NEXSYS

LYNK®

Integrated Signal Processor

Manufactured by

Applied Avionics

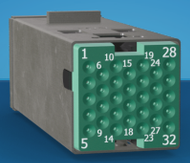
DCU120 Form Factors

The NEXSYS LYNK includes three DCU120 form factor designations, each optimized for different installation and integration requirements:

DCU120-S

Integrates human-machine interface capabilities with signal processing in a standard switch body. Ideal for cockpit control panels and operator interfaces that require visual feedback through illuminated legends. Integrated momentary switch supports both momentary and alternate-action behavior through software configuration.

DCU120-M1



Maximum flexibility in a compact module compatible with standard avionics racking systems. Rail mounting, bracket mounting, or in-line harness installation options adapt to a wide range of equipment bay layouts. Well suited for behind-panel installations where space is limited.

DCU120-B

Maximum input and output capacity in a rugged aluminum enclosure designed for fixed mounting. 62-pin D-sub connector simplifies harness design for high density interface configurations. Ideal for centralized signal processing where numerous I/O interfaces are required.

Form Factor I/O Summary

The primary difference between the form factors is the number of I/O required and the desire for an integrated illuminated cap with optional pushbutton Human Machine Interface (HMI).

Overview

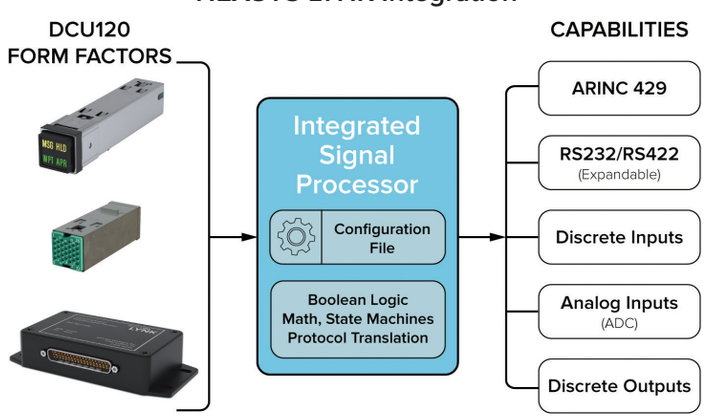
Part of the NEXSYS® Product Line, the LYNK® Integrated Signal Processor (ISP) is a compact and rugged interface solution designed for data communication and control logic in aerospace and defense applications. Unlike traditional avionics interface units, the ISP uses a factory configured model that is customized during manufacturing to meet specific application requirements. Each device is certified to DO-178C DAL A under FAA TSO-C113b and qualified to RTCA DO-160G environmental standards.[1][2]

Available in three DCU120 form factor designations, the ISP is engineered for flexible integration across a wide range of platforms:

- DCU120-S: Panel mounted ISP integrated into illuminated cockpit switches and indicators
- DCU120-M1: Track (e.g., Rail) mounted ISP Avionics Module for avionics bays with alternate Bracket mounting available
- DCU120-B: Standalone ISP Avionics Enclosure (e.g., Box) for high-capacity interface requirements

All DCU120 variations are capable of ARINC 429, RS232, Analog inputs (ADC), and Discrete Input/Output (I/O) operations. For extended capability, the architecture can include RS422 using the NEXSYS RS232/RS422 Transceiver (XCVR) Module. This modular design also enables seamless integration with the full NEXSYS Product Line, providing a platform to engineer interface solutions for both modern and legacy aircraft systems.[3]

NEXSYS LYNK Integration



System Architecture and Capabilities

The NEXSYS LYNK operates on a nominal 28 VDC aircraft power supply and accepts input voltages from 18 to 33 VDC, with built-in protection against power dropouts lasting up to 200 milliseconds. This wide operating range and strong transient immunity ensure reliable performance in demanding aircraft electrical environments. Power consumption is exceptionally low at just 50 milliamps maximum, reducing system load and heat generation.

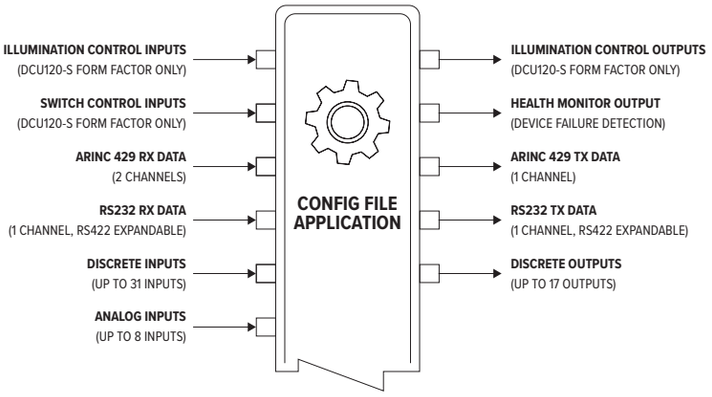
Each signal processor uses a Configuration File (CF) that is programmed to implement logic operations and ranging from simple to complex functionality. The CF is developed through close collaboration between the design engineer and AAI's Avionics Systems Engineering team. This approach enables tailored solutions that support complex signal mapping, event driven control, state machine logic, signal conditioning, and voltage threshold detection. All of this is accomplished while preserving the core hardware and software architecture. This saves time, reduces risk, and avoids requalification or redevelopment of the baseline hardware or software.

Input/Output Architecture

The NEXSYS LYNK is engineered with a full range of input and output capabilities aligned to modern avionics integration requirements. The DCU120 form factors support up to 31 discrete inputs and 17 discrete outputs, depending on the selected version. Each discrete input can be specified with debounce filtering to eliminate false triggers caused by electrical noise or mechanical switch bounce. Input to output timing can also be controlled through software, supporting advanced sequencing or timing dependencies between signals.[4][5]

Eight analog input channels accept signals from -11 to +32 volts DC, allowing flexible integration with a wide range of sensors and signal levels. These analog inputs can also be configured as additional discrete inputs using software defined voltage threshold levels, enabling greater configuration flexibility without hardware changes.[6]

[1] Reference Environmental and Electrical Qualification Levels summary on page 5
[2] Reference AAI-DCU120-DOC-INST for DAL A and FAA TSO details
[3] Reference AAI-DCU120-DOC-INST for dimensions, weight, mounting options, and installation instructions
[4] Table 1.1: Discrete Input Specifications
[5] Table 1.2: Discrete Output Specifications
[6] Table 1.3: Analog Input Specifications



Discrete outputs are designed for direct interface with aircraft systems, with each channel capable of sinking up to 250 milliamps. Selected outputs support 500 milliamp loads for higher current devices. All outputs include protection circuitry to guard against load transients and wiring faults.

Data Protocol Translation

The NEXSYS LYNK features integrated protocol translation capabilities to reduce the complexity typically associated with multi-protocol avionics systems. For ARINC 429 communication, the ISP includes two receive channels and one transmit channel, each independently configurable for high speed at 100 kbps or low speed at 12.5 kbps. Each channel can process up to one hundred unique ARINC 429 labels, with full support for Source and Destination Identifier (SDI) bits, Sign and Status Matrix (SSM) bits, and parity checking. The Avionics Systems Engineering team can also evaluate applications that require support for more than one hundred labels per ARINC 429 channel. AAI-DCU120-DOC-INST, Appendix C or each DCU120 form factor.[7]

In addition to ARINC 429, the NEXSYS LYNK includes a dedicated RS232 interface for serial communication with avionics systems or aircraft subsystems. RS422 communication is supported through the optional NEXSYS RS232/RS422 XCVR Module, which enables differential signaling in electrically noisy environments or over longer cable runs. This modular capability allows the LYNK to serve as a bridge between legacy and modern data buses across a wide range of applications.[8][9]

[7] Table 1.4: ARINC 429 Specifications
[8] Table 1.5: UART (RS-232) specifications
[9] Table 3.1 RS232/RS422 Transceiver Module Specifications

Configuration and Customization

The NEXSYS LYNK simplifies integration through its Configuration Data Set (CDS) approach. Instead of requiring design engineers to develop and debug custom software, AAI's engineering team creates a Configuration File (CF) tailored to the specific application. This factory configuration process is typically completed in weeks, compared to months or years for traditional development cycles.

Each Configuration Data Set is thoroughly validated using proprietary simulation tools prior to factory programming. This early verification ensures that every signal processor performs exactly as specified, eliminating the iterative debug cycles common with field-programmable devices.

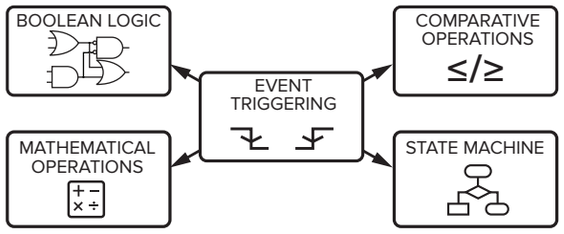
The configuration process begins with a detailed requirements review conducted by the Avionics Systems Engineering team. These subject matter experts work directly with design engineering teams to capture all signal routing, protocol translation, logic operations, and timing requirements. The resulting configuration documentation serves as both the manufacturing specification and the certification data package.

Signal Processing Capabilities

Beyond basic signal routing, the NEXSYS LYNK executes advanced data processing functions that would otherwise require custom software development. Boolean logic supports complex decision trees based on multiple input conditions. Dynamic comparison operations such as less than, greater than, and equals allow threshold detection and range checking. Integrated timer functions support delays, pulse generation, and time-based sequencing.

Mathematical functions also go beyond simple arithmetic to include scaling, offset correction, and unit conversion. These capabilities are essential when interfacing with sensors that produce different output ranges or when adapting legacy signals to meet modern avionics standards. State machine functionality enables sequential logic and modal behavior without the need for external programming.

The ISP uses an event driven architecture that triggers outputs based on input state changes, timer events, or incoming data. This architecture reduces processing latency and ensures deterministic response times that are essential for safety critical systems. All processing is performed within the certified software framework, maintaining full compliance with DO 178C DAL A.



Form Factor Feature Comparison

	VIVISUN Switch/Indicator (DCU120-S)	NEXSYS Module (DCU120-M1)	NEXSYS Box (DCU120-B)
Application specific configuration file	✓	✓	✓
ARINC 429 RX/TX	✓	✓	✓
RS-232 RX/TX	✓	✓	✓
Inputs	Up to 16 (incl. 8 analog)	Up to 16 (incl. 8 analog)	31 (incl. 8 analog)
Outputs	Up to 9	Up to 9	17
Health output	✓	✓	✓
Internal illuminated cap connections	✓	n/a	n/a
Pushbutton HMI	✓	n/a	n/a
Pinout max	32 (Solderless conn. plug)	32 (Solderless conn. plug)	62 (D-sub)
Weight	50 g (0.11 lb)	35 g (0.08 lb)	270 g (0.60 lb)
Dimensions	0.75" x 0.75" x 3.54"	0.85" x 0.795" x 2.24"	1.16" x 2.70" x 5.76"

Application Flexibility

Aircraft Environmental Monitoring Systems

The NEXSYS LYNK excels in aircraft environmental monitoring applications, including multi zone smoke and fire detection systems. By consolidating sensor inputs and translating between ARINC 429 and RS422 protocols, a single ISP can replace multiple Line Replaceable Units (LRUs) while adding intelligent processing capabilities. Configurable alarm logic, voting schemes, and fault isolation improve system reliability beyond basic signal aggregation.

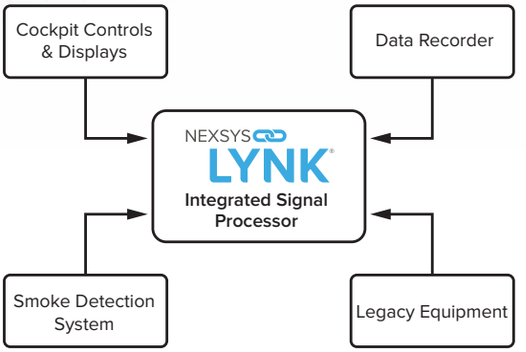
Cockpit Control Panel Integration

Modern cockpit upgrades often require interfacing new displays and controls with existing avionics. The DCU120-S switch form factor (DCU120-S) combines human-machine interface functionality with protocol translation, enabling single-unit solutions for panel modernization. Illuminated legends provide clear status indication while the integrated processor handles all signal conversion and routing tasks.[10][11][12]

Legacy System Integration

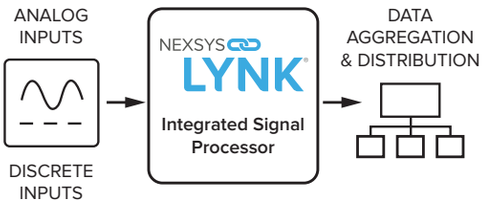
Aircraft modification programs frequently encounter incompatible protocols between old and new equipment. The NEXSYS LYNK bridges these gaps without custom interface development, translating between ARINC 429 labels and serial data streams seamlessly. This capability proves invaluable for extending the service life of proven avionics while adding modern capabilities.

[10] Table 2.1: LED Indicator Cap Control Specifications
[11] Table 2.2: Internal Momentary Switch Specifications
[12] Figure 1: LED Indicator Cap Display Segments



Data Aggregation and Distribution

Modern aircraft systems rely on large volumes of sensor data requiring consolidation and distribution to multiple subsystems. The NEXSYS LYNK aggregates analog and discrete inputs, processes the data according to configured formats, and outputs formatted messages on appropriate buses. This approach simplifies system architecture design while reducing wiring weight and complexity.



Environmental Qualification and Reliability

The NEXSYS LYNK is qualified for installation in all aircraft zones, including unpressurized and externally mounted locations. Each unit is tested to the applicable sections of RTCA DO 160G to verify compliance with industry standards for environmental, electromagnetic, and mechanical performance.[13]

Comprehensive Environmental Testing

Comprehensive Environmental Testing
Temperature testing from -40°C to +85°C Altitudes from -15,000 to +55,000 ft

Vibration and Shock
Vibration levels up to LS 55 g
Shock up to LS 75 g

Electromagnetic Compatibility
Radiated susceptibility up to 200 V/m (RF immunity)
Lightning transient protection, per DO-160, Section 22

Reliability and Maintainability
100,000 hours MTBF

The NEXSYS LYNK undergoes extensive environmental qualification to RTCA/DO-160G standards, ensuring reliable operation in the harsh conditions encountered throughout the flight envelope. Temperature testing spans from -40°C to +85°C at altitudes from -15,000 to +55,000 feet, exceeding the requirements for transport category aircraft.

Vibration testing applies 15G acceleration from 10 to 2,000 Hz, validating structural integrity and connection reliability. Shock testing includes 20G sawtooth operational shocks and 75G half-sine crash safety pulses validating continued operation through severe turbulence and survivability in emergency landing conditions.

Humidity exposure of 240 hours at elevated temperature and humidity levels proves resistance to moisture ingress and corrosion. Salt fog testing extends to 96 hours, validating performance in maritime environments. Waterproofness testing at 450 liters per hour simulates heavy rain conditions during ground operations.

Electromagnetic Compatibility

Electromagnetic compatibility testing ensures the NEXSYS LYNK neither generates harmful emissions nor suffers degradation from external electromagnetic fields. Radiated susceptibility testing to 200 volts per meter from 2 MHz to 18 GHz validates immunity to radar, communication, and navigation transmitters. Conducted susceptibility testing covers power line transients, audio frequency interference, and lightning-induced effects.

Lightning qualification includes Level 3 pin injection testing per waveforms 3, 4, and 5A, simulating both direct and indirect lightning exposure. Electrostatic discharge testing to ±15,000 volts confirms immunity to handling contact and precipitation static. These comprehensive EMC qualifications ensure safe and reliable operation in any aircraft environment.

Reliability and Maintainability

The NEXSYS LYNK is designed for a meantime between failure of 100,000 flight hours, achieving life-of-platform reliability through conservative component selection, electrical derating, and a ruggedized system design. The sealed enclosure requires no periodic maintenance, reducing life cycle costs while maximizing availability. Built-in health monitoring provides real time status feedback to support predictive maintenance and enable rapid fault isolation.[14]

[13] Reference Environmental and Electrical Qualification Levels summary on page 5
[14] Reference AAI-DCU120-DOC-INST for complete reliability and maintenance specifications

Comprehensive Accessory Ecosystem

Applied Avionics, Inc. (AAI) offers a complete range of accessories supporting efficient installation and integration of the entire product line. The NEXSYS RS232/RS422 XCVR Module expands serial communication capabilities for any NEXSYS LYNK configuration. Connector plug kits include all required contacts and tools for reliable field termination. Extraction tools allow for connector removal without damage, enabling maintenance and system reconfiguration.

Mounting rails, brackets and in-line harness options adapt NEXSYS modules to a variety of installation requirements, from surface mounting to equipment rack integration. Detailed installation drawings and templates ensure accurate placement during Original Equipment Manufacturer (OEM) installation or retrofit programs.

Part Description	P/N
Connector Plug (-S, -M1)	**28-602**
Connector Plug Extraction Tool (-S, -M1)	**18-234**
Crimp Sockets (-S, -M1)	**28-619**
Wire Inserter/Extractor Tool (-S, -M1)	**28-612**
Cap Extractor Tool (-S)	**17-150**
Right Angle Mounting Bracket (-M1)	**22-005**
Harness Mount (-M1)	**22-022**

Engineering Support Excellence

The Avionics Systems Engineering team provides comprehensive support throughout the entire project life cycle. Initial consultation helps define optimal configuration by balancing functionality, cost, and certification requirements. During development, engineers validate configurations using simulation tools and software/hardware testing to identify and resolve potential issues before manufacturing.

Post-delivery support includes configuration updates to accommodate system changes or expanded requirements. The factory-controlled configuration process ensures full traceability and repeatability for long-term product support.

Qual Level Summary

The NEXSYS LYNK is certified to DO-178C DAL A under FAA TSO-C113b and qualified to RTCA DO-160G environmental standards.

Environmental and Electrical Qualification Levels

Each of the models meet the following DO-160 qualification levels unless noted otherwise:

Section	Category	Test Description
Section 4	A2	Temperature and altitude
Section 5	S2	Temperature variation
Section 6	B	Humidity
Section 7	B	Operational shock and crash safety
Section 8	R & U	Vibration
Section 9	E	Explosive atmosphere
Section 10	Y	Waterproofness
Section 12	D	Sand and dust
Section 13	F	Fungus resistance
Section 14[1]	T	Salt and fog
Section 15	Z	Magnetic
Section 16	A	Power input
Section 17	A	Voltage spike
Section 18	Z	Audio frequency conducted susceptibility
Section 19	CW	Induced signal susceptibility
Section 20	Y	RF susceptibility
Section 21	P	RF emission
Section 22	XXK3L3	Lightning induced transient susceptibility
Section 25	A	Electrostatic discharge
Section 26[2]	C	Flammability

[1] Applicable for DCU120-B, DCU120-M1, and DCU120-S with sealed cap. Not applicable for DCU120-S with an unsealed cap.
[2] Applicable for DCU120-B and DCU120-M1. Not applicable for DCU120-S.

Parameters and Characteristics

1.0 NEXSYS LYNK Integrated Signal Processor (ISP) Parameters

Common Characteristics for All Form Factors (DCU120-S, DCU120-M1, DCU120-B)

Table 1.1: Discrete Input Specifications - Common Characteristics (All Form Factors)

Parameter	Specification
Input type[1]	Pull-up (PU) or pull-down (PD)
Debounce time	50 ms default[2] (factory-configurable, as per design requirements)
Voltage range[3]	0 V to +32 V continuous
Input impedance	100 kΩ minimum to ground
Trigger types	Rising edge, falling edge, or any change (after debounce; factory-configurable, as per design requirements)
Sampling rate[4]	40 Hz minimum, 25 ms maximum interval
DCU120-S, DCU120-M1	Up to 16 discrete inputs[5]
DCU120-B	Up to 31 discrete inputs

[1] Pull-up (PU): Logic 1 = ≥18 V/hi-Z (OPEN), Logic 0 = ≤1 V; Pull-down (PD): Logic 1 = ≥18 V, Logic 0 = ≤1 V/hi-Z (OPEN). The voltage range between VIL (≤1 V) and VIH (≥18 V) is indeterminate, avoid this range to prevent unstable operation
[2] Debounce specification is 50 ms, unless otherwise specified
[3] Do not apply sustained negative input, reverse-polarity survivability is transient only.
[4] Sampling rate tolerance ±5%
[5] Includes 8 analog inputs configurable as discrete

Table 1.2: Discrete Output Specifications - Common Characteristics (All Form Factors)

Parameter	Specification
Output type[1]	Open-drain self-protected MOSFET
Output states[1]	Open (hi-Z) or ground (low)
Load sinking capacity	250 mA steady state[2] (resistive)
Rise/fall time	100 µs maximum (resistive)
Ground state impedance	10 Ω maximum
Ground state voltage	$V_{OL} \leq I_{LOAD} \times R_{ON}$(max) maximum (resistive)[3]
Off/open state	High impedance (see off-state leakage)
Voltage rating	32 V maximum
Off-state leakage	High impedance (see off-state leakage)
Update rate	100 ms maximum ±5%
Fault detection[4]	Open circuit (open state), overcurrent/overtemperature (ground state)
DCU120-S, DCU120-M1	Up to 9 discrete outputs[5]
DCU120-B	Up to 17 discrete outputs[5]

[1] Logic 1 = Ground (Low), Logic 0 = Open (hi-Z). All outputs high impedance when powered off and remain open circuit on power-up until activated
[2] Each standard output capable of sinking 250 mA steady state (resistive). Additionally, each unit includes one (1) High-current output (HCO) capable of sinking 500 mA steady state (resistive), and one (1) health monitoring output capable of sinking 500 mA steady state (resistive): ground = normal operation, open = fault condition
[3] Example: I_{LOAD} = 250 mA, R_{ON}(max) = 3 Ω, $V_{OL} \leq 0.75$ V.
[4] Fault detection available on enabled standard outputs only, not supported on the high-current output (HCO).
[5] Some outputs allocated to LED segments for DCU120-S form factor.

Table 1.3: Analog Input Specifications - Common Characteristics (All Form Factors)

Parameter	Specification
Input type[1]	Pseudo-differential true bipolar or single-ended
Debounce time	50 ms default[2] (factory-configurable, as per design requirements)
Absolute input range	−12 V to +33 V DC
Standard range	−11 V to +32 V DC[3]
Midrange	−10 V to +10 V DC[3]
Precision range	−5 V to +5 V DC[3]
ADC resolution	12-bit (4096 counts), ±0.5% of full scale
Overvoltage protection[4]	−32 V to +50 V continuous
Input impedance	100 kΩ minimum to ground
Sampling rate[3]	40 Hz minimum, 25 ms maximum interval
Hysteresis	0 V to 5 V configurable
Threshold modes	IGT, ILT, IGTEQ, ILTEQ, IIR, IOR, IPDIF (when configured as discrete input)
Compensation modes	Ground sense, offset, calibration offset (factory-configurable, as per design requirements)
Channel quantity	8 analog input channels (all form factors)

[1] Typical differential pairing: AI_01/AI_02, AI_03/AI_04, AI_05/AI_06, AI_07/AI_08. Differential+ measured with respect to Differential− (signal ground reference). Single-ended analog inputs can be configured as discrete inputs
[2] Debounce specification is 50 ms, unless otherwise specified
[3] Tolerance ±5% applies to ADC applications where signal is measured not less than once every 25 ms. Resolution and Accuracy are specified during the design phase.
[4] While no damage is caused, applying voltage outside the specified voltage range may result in a fault condition and unit shutdown.

Table 1.4: ARINC 429 Specifications - Common Characteristics (All Form Factors)

Parameter	Specification
Receive (RX) channels	Two (2) independent channels (RX1, RX2)
Transmit (TX) channel	One (1) channel (TX1)
Data bus speed[1]	High speed (100 kbps) or low speed (12.5 kbps) (factory-configurable, as per design requirements)
Parity[2]	Odd or even, enabled or disabled (factory-configurable, as per design requirements)
Label capacity	Up to 100 labels per channel (RX1, RX2, TX1) (factory-configurable, as per design requirements)
Label filtering[3]	Hardware filtering available (factory-configurable, as per design requirements)
Data word formatting modes[4]	ARINC 429 (standard), raw 32-bit word mode (TX/RX), (factory-configurable, as per design requirements)
Data update rate	Periodic update interval per label or per ARINC 429 specifications for data transit intervals (factory-configurable, as per design requirements)
RX differential input	One: 6.5 V to 13 V, Zero: −6.5 V to −13 V, Null: −2.5 V to +2.5 V (common mode: ±25 V)
RX input impedance	12 kΩ ±20% differential
RX input resistance[4]	140 kΩ to ground (typical), 100 kΩ to VDD (typical)
TX output voltage (to ground)[4]	One/zero: 5.0 V ±0.5 V, null: ±0.25 V (no load at pin)
TX differential output	One: 10 V ±1 V; Zero: −10 V ±1 V; Null: 0 V ±0.5 V
TX output drive	37.5 Ω ±5 Ω
TX rise/fall time	Low speed: 10 µs ±5 µs; High speed: 1.5 µs ±0.5 µs

[1] Each channel (RX1, RX2, TX1) can be independently configured for high speed or low speed
[2] When parity checking is enabled, RX channels check for odd parity; TX channel transmits with odd parity only. Messages with parity errors are discarded
[3] When enabled, filters messages by label allowing only configured labels to be processed. In raw 32-bit word mode, the interface transmits and receives 32-bit words at the configured ARINC line rate (12.5 kbps or 100 kbps). Bit mapping (label/SDI/SSM/data/parity) is configurable, and parity may be generated, passed through, or disabled. Electrical characteristics and timing remain as specified in this table. Interoperability and higher-level protocol compliance are the integrator's responsibility.
[4] Device-level values are measured at the transceiver pins: RX input resistance 140 kΩ to ground (typical), 100 kΩ to VDD (typical), and TX "no load at pin" voltages. The ARINC bus interface presents 12 kΩ ±20% differential loading and 37.5 Ω ±5 Ω source impedance to the line.

Table 1.5: UART (RS232) Specifications - Common Characteristics (All Form Factors)	
Parameter	**Specification**
Channels	One (1) bidirectional (TX/RX) 3-wire interface, including signal ground
Baud rate[1]	2,400 to 115,200 bps standard, custom rates supported (factory-configurable, as per design requirements)
Data bits	7 or 8 (factory-configurable, as per design requirements)
Stop bits	1 or 2 (factory-configurable, as per design requirements)
Parity	None, odd, or even (factory-configurable, as per design requirements)
Message termination	CR (0x0D), LF (0x0A), CR+LF (0x0D 0x0A), NULL (0x00), ETX (0x03), EOT (0x04), or custom (factory-configurable, as per design requirements)
Message format[2]	ASCII line-based or binary packet; optional NMEA-0183 or custom (factory-configurable, as per design requirements)
Message capacity	Up to 100 message definitions per UART channel (factory-configurable, as per design requirements)
Message length[3]	250 characters maximum per message (ID + payload + terminator)
Message structure[4]	[4-char ASCII ID] [payload] [terminator]
Data update rate	Periodic update interval per message (factory-configurable, as per design requirements)
Input voltage range	±25 V
Input threshold	Rx ≤ −3 V = MARK (1), Rx ≥ +3 V = SPACE (0), −3 V < Rx < +3 V = undefined
Output voltage	±5.5 V minimum into 3 kΩ load (not to exceed ±15 V)
Input impedance	5 kΩ nominal (3 kΩ to 7 kΩ), per input to signal ground (TIA-232 compliant)

[1] Supported standard baud rates: 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200 or custom rates available for non-standard applications
[2] Messages with detected errors are discarded
[3] Total message length ≤ 250 characters (ID + payload + terminator), stored as Memory_int32[1] = payload length, Memory_int32[2] = message ID, Memory_int32[3–64] = payload data.
[4] 4-character ASCII ID used for triggering system events

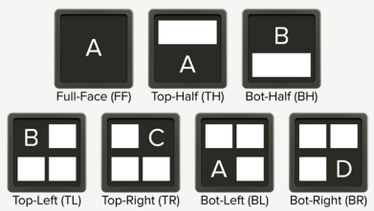
2.0 NEXSYS LYNK Integrated Signal Processor (ISP) Parameters

DCU120-S Unique Characteristics

Table 2.1: LED Indicator Cap Control[1, 2]	
Parameter	**Specification**
Illumination(+) voltage (COM G)	Voltage dimming (single common): 28 VDC nominal
Illumination(+) voltage (COM F)	Voltage dimming (split common): 28 VDC nominal
Illumination(+) voltage (COM F)	Discrete dimming: 28 VDC nominal
Illumination(−) control (/TEST)	Ground = TEST[3], all segments energized
Dim control(−) control (COM G)	Discrete dimming: Ground = DIM[3]
Full-face(−) control (FF/A)[4]	GND = energized[3]
Top-half(−) control (TH/B)[4]	GND = energized[3]
Top-left(−) control (TL/B)[4]	GND = energized[3]
Top-right(−) control (TR/C)[4]	GND = energized[3]
Bottom-half(−) control (BH/A)[4]	GND = energized[3]
Bottom-left(−) control (BL/A)[4]	GND = energized[3]
Bottom-right(−) control (BR/D)[4]	GND = energized[3]

[1] Reference TG-LPBS-21 for complete specifications
[2] Current draw: LED indicator with all segments energized, 42 mA at 28 VDC (resistive)
[3] Common anode illumination circuit: ground = energized when illumination (+) voltage is applied to COM input(s)
[4] Reference Figure 1 for LED indicator cap display segment identification

Figure 1: LED Indicator Cap Display Segments[1]



[1] Reference TG-LPBS-21 for complete specifications

Table 2.2: Internal Momentary Switch[1]	
Parameter	**Specification**
Type	Internal momentary action SPST
Rating	100,000 cycles
Actuation force	3 to 6 lbs typical
Travel	0.04 in to 0.08 in
Configuration	Factory-configurable, as per design requirements[2]

[1] Reference TG-LPBS-21 for complete specifications
[2] Switching can be configured for alternate action (/ALT) or other control logic (e.g., /SET, /RST, /TGL, /INC, /DEC, /SEQ, /HLD)

3.0 RS232/RS422 Transceiver Module

Designed to interface with NEXSYS LYNK Integrated Signal Processor (ISP)

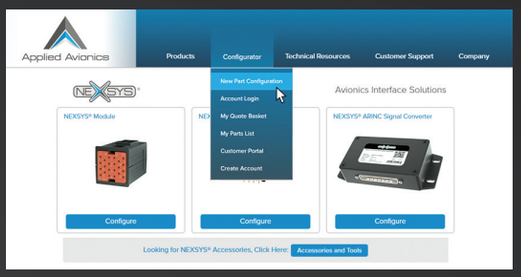
Table 3.1 RS232/RS422 Transceiver Module[1]	
Parameter	**Specification**
Channels	One (1) bidirectional differential (RX+/RX−, TX+/TX−)
Baud rate[2]	2,400 to 115,200 bps standard, custom rates supported
Input impedance	96 kΩ minimum
Input sensitivity	±200 mV
Input hysteresis	30 mV
Differential output voltage	2 V minimum into 50 Ω
Common mode range	−7 V to +12 V
Cable length	Up to 1,000 feet (300 m)
Propagation delay	1.6 µs maximum
Power requirements	8 mA maximum at 28 V nominal
Message formatting	Compatible with ISP UART (RS232) channel

[1] Reference TG-NCT-21 and MB-RS232-25 for complete specifications.
[2] Custom rates available for non-standard applications.

DCU120 Installation Manual & Users Guide

The DCU120 ***Installation Manual and Users Guide*** has additional information regarding the operating instructions, installer requirements, airworthiness, and mounting/installation drawings.

www.appliedavionics.com/DCU120-install



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