

# Data Bulletin

## DMX512 Statement of Conformance For Use With Powerlink® NF1000G3, NF2000G3, and NF3000G3 Controllers Class 1210

Retain for future use.

### ABOUT THIS BULLETIN

This bulletin provides information that describes how Powerlink® NF 1000G3, NF2000G3, and NF3000G3 Controllers conform to Entertainment Services and Technology Association (ESTA) and American National Standard Institute (ANSI) standard for DMX512 Protocol (ANSI E1.11). See ANSI E1.11 for detailed information about the standard and for figure and table cross references made in this document .

### INTRODUCTION

The standard describes a method of digital data transmission between controllers and controlled lighting equipment and accessories, including dimmers and related equipment. This standard is intended to provide for inter-operability at both communication and mechanical levels with controllers made by different manufacturers.

### PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS)

#### Introduction

The supplier of a protocol implementation that is claimed to conform to this Standard shall complete the following Protocol Implementation Conformance Statement (PICS).

#### Implementation identification

##### Identification

Manufacturer	Schneider Electric/Square D
Contact information for inquiries about the PICS <sup>1</sup>	Powerlink technical Support: Phone (615) 287-3400; FAX (615) 287-3405
Implementation Name(s) and Version(s) <sup>1, 2</sup>	NF1000G3, NF2000G3, and NF3000G3 version 5
Other information necessary for full identification – e.g. name(s) and version(s) for equipment and/or operating systems; Systems Name(s) <sup>3</sup>	–
Manufacturer ID (if registered)	–

<sup>1</sup>: Required for all implementations.

<sup>2</sup>: The terms Name and Version should be interpreted appropriately to correspond with a supplier's terminology (e.g., Type, Series, Model).

<sup>3</sup>: May be completed as appropriate in meeting the requirements for the identification.

##### Protocol summary

Identification of the Protocol	ANSI E1.11 - USITT DMX512-A
Have any exceptions been required? (Yes means that the implementation does not comply with the standard)	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>
Date of Statement	March 15, 2005

Major Classifications

Item	Feature	Clause	Comment	Supported		
				No [ ]	Yes [ ]	N/A [X]
GT	Transmitter - Grounded	4.6	Preferred Method; If No, compliance with Annex A required	No [ ]	Yes [ ]	N/A [X]
IR	Receiver - Isolated	4.6	Preferred Method; If No, compliance with Annex A required	No [ ]	Yes [X]	N/A [ ]
CHAS	Power Isolated	5.2	—	No [ ]	Yes [ ]	N/A [X]
EF	Enhanced Functionality (Secondary Data Link)	4.8.1	Active Method; If Yes, compliance with Annex B required	No [ ]	Yes [ ]	N/A [X]
PD	Processing Device	—	—	No [ ]	Yes [ ]	N/A [X]
HPL	Higher Protection Levels		If Yes, compliance with Annex C required	No [X]	Yes [ ]	N/A [ ]
XLR5	Pluggable Connection -5-Pin XLR	7.1	If No, compliance with 7.1.2 Required	No [X]	Yes [ ]	N/A [ ]
NCC	Connection NCC	7.1.2	—	No [ ]	Yes [X]	N/A [ ]
HW	Connection - Hard Wire	7.2	—	No [ ]	Yes [X]	N/A [ ]
ASC	Generates Alternate START Code(s)	—	If Yes, compliance with Annexes D & E also required	No [X]	Yes [ ]	N/A [ ]

PICS tables for USITT DMX512-A

Item	Feature	Clause	Value / Comment	Mandatory / Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
PL1	Comply with EIA-485-A	4.1	Compliant	M	No [ ]	Yes [X]	
PL2	Transmitter - line driver	4.3	Use a single active differential driver	M	No [ ]	Yes [ ]	N/A [X]
PL3	Receiver - line receivers	4.3	Use differential receiver	M	No [ ]	Yes [X]	N/A [ ]
PL4	Secondary data link	4.8.2	Passive use with input & output ports	M	No [ ]	Yes [ ]	N/A [X]
PL5	Secondary data link containing three or more DMX512 ports	4.8.2	May provide a passive link between only two of the ports	M	No [ ]	Yes [ ]	N/A [X]
PL6	Secondary data link ports	4.8.2	Declared per clause 10	M	No [ ]	Yes [ ]	N/A [X]
PL7	Secondary data link ports	4.8.2	Marked on product	M	No [ ]	Yes [ ]	N/A [X]
PL8	Data link termination	4.9	Data link termination		No [X]	Yes [ ]	N/A [ ]
PL9	Data link termination	4.9	Operate in accordance with the stated manufacturer's specification when the data link is terminated	M	No [ ]	Yes [ ]	N/A [X]
PL10	Data link termination	4.9	120 Ohms + 5% / -10% between data- & data+	M	No [ ]	Yes [ ]	N/A [X]
PL11	Data link termination transmitter on one end	4.9	Far end terminated	M	No [ ]	Yes [ ]	N/A [X]
PL12	Data link termination transmitter not connected at one end	4.9	Both ends terminated	M	No [ ]	Yes [ ]	N/A [X]
PL13	Internal data link termination	4.9		M	No [X]	Yes [ ]	
PL14	Internal data link termination marking	4.9	If implemented, marking per clause 10	M	No [ ]	Yes [ ]	N/A [X]
PL15	Unpowered devices	4.10	No degradation of DMX512 transmission system performance	M	No [ ]	Yes [X]	
PL16	Unpowered devices	4.10	Not materially lower the impedance they present to the data link	M	No [ ]	Yes [X]	
OC	Operating characteristics	5.1	Measured at the ports	M	No [ ]	Yes [ ]	N/A [X]

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value/Comment	Mandatory/ Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
GT1	Grounded transmitter	5.4	Provision for connection to protective earth	M	No [ ]	Yes [ ]	N/A [X]
GT2	Grounded transmitter	5.4 / Figure 1	Any resistance (A) between data link common and zero volt supply (circuit common) of the transmitter circuit is less than 100 ohms	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
GT3	Grounded transmitter	5.4 / Figure 1	Any resistance (B) between data link common and chassis is less than 20 ohms and is preferably zero ohms.	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
GT4	Grounded transmitter	5.4	Transmitter not marked ISOLATED even though electrical Isolation may be used in the transmitter	M	No [ ]	Yes [ ]	N/A [X]
DTT	Disallowed transmitter topology	5.5	Transmitter Not per figure 2	M	No [ ]	Yes [ ]	N/A [X]
IR1	Isolated receiver	5.7	Any resistance (B) greater than 22 Mohm at 42 VDC with respect to chassis and any other signal inputs or outputs, and with respect to other ground referenced electronics	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
IR2	Isolated receiver	5.7	Any resistance (B) greater than 22 Mohm at 42 VDC with respect to protective ground (where fitted)	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
IR3	Isolated receiver	5.7 / Figure 3	Any resistance (A) between data link common and zero volt supply (circuit common) of the receiver circuit is less than 100 ohms	M	No [ ] Yes [X] N/A [ ] Value if Yes: $R(A) = 8\Omega$		
DRT	Disallowed receiver topology	5.8	Transmitter not per Figure 4	M	No [ ]	Yes [ ]	N/A [X]
LDT	Transmission line loading	5.10	Transmitter capable of driving 32 unit loads	M	No [ ]	Yes [ ]	N/A [X]
LDR1	Transmission line loading	5.10	Receiver presents unit load $\leq 1$	M	No [ ]	Yes [ ]	N/A [X]

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value/Comment	Mandator/ Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
LDR2	Transmission line loading	5.10	A receiver biased to any voltage from -7 to +12 volts does not present a capacitive load to the line of more than 125pf per unit load	M	No [ ]	Yes [ ]	N/A [X]
LDM	Unit load marking	5.10	Optional declared or marked value is the greater of either the DC unit load determined by EIA-485-A clause 4.1 or the unit load as determined by the capacitive loading	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
LDMC	Capacitive unit load marking	5.10	Optional declared or marked value -capacitive is also declared	M	No [ ] Yes [ ] N/A [X] Value if Yes: _____		
ESD	Electrostatic discharge protection	6.2	Withstand 4 kV ESD for contact discharge and 8 kV ESD for air discharge in accordance with IEC 61000-4-2 or other local regulations	M	No [ ]	Yes [X]	
CM1	Connection method - pluggable controller	7.1	Female	M	No [ ]	Yes [ ]	N/A [X]
CM2	Connection method - pluggable receiver	7.1	Male	M	No [ ]	Yes [ ]	N/A [X]
CM3	Connection method - loop through	7.1	Male Input / Female Output convention	M	No [ ]	Yes [ ]	N/A [X]
NCC0	Not compatible connector allowed	7.1.2	XLR-5 not physically possible	M	No [ ] Yes [X] N/A [ ] Connector type used if Yes: <u>Phoenix</u>		
NCC1	Not compatible connector provisions	7.1.2-1	The alternate connector is not any type of XLR connector	M	No [ ]	Yes [X]	N/A [ ]
NCC2	Not compatible connector provisions	7.1.2-2	The alternate connector is not any type of IEC 60603-7 8-position modular connector (RJ45) - if No, compliance with 7.3 required	M	No [ ]	Yes [X]	N/A [ ]

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value/Comment	Mandatory/ Optional	Supported		
					No [X]	Yes [ ]	N/A [ ]
NCC3	Not compatible connector provisions	7.1.2-3	Declared and marked NCC	M	No [X]	Yes [ ]	N/A [ ]
NCC4	Not compatible connector provisions	7.1.2-4	Adapter to XLR-5 provided	M	No [X]	Yes [ ]	N/A [ ]
NCC5	Not compatible connector provisions	7.1.2-5	EF and ground / isolation declaration made	M	No [ ]	Yes [ ]	N/A [X]
FIC1	Fixed installation connections with XLR	7.2	Not other than XLR-5	M	No [ ]	Yes [ ]	N/A [X]
FIC2	Fixed installation connections with XLR-5	7.2	If XLR-5, comply with 7.1, 7.1.1, and 7.1.2	M	No [ ]	Yes [ ]	N/A [X]
FIC3	Fixed installation connections	7.2	EF Markings per clause 10 and Annex B	M	No [ ]	Yes [ ]	N/A [X]
RJ45U	IEC 60603-7 8-position modular connectors - use	7.3	Use limited to connections part of a fixed installation not intended for regular connection and disconnection	M	No [ ]	Yes [ ]	N/A [X]
RJ45A	IEC 60603-7 8-position modular connectors - access	7.3	Not normally accessible except to qualified, authorized users, nor intended for regular connection and disconnection	M	No [ ]	Yes [ ]	N/A [X]
RJ45C	IEC 60603-7 8-position modular connectors wiring	7.3 Table 4	Connections per Table 4	M	No [ ]	Yes [ ]	N/A [X]
DF1	Data format	8.1	Asynchronous and Sequential (Slot 0 -Last Slot - Max 513 Total)	M	No [ ]	Yes [X]	
DF2	Data format	8.1	Reset Sequence Transmitted	M	No [ ]	Yes [X]	
DF3	Data format	8.1	Valid slot value 0 to 255 decimal	M	No [ ]	Yes [X]	
DCD1	Dimmer class data	8.5.2	Valid dimmer levels are 0 to 255 decimal (00h to FFh)	M	No [ ]	Yes [X]	N/A [ ]
DCD2	Dimmer class data	8.5.2	Value 0 = dimmer output of OFF or minimum; Value 255 = output of FULL	M	No [ ]	Yes [X]	N/A [ ]

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value / Comment	Mandatory / Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
DCD3	Dimmer class data	8.5.2	Dimmer responds to increasing the DMX512 slot value from 0 to 255 by fading from its minimum level (off) to its maximum level (full)	M	No [ ]	Yes [ ]	N/A [X]
ASC1	Alternate START codes	8.5.3	Registered ASC Used for Proprietary Information	M	No [ ]	Yes [ ]	N/A [X]
ASC2	Alternate START codes inter-leaved with NULL START codes- refresh	8.5.3.1	NULL START Code packet sent at least once per second	M	No [ ]	Yes [ ]	N/A [X]
ASC3	Alternate START codes - timing differences	8.5.3.2	Use one of two methods	M	No [ ] Yes [ ] N/A [X] Method if Yes: _____		
ASC4	Alternate START Codes (ASC) - inline processing	8.5.3.3	Declare how ASCs are processed	M	No [ ] Yes [ ] N/A [X] Method if Yes: _____		
ASC5	Alternate START codes - inline processing	8.5.3.3	Not pass some ASC packets and block others packets containing the same Alternate START code unless doing so as part of a stated processing algorithm	M	No [ ] Yes [ ] N/A [X] Method if Yes: _____		
ASC6	Alternate START codes	8.5.3.3	DMX512 in-line repeating transmitters do not pass some packets with a particular Alternate START code while blocking other packets containing the same Alternate START code unless doing so as part of a stated processing algorithm	M	No [ ] Yes [ ] N/A [X] Method if Yes: _____		
SCP	Processing of START codes	8.5.4	Receivers other than in-line processing devices process the START code and differentiate between NSC and ASC packets	M	No [ ]	Yes [X]	
SCI	Ignoring of START codes	8.5.4	Not ignore START codes by assuming that all packets received are NSC packets	M	No [ ]	Yes [X]	

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value/Comment	Mandatory/Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
DLS1	Data link slots support	8.6	Data link supports up to 513 slots	M	No [ ]	Yes [X]	
DLS2	Multiple data links	8.6	Multiple links where more than 513 slots (512 data slots) are required	M	No [ ]	Yes [X]	
DLS3	Data link slots minimum	8.7	Data Link with less than 513 slots supported	M	No [ ]	Yes [X]	
LSBS1	Line state between data slots - value	8.8	Maintain Marking State	M	No [ ]	Yes [X]	
LSBP2	Line state between packets	8.9	The line remains in a marking state throughout during MBB	M	No [ ]	Yes [X]	
LSBP3	Line state between packets	8.9	Transmitter does not produce multiple BREAKS between data packets	M	No [ ]	Yes [ ]	N/A [X]
LSBP4	Multiple BREAKS	8.9	Receiver capable of recovering from multiple BREAKS (data line errors)	M	No [ ]	Yes [X]	
TD	Timing Diagram	8.11 Figure 5	DMX512 frames & packets format	M	No [ ]	Yes [X]	
TT	Transmitter timing	8.11 Table 6		M	No [ ]	Yes [X]	
RT	Receiver timing	8.11 Table 7		M	No [ ]	Yes [X]	
IFS1	Improperly framed slots	9.1	Check first stop bit	M	No [ ]	Yes [X]	
IFS2	Improperly framed slots	9.1	Discard data slot with missing stop bit and all subsequent data slots in packet	M	No [ ]	Yes [X]	
LDH	Loss of data handling	9.2 10.5.3	Declare loss of data handling procedure	M	No [ ]	Yes [X]	
RPM	Receiver performance at maximum data refresh	9.3	Receiver operates correctly while receiving any valid data packet	M	No [ ]	Yes [X]	
PPL	Packet processing latency	9.4	processing latency declared	M	No [ ]	Yes [X]	
EFP1	EF port marking	10.2 10.5.1 10.5.2	Enhanced functionality ports marked	M	No [ ]	Yes [ ]	N/A [X]

PICS tables for USITT DMX512-A (Cont'd)

Item	Feature	Clause	Value/Comment	Mandatory/ Optional	Supported		
					No [ ]	Yes [ ]	N/A [X]
EFP2	EF port marking declaration	10.2 10.5.1 10.5.2	Enhanced functionality ports declared	M	No [ ]	Yes [ ]	N/A [X]
PM1	Port marking -signal designation	10.2 Table 8 10.5.2	Signal identification	M	No [ ]	Yes [ ]	N/A [X]
PM2	Port marking -signal designation abbreviations	10.2 Table 8 10.5.2	Signal identification abbreviations	M	No [ ]	Yes [ ]	N/A [X]
DLTM	Data link termination marking	10.3	Switchable termination marked	M	No [ ]	Yes [ ]	N/A [X]
GIM	Ground / Isolation marking	10.4 Table 9 10.5.1 10.5.2	Grounded or isolated port marked per Table 9	M	No [X]	Yes [ ]	N/A [ ]
NSC1	NULL START code functionality	10.5.5	Transmitters declare full range of slot values	M	No [ ]	Yes [ ]	N/A [X]
NSC2	NULL START code functionality	10.5.5	Receivers declare response to NSC slot values	M	No [ ]	Yes [X]	N/A [ ]
SFD	Slot footprint declaration	10.5.6	Receivers declare slot footprint	M	No [ ]	Yes [X]	N/A [ ]

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