Axle CounterLinker Series

CYGNUS 835

V.21/V.23-to-E1 Converter

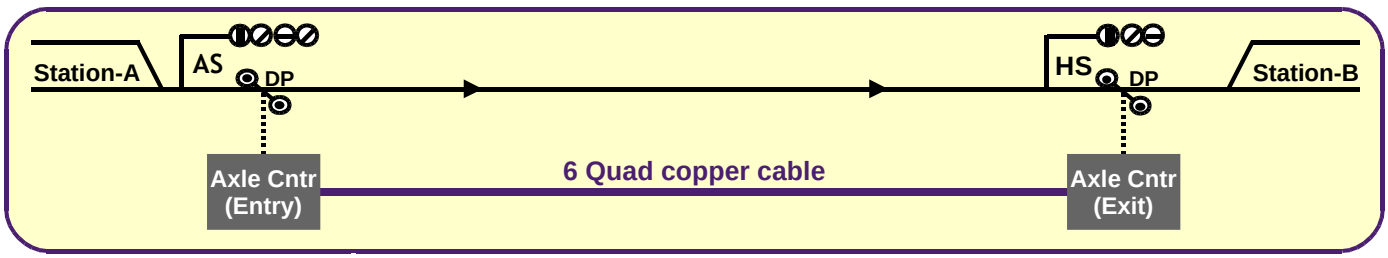
CYGNUS 835 is ideal for use in Digital Axle Counter interconnection applications in Railway signalling. It allows Digital Axle Counters with ITU-T V.21 or V.23 compatible communication interface to connect to an E1 channel. Its built-in Copper Bypass facility with automatic changeover provides enhanced reliability for critical applications by automatically diverting V.21/V.23 traffic to a standby 6-Quad Copper Circuit in case the E1 link fails or degrades or if the CYGNUS 835 units gets powered off for some reason. Extensive facilities for reporting alarm events aid in prompt addressing of faults, and further enhance the product's suitability for critical applications. CYGNUS 835 can operate from DC power sources of 48 VDC or 24 VDC.

FEATURES

- **CYGNUS 835** converts ITU-T V.21/V.23 signals to E1 format, for transport on a 2.048 Mbps E1 stream via an ITU-T G.703 compatible interface.
- User interface is compatible with ITU-T V.21/V.23 and allows transport of full-duplex voice band analog modem signals over a 2-wire interface. Compatible with all standard Digital Axle Counters used by Indian Railways.
- **Automatic Changeover to 6-Quad bypass copper circuit:** if (a) the E1 link fails (b) E1 link degrades, or (c) if the CYGNUS 835 unit is powered off for some reason.
- **Bypass link checking:** The bypass 6-Quad Copper circuit is continuously checked even when the E1 link is being used
- Programmable threshold error rate for E1 link, with automatic change over to bypass link if threshold is exceeded.
- **Event logs:** Time stamped record of events such as Unit Power On/Off, E1 Link Up/ Down, Bypass Link Up/Down, E1 Line Error Rate threshold exceeded accessible via Supervisory Port.
- **Potential Free Alarm Relay Contacts** to indicate Alarms such as Unit Power Down, E1 Link Down, E1 Error Rate Threshold exceeded, Bypass Link Down. May be connected to Data Logger network for centralised monitoring of alarms.
- **SMS Alert:** Facility to send SMS messages to specified phone numbers on specific alarms.
  [*Note:* Requires a compatible, external GSM modem with SMS facility (not included with the unit). Contact Cygnus for a list of compatible GSM modems].
- Indicators are provided for unit status display.
- Can operate from either 24 VDC or 48 VDC power supply.
- Uses industrial temperature grade components.
- 19 inch, 1 U height rack mount kit included.
- Each unit is supplied along with separate Line Protection Modules (LPMs) for V.21/V.23 Port and 6-Quad Copper Bypass Port. Usage of these LPMs reduces chances of damage due to surges.

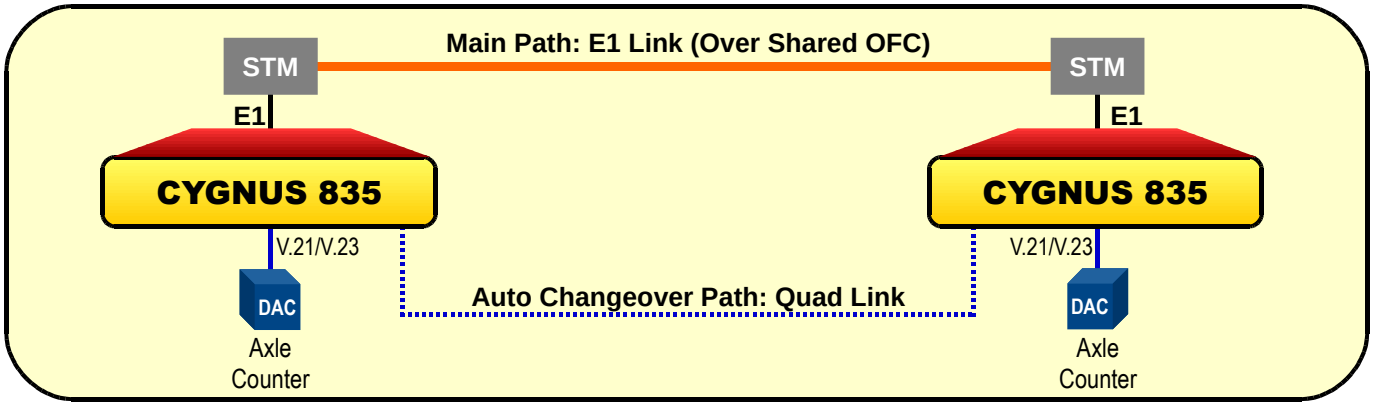
TRADITIONAL APPROACH FOR INTERCONNECTING DIGITAL AXLE COUNTERS

Vulnerable to errors caused by electromagnetic pick up. No backup medium is available



THE SMART, RELIABLE ALTERNATIVE – CYGNUS 835

CYGNUS 835 automatically switches the Digital Axle Counters to the existing 6-Quad channel if the E1 link fails or if the unit is powered off



SPECIFICATIONS

E1 PORT

Interface type:	4-wire balanced 120 ohm interface conforming to G.703 E1
Connector:	RJ45 socket
Protection:	Surge voltage protection in shunt; Resettable current limiting fuses in series

USER PORT

Interface type:	2-wire analog voice band interface compatible with ITU-T V.21 and V.23 standards. 600 ohm characteristic impedance. Transformer coupled.
Connector:	2 Pin Terminal Block
Protection:	Surge voltage protection in shunt; Resettable current limiting fuses in series

COPPER BYPASS PORT

Interface type:	2-wire analog voice band interface compatible with ITU-T V.21 and V.23 standards. 600 ohm characteristic impedance. Transformer coupled.
Connector:	2 Pin Terminal Block
Protection:	Surge voltage protection in shunt; Resettable current limiting fuses in series

CHANGEOVER FUNCTIONALITY

V.21/V.23 port data is automatically switched to Copper Bypass Port if (1) E1 link goes down, or (2) E1 error rate exceeds a threshold, or (3) Unit gets powered off.

POTENTIAL FREE CONTACTS

Functionality: (Relay 1/Relay 2)	Power off, E1 link down, Bypass link down, E1 error rate exceeds threshold
Connector:	4 Pin Terminal Block
Protection:	Surge and Over Voltage Protection in shunt; Resettable Fuse in series
Maximum current allowed through contact:	50 mA
Maximum voltage that can be applied to contact:	48 VDC
Contact resistance on closure of alarm contact:	90-110 ohm

E1 LINK ERROR RATE MONITORING

Unit monitors E1 link error rate and logs an event if the error rate exceeds a programmed threshold level (or, having earlier exceeded the threshold, falls back below it). Threshold error rate level may be selected as 1 in 10^4 or 1 in 10^5 or 1 in 10^6. Front panel LED indicator 'E1 QLTY POOR' also shows E1 error rate status.

EVENT LOGS

The unit can record occurrence of specified critical events, and store the event and its time of occurrence in non volatile memory. These events may be viewed through a supervisory terminal connected to the console port of the unit.

Events which may be logged: Unit power On/Off, E1 link Up/Down, Bypass Link Up/Down, E1 line error rate exceeds threshold

SMS ALERTS

Occurrence of specified critical events can be reported via SMS, using an External GSM modem (the GSM modem is not included along with the CYGNUS 835 unit).

CLOCKING MODES

E1 Slave Clock:	Uses clock recovered from the E1 link for sending and receiving data on E1 Link and the DTE interface.
Internal Clock:	Uses an internal crystal controlled clock for sending and receiving data on the E1 link and the DTE interface.

LED INDICATORS

Unit related:	Power, Alarm, Default Parameter Status, Master
E1 related:	E1 Link Status, Error Status, Line Quality
Copper Bypass related:	Bypass Test, Bypass Mode
Power supply related:	DC i/p Polarity Reversed

GENERAL

Size:	312 mm (w) x 312 mm (d) x 44 mm (h)
Power input:	Possible to operate the unit from either 48 VDC or 24 VDC
Operating Temp. Range:	-10 to + 70 deg C (Industrial temperature grade components used)
Humidity:	0 – 85% RH, non condensing

ORDERING INFORMATION:

Ordering Code: CYGNUS 835

Standard accessories supplied with each unit:

1. DC Power Cable (3 core) – 3m length- bare wires at both ends
2. E1 Stub- RJ45-to-4way Terminal Block– 0.5 m length
3. Supervisory Cable – RJ45-to-DB9(F) – 1.5 m length
4. 19 inch 1U Rack mount clamps- 2 Nos.
5. Line Protection Modules – 2 Nos (for V.21/V.23 Port and Copper Bypass Port)
6. Users Manual

***Note**: In the interest of product improvement, specifications are subject to change without notice.*

CYGNUS 835 is ideal for Digital Axle Counter connectivity because it allows you to interconnect Digital Axle Counters via OFC circuits, and at the same time retain copper quads as a bypass circuit for use in case of failure or degradation of the E1 circuit. Its utility is further increased by the host of status reporting and alerting options provided for critical faults such as E1 link failure and unit power failure. Manufactured with industrial grade components, CYGNUS 835 is a rugged solution for providing Digital Axle Counter connectivity.

Ref: 221109

CYGNUS

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