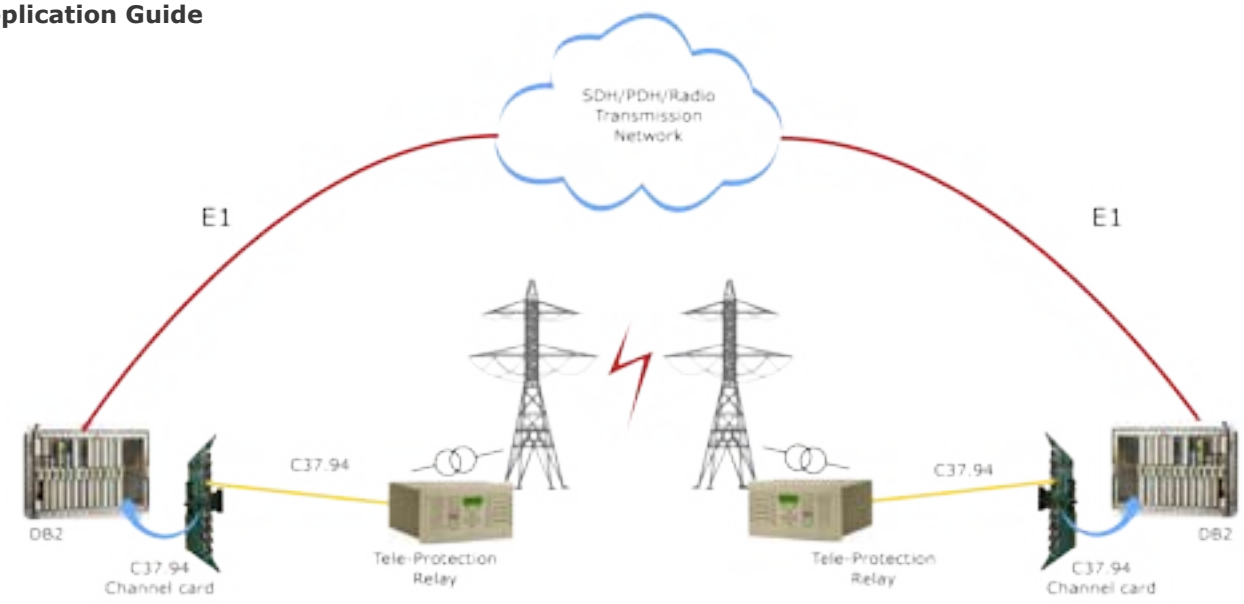
Technical Specifications

Model Order Code	P61034.01
Mechanical	
Height	233mm
Depth	160mm
Width	25mm
Optical Interface	
Number of Interfaces	4
Interface Type	Multimode Fibre (62.5um / 125um)
Standard	IEEE C37.94
Connector Type	ST
Wavelength	820 ± 40nm
Clock Timing	2048 ± 100ppm
Intrinsic Jitter	± 0.1 UI
Jitter Tolerance	± 0.2 UI
Data Rate	Nx64kbps (N=1..12)
Range	> 2km
Optical Power Budget	8db Minimum, 15db Typical
Management	
Local	LI (RS232)
Remote	DCNA, Service Terminal, MSTE via Q1 Protocol

Power	
Power Supply	-20 to -72 VDC
Power Consumption	7w
Environmental	
Operating Temperature	-20 °C to +65 °C
Relative Humidity	5-90% (Non-condensing)
Alarm Contacts	Capable of Driving A&B Sub Rack Alarms via the multiplexer unit
MTBF	65 Years
Standards	EN55022 Class A Emissions EN60950 Safety 41003 Laser Safety AS/ACIF S016 EN55024 Immunity EN50082-2 Generic Immunity EN60825-1 Class 1 IEEE C37.94 ETS 300 019 -1-1 Operational ETS 300 019 -1-2 Storage ETS 300 019 -1-3 Transport IEC 61850

Application Guide



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