CYGNUS 891
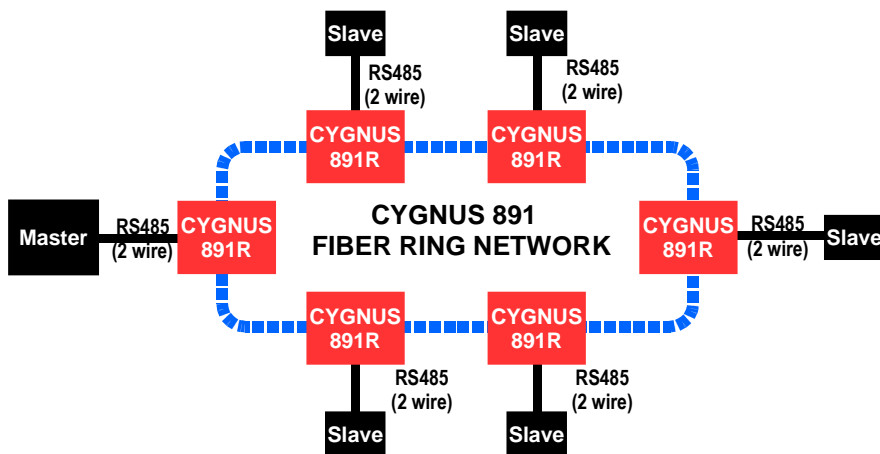
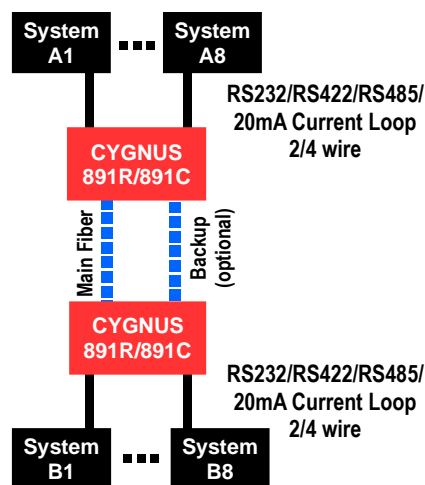## Async Data Communication over Fiber Ring

FEATURES

- Allows a number of Async user devices to communicate with each other over an optical fiber ring.
- Available in two models. 891R offers 1 or 2 user ports. 891C offers 4 or 8 user ports
- Supports point to point and multipoint networking between user devices
- Each unit has 2-way fiber connectivity to other nodes and acts as a node in interconnected ring or linear topology.
- A CYGNUS 891 based fiber ring can have up to 32 nodes in case of multipoint half-duplex communication, and 9 nodes in case of point to point full-duplex communication between user devices
- Offers ring protection, i.e., handles failure of one segment of the ring through redundancy in data transmission.
- Carves out multiple (up to 8) user channels (called Virtual circuits, VCs) on the fiber, to allow as many independent high and medium speed user channels to operate simultaneously
- Each VC can support either:
    - Point-to-point full-duplex connectivity between any two user ports on 891 units in the ring, OR
    - Multipoint half-duplex connectivity network between a number of user ports which share the same virtual circuit. Each such multidrop network can have its own master and slave devices distributed over the fiber ring.

- For use in point to point applications 891R may be ordered with RS232, RS422 or 20 mA current Loop user interface, while 891C may be ordered with RS232 or RS422 interface. For multipoint half duplex applications both 891R and 891C may be ordered with 2-wire RS485 interface.
- The 891R model can optionally be supplied with a ethernet-to-serial terminal server module. Using this module, a remote host can send serial data encapsulated in ethernet packets over TCP/IP or UDP/IP protocol and thereby participate in point to point or multipoint connections over the fiber ring.
- A pair of 891R or 891C units interconnected with fiber can act as a pair of Multiplexers and be used for transporting data from multiple ports (RS232, RS422 or RS485) over the fiber. If the two units have different user interfaces, interface conversion is also simultaneously accomplished. A multiplexer type setup can also be used for interconnecting 2-wire multipoint RS485 network segments.
- A unit designated as Ring Master continuously polls other units to monitor the health of the Ring. The health report can be seen using a RS232 terminal console connected to the Master 891R unit.
- Option of 1500 VAC isolation protection is available for RS232, RS422, RS485 and current loop interfaces. This helps in protecting the unit from damage that could be caused by faults in the user equipment.
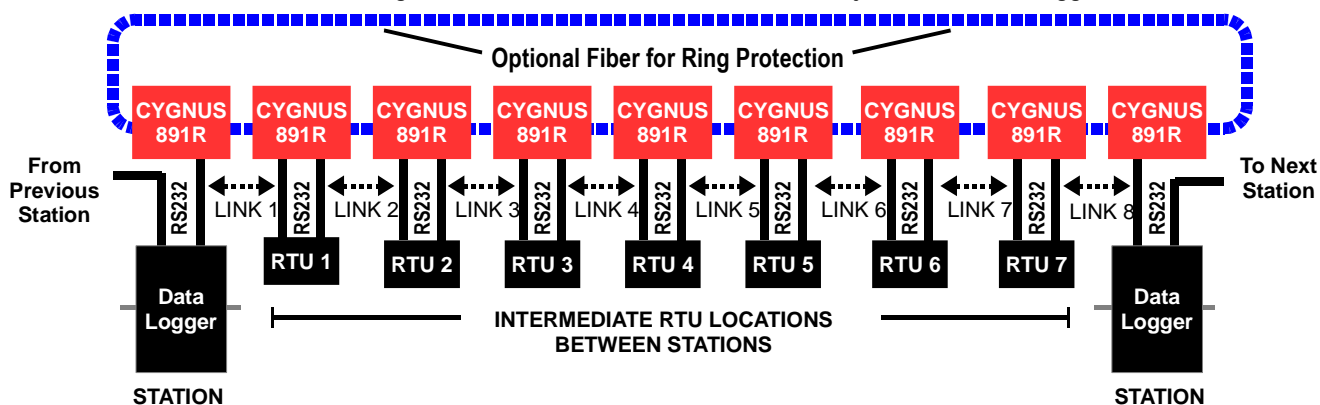
APPLICATIONS

Multidrop RS485 network with one Master and up to 31 Slave units
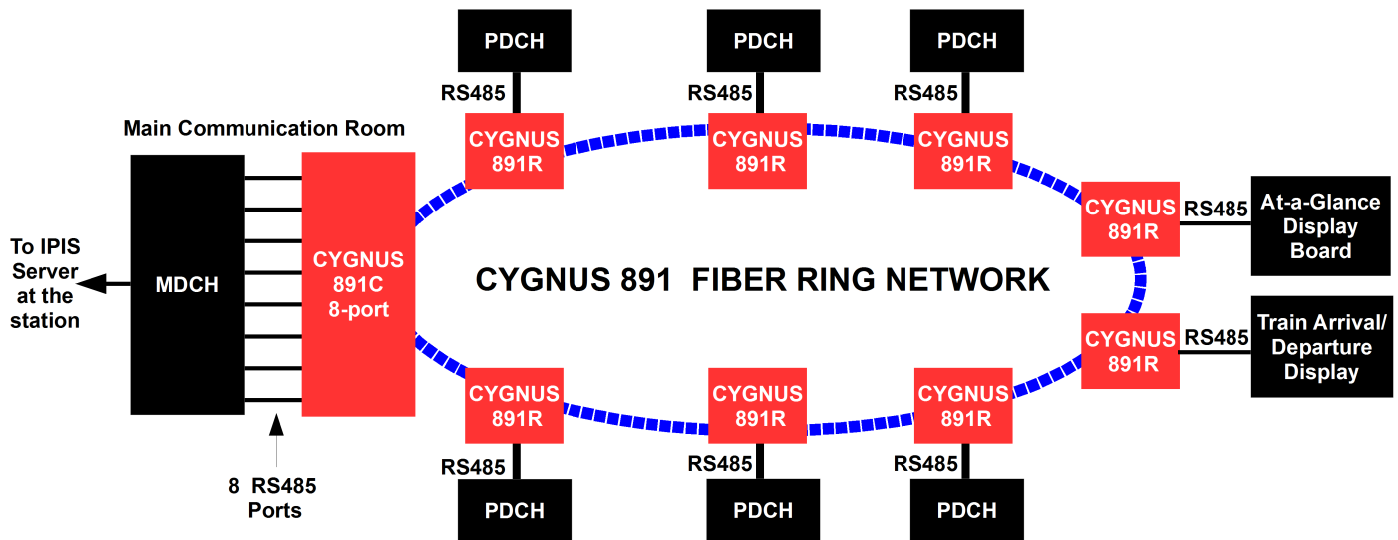

Multiplexing upto 8 user ports over fiber with optional interface conversion

Data Logger/RTU connectivity: A Fiber Optic Ring made by interconnecting up to 9 CYGNUS 891R Nodes allows logical Point-to-Point connections between adjacent RTU/Data Loggers

Integrated Passenger Information Systems (IPIS): Connectivity between MDCH and multiple PDCH units over Fiber Ring reduces the cable clutter and provides virtual point to point links

SPECIFICATIONS

FIBER OPTIC INTERFACE

Fiber type:	Single Mode or Multi Mode (Ordering time option)
No. of fiber channels:	Two (for ring or linear network formation) OR One (to use in a pair as a user port mutiplexer)
Range:	10 km on single mode fiber; 2 km on multimode fiber
Connector (per Fiber channel):	Duplex SC (dual fiber) / Bi-directional SC (single fiber)
Wavelength:	• Duplex operation: 1310nm • Bi-directional operation:Tx:1310/Rx:1550 nm, or Tx:1550/Rx:1310 nm

USER PORTS

Number of ports on a unit:	891R model: 1 or 2 (ordering time option) 891C model: 4 or 8 (ordering time option)
Port speed:	600 bps to 115200 bps; DIP switch selectable (restrictions apply for some VC's max. allowable speed)
User port data handling:	Half-duplex (one way at a time) or full-duplex (both ways at a time)
User port Interface options:	891R: RS232, 4-wire RS422, 2-wire RS485; 20mA current loop, ethernet with TCP/UDP/IP protocol encapsulation of serial data 891C: RS232, 4-wire RS422, 2-wire RS485
Bits per character:	9,10,11,12 (Switch selectable)
Connector options:	RJ45 (891R and 891C) 9 pin D-sub female (891C)
No. of independent user comm. channels (Virtual Circuits or VCs) on fiber network	Eight
User port communication facility (Per VC)	Point to Point: Provides full-duplex communication between user devices connected to two nodes using one VC. Multipoint: User ports across multiple nodes share a common VC which allows half-duplex communication. At any given time one user device (connected to a user port on any node) can send data to all other user devices connected to different nodes that share the same VC. This permits master-slave operation of user devices over the VC.

OPTICAL FIBER NETWORK

Topology:	Closed Ring OR Linear interconnected
Protection against failure:	Full protection against failure of single fiber link between any two nodes in case of Closed Ring topology.
Number of nodes:	Up to 32 (with one or more VCs operating in multipoint half duplex mode) and up to 9 (with all VCs operating in point-to-point full duplex mode)

NETWORK MANAGEMENT

Internal Management:	Console port with isolated RS232 interface is provided on all 891R nodes. A node designated as Ring Master collects status information from other nodes periodically on a dedicated multidrop management channel, and allows user to view this information via a terminal connected to its console port.
External Management (891R only):	An external Ring Master (e.g. PC) can connect to the console port of a 891R node acting as a gateway, and access status of all nodes using built-in Multidrop protocol. External management can also be done from a TCP/UDP/IP host.

CONSOLE PORT

Compatibility:	ITU-T V.24/ RS 232
Format:	Async; 8 data bits, 1 stop bit, no parity, 9600 bps
Connector:	RJ45 socket

INDICATORS

Power status, Alarm, Default parameter status, Fiber Link Up/Down status

GENERAL

Power input:	230 VAC / 48 VDC / 24 VDC (ordering time option)
Operating temp:	0- 45° C
Component type:	Commercial grade (Industrial grade planned)
Humidity:	0-85% RH, non condensing

ORDERING OPTIONS

891R: No of user ports (1 or 2 for user port interfaces RS232, RS422 and RS485, with or without isolation, 1 for Current Loop, Ethernet Module); No. of Fiber Ports: 1 or 2; Fiber port type

891C: No of user ports (4 or 8, with or without Isolation; No of Fiber ports: 1 or 2; Fiber Port type

(Note: Features and specifications are subject to change without notice)   Ref: 221122