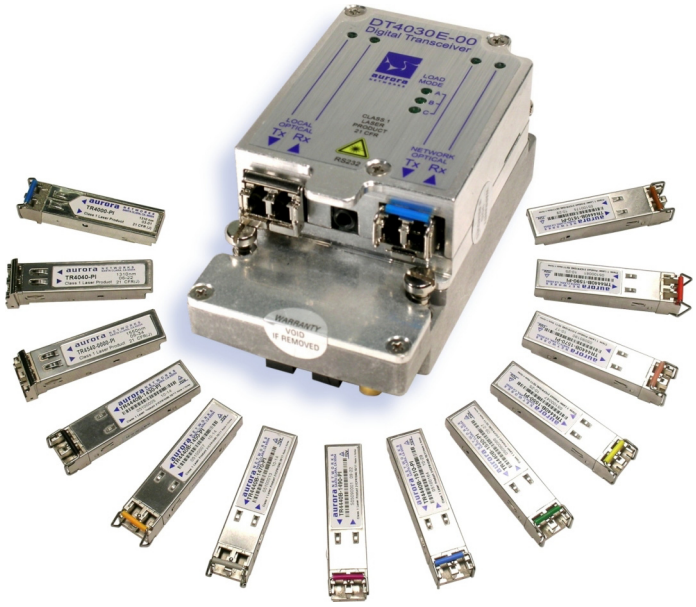
Universal Digital Transceiver (5–50 MHz)

Features

- Digitizes 5–50 MHz legacy RF return
- Highly flexible, easily configurable support for transmission at 1310nm, 1550nm, or 1 of 15 CWDM wavelengths
- Concatenated or point-to-point applications
- Remote status monitoring and management
- Hot plug in/out
- Available for both single and dual redundant rings with self-healing capabilities
- Fast Ethernet to single mode optical converter implemented with optional SFP transceivers
- Supports installation of two SFP transceiver modules (for Local and Network optical ports)
- Compliant with IEEE 802.1P, 802.1Q, 802.3u, VLAN, ToS



DT4030E with an array of some available SFP options (for transmission at 1310nm, 1550nm, or CWDM wavelength)

Aurora Networks' DT4030E Digital Transceiver is a component of Aurora's Integrated Digital Transport System that combines two major functions into one compact package: digitization of legacy 5–50 MHz RF return path signals and an Ethernet Access Device. The DT4030E transceiver digitizes the legacy RF return path and multiplexes native Ethernet traffic from the optical receiver port of a plug-in (SFP) transceiver module into the return transport system. By providing virtual pipes for Fast Ethernet services and legacy RF return on a single fiber, the DT4030E Digital Transceiver alleviates fiber exhaustion, greatly simplifies the network and provides distinct time-to-market advantages in turning up new revenue bearing services, including voice, video and data services.

The DT4030E transceiver supports both point-to-point and concatenated applications. For concatenated applications, multiple DT4030Es can be designed into a daisy-chained configuration. The module's optical transmit/receive ports are implemented with optional plug-in transceivers for ultimate flexibility and affordability. Conforming to the Small Form Factor Pluggable (SFP) Multisource Agreement, these state-of-the art transceivers are available in a variety of transmit/receive wavelengths, including dedicated 1310nm (for 10 and 40 km links), 1550nm (for links up to 40 km), and CWDM ITU grid (for links up to 40 km), all operating at data rates of 2.125 Gbps. Longer spans are supported by using Aurora's DX4515 Digital Transponder.

The DT4030E is designed as a plug-in module for Aurora Networks' NC4000 series Optical Nodes. Aurora Networks supplies DT4030E transceivers either with the NC4000 as a fully configured and tested node or as modules for existing customers of the NC4000 desiring to implement digital return and/or upgrade to Ethernet transport capability.

DT4030E Product Specifications

Physical:

- Dimensions: 4.0" L x 1.8" H x 2.3" W
  (10.2 cm x 4.6 cm x 5.8 cm)
- Weight: 0.8 lbs (0.4 kg)

Environmental:

- Operating temperature range: –40º to +85ºC (–40º to 185ºF)
- Storage temperature range: –40º to +85ºC (–40º to 185ºF)
- Humidity: 5% to 95% non–condensing

Power Requirements:

- Input voltage:
  3.3 V_{DC}: 875 mA max with 1 SFP installed
  1100 mA max with 2 SFPs installed
  5 V_{DC}: 360 mA max
- Power consumption: 4.7 W max with 1 SFP installed
  5.4 W max with 2 SFPs installed

General:

- Hot plug–in/out
- Optical interface connectors: LC Duplex on SFPs
- Optical transmission bit rate: 2.125 Gb/s
- Modes of operation:

  A Standard 12-bit chain with input payload added from Network Rx port of SFP; Local Rx port of SFP activated for interface to other Aurora equipment (e.g., OE1110 or DS loop)

  B Start (head) module of a 12-bit chain of DTs - strips any input payload from the Network Rx port

  C Accepts two synchronized 12-bit chains at the Network and Local Rx ports of the SFPs; adds local RF to payload at Local port and sends in Channel A (10-bit format); payload at Network port re-sends in Channel B (10-bit format). (Requires a "2-fer" dual digital receiver at receiving hub/headend.)

  NOTE

  Transceivers are shipped from the factory in operational mode "A."

RF Path and Distortions:

- Pass band: 5–50 MHz

  NOTE

  The DT4030E is a 5–50 MHz passband device. In systems operating with a lower cutoff frequency for the return spectrum, the actual passband is determined and controlled through the use of Diplexers and Low Pass Filters that precede the transceiver.

- Frequency response: ± 0.5 dB
- Input return loss, min: 16 dB
- Level stability: ± 0.5 dB
- System minimum full gain: 28 dB
- Loading, nominal: 5–40 MHz (QPSK carriers or equivalent Gaussian noise)
- Input, nominal: –60 dBmV/Hz
- Dynamic range:
  In Mode A or B, @ 47 dB CNR: 11 dB (single link)
  In Mode C, @ 40 dB CNR: 11 dB (single link)
- Peak NPR:
  In Mode A or B: 53 dB
  In Mode C: 48 dB

Optical:

The Local and Network optical port facilities of the DT4030E can be populated with a variety of SFP (plug-in) transceivers depending on the network application. Please refer to the appropriate data sheets for the selected transceivers for detailed specifications. Following is a summary of available transceiver options (model numbers and brief descriptions) for these ports.

2.125 Gbps SFP Transceiver Options

- TR4000-PI (transmit at 1310nm for links up to 10 km)
- TR4040-PI (transmit at 1310nm for links up to 40 km)
- TR4540-0000-PI (transmit at 1550nm for links up to 40 km)
- TR4440B-*xxxx*-PI (transmit at CWDM wavelength of *xxxx* = 1270, 1290, . . ., 1350 or 1430, 1450, 1470, . . ., 1610 nm for links up to 40 km)

LED Indicators:

For SFP optical ports (2 LEDs per SFP):

- TX: Green ON = OK; OFF = bad SFP or unit not powered
- RX: Green ON = signal good; OFF = LOS asserted; Blinking = high BER (excessive bit error rate)

For mode of operation (A, B, or C): 3 LEDs (green LED illuminated to indicate current mode)

Ordering Information

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Digital Transceiver, Universal, 5–50 MHz RF Input Bandpass

Transceiver Plug-in Modules

SFP modules must be ordered separately. Please refer to the above list of available transceivers and appropriate data sheets for specific complete model numbers and ordering information.

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