



GE Energy Services

ANSI X3.28/SRIO DPA CONFIGURATION GUIDE

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About this Guide

This guide describes, in detail, how to configure the ANSI X3.28/SRIO Data Processing Application (DPA).

Purpose of this Guide

This document describes the purpose and use of each of the configuration parameters of the ANSI X3.28/SRIO DPA. This document makes no attempt to explain how the configuration process operates, it is limited to describing the format and content of the DPA configuration only.

To configure the data mapping the user must also allow for the SPABUS Data Collection Application (DCA) to be configured in conjunction with this application. Refer to the SPABUS Configuration Guide listed in the Additional Documentation for more information on configuring the SPABUS DCA.

Who Should Use this Guide

This document is intended for use by individuals responsible for the configuration of the ANSI X3.28/SRIO DPA in GE Energy Services RTUs. These people should be familiar with the operation and maintenance of RTUs in general, but may not be familiar with the GE Energy Services family of products.

Before reading this document, you should have a basic understanding of the WESDAC hardware environment, the configuration system, the ANSI X3.28/SRIO DPA, and the SPABUS DCA.

Additional Documentation

If you require more detail than this document provides, the following supporting texts are available:

- *ANSI X3.28/SRIO DPA Functional Specification (A071-0FS.WES)*
- *SPABUS DCA Functional Specification (A070-0FS.WES)*
- *SPABUS DCA Configuration Guide (A070-0FS.WES)*
- *WESMAINT II Maintenance Facility Configuration Guide (B014-0CG.700)*
- *WESMAINT II+ Configuration Guide (B014-1CG.CCU)*
- *WIN User's Configuration Guide for the WESDAC D20 (B008-0CG.D20)*
- *WIN User's Configuration Guide for the CCU (B008-1CG.CCU)*
- *Config Pro Configuration System User's Guide (P012-0UG)*
- *WESDAC Configuration System User's Guide (P005-0UG)*

Overview

The ANSI X3.28/SRIO DPA software is installed in GE Energy Services WESDAC equipment to provide an interface to master stations using the ANSI X3.28 communication protocol.

Product Perspective

The ANSI X3.28/SRIO DPA software is custom software that will be installed in the GE Energy Services RTU to provide a communication link to master stations using the ANSI X3.28 communication protocol. The ANSI X3.28/SRIO DPA does not follow typical GE Energy Services DPA conventions, and interfaces directly to the SPABUS DCA.

The SPABUS DCA provides the only interface between the ANSI X3.2/SRIO DPA and WIN, and must be present in the system in order to use the ANSI X3.28/SRIO DPA. The DPA does not have access to the system WESDAC data tables, but only to data owned by the SPABUS DCA. The ANSI X3.28/SRIO DPA configuration tables reference the SPABUS configuration item table rather than the WESDAC tables. *Figure 1* represents a complete system overview of how the DPA interfaces with the SPABUS DCA in a typical GE Energy Services RTU.

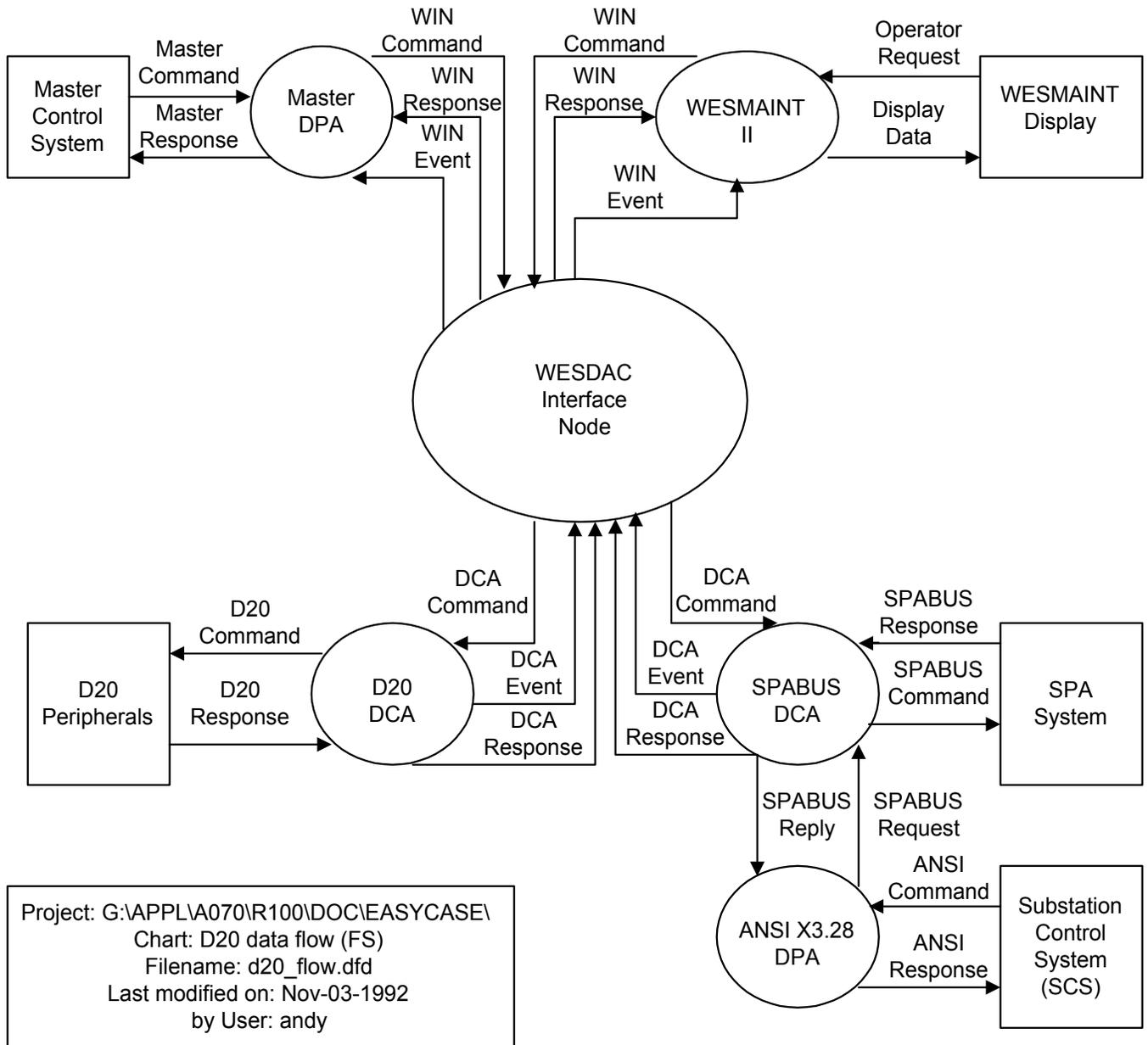


Figure 1 System Overview

Chapter 1: Configuring Tables

The ANSI X3.28/SRIO DPA configuration contains all of the data structures necessary to configure a RTU to communicate with an ANSI X3.28 master station.

1.1 ANSI X3.28/SRIO DPA Configuration Tables

The purpose of each configuration table is in *Table 1*.

TABLE NAME	DESCRIPTION
A071MAIN	This table configures each communication port in the system and the database table addressing associated with it. The database table mapping allows the user to configure the default locations for the data partitions.
A071DIMP	This table defines the digital input items, which are to be reported back to the host station.
A071DOMP	This table defines the digital output items, which are to be reported back to the host station.
A071EVMP	This table defines the event items, which are to be reported back to the host station.
A071AIMP	This table defines the analog input items, which are to be reported back to the host station.
A071AOMP	This table defines the analog output items, which are to be reported back to the host station.

Table 1 ANSI X3.28/SRIO DPA Configuration Tables



NOTE:

The map tables are directly based on the SPABUS DCA. Points are mapped into the ANSI X3.28 DPA based on the ITEM table created in the SPABUS configuration. The user must cross-reference the SPABUS ITEM table to ensure compatible data is mapped.

1.2 Configuration Sequence

The following is a list of the steps required to configure the ANSI X3.28/SRIO DPA:

1. Edit the configuration for the other applications that will run on the product. Prepare them according to their own configuration guides. The SPABUS DCA must be configured before the ANSI X3.28/SRIO DPA.
2. Edit the ANSI X3.28/SRIO DPA configuration. Prepare it according to the guidelines in this document and the specific use for which the ANSI X3.28/SRIO DPA is required.
3. Generate the configuration and download it to the product using a GE Energy Services Configuration System. The list of applications to be compiled must include the ANSI X3.28/SRIO DPA, application A071, and the SPABUS DCA, application A070.
4. Restart the product. If the ANSI X3.28/SRIO DPA encounters an error during its initialization, it will log a message to the WESMAINT Error Log and then, depending on the severity of the error, terminate or continue with its run-time function.
5. Check for error messages. Log into the WESMAINT maintenance interface, select the SYSTEM FUNCTIONS item from the Main Menu, and then select the ERROR LOG item from the System Functions Menu. If any error messages are displayed, correct the problem as described in Appendix B: ERROR MESSAGES, and repeat steps 3 through 5.

When the ANSI X3.28/SRIO DPA has successfully validated all the configuration parameters, configuration is complete.

Chapter 2: Configuring the Main Table (A071MAIN)

The main configuration table, A071MAIN, defines the RTU topography including the physical communication channel parameters, host and RTU station addresses, retry counts, and ANSI table partition addressing.

Table 2 Character Times

NAME	RANGE	DESCRIPTION
Port	Any valid com port (hardware dependant)	A character string to hold the direct communication channel name. For example, for the D20 valid communication ports are "COM1" through "COM7".
Baud Rate	9600 (96) 4800 (48) 2400 (24) 1200 (12) 600 (6) 300 (3)	This parameter indicates the baud rate to use. This must be set to the baud rate used by the master station. A typical baud rate is 9600.
Parity	Even (E) Odd (O) None (N)	Parity type to use. This must be set to the parity used by the master station. A typical setting is Even.
Modem Enabled?	Yes (Y) No (N)	Modem enabled flag.
Checksum	BCC (B) CRC (C)	Checksum format to use on message. This must be set to the checksum type used by the master station. A typical setting is BCC.
Embedded Rsp	Yes (Y) No (N)	Embedded response enable flag. This must be set to match the master station capabilities. A typical setting is Yes.

NAME	RANGE	DESCRIPTION
Receive Squelch	00 .. 2147483647	Receiver squelch time in milliseconds. A typical Receive Squelch is 00.
Pre-Transmit Delay	00 .. 2147483647	Pre-transmission RTS on time in milliseconds. A typical Pre-Transmit Delay is 15.
Post-Transmit Delay	00 .. 2147483647	Post-transmission RTS off time in milliseconds. This must be at least 2 character times for reliable communication. A typical Post-Transmit Delay is 3 character times. Refer to Table 3 for character times at various baud rates.
CTS Timeout	00 .. 2147483647	Clear to Send (CTS) transmit timeout period in milliseconds. A typical CTS Timeout is 10.
ENQ Count	00 .. 32767	Default number of Enquiries (ENQs) to be retransmitted. A typical value is 3.
NAK Count	00 .. 32767	Default number of Negative Acknowledgements (NAKs) to be retransmitted. A typical value is 3.
ACK Timeout	00 .. 32767	Time duration to wait for an Acknowledgement (ACK) from the host station (1/38 sec). A typical value is 38 (1 second).
Master Address	00 .. 254	The address of the host (source) station with which this DPA is communicating. Address 255 is reserved as a broadcast address.
RTU Address	00 .. 254	The destination address this RTU is to respond as (0 through 255). Address 255 is reserved as a broadcast address.
Valid Status	-128 .. 127	4 Entries indicating acceptable Status return values from the host. These status values apply only to events issued by the master, and not the status of the message. These values are typically set to 00.
Event Buffer Size	1 .. 32000	Size of the ANSI event buffer. A typical value is 1000.
Spontaneous Timeout	00 .. 32767	Spontaneous event timeout (in milliseconds) before a failure is logged. A typical value is 5000.
DI Retries	-1 .. 255	Number of digital event data retries before discarding event (-1 try forever). A typical value is 3.
AI Retries	-1 .. 255	Number of analog event data retries before discarding event (-1 try forever). A typical value is 3.
EV Retries	-1 .. 255	Number of EV event data retries before discarding event (-1 try forever). A typical value is 3.
SPA Event Retries	-1 .. 255	Number of SPA events retries before discarding event (-1 try forever). A typical value is 3.

NAME	RANGE	DESCRIPTION
Power-Up Delay	00 .. 65535	Delay (in seconds) after start-up before the ANSI X3.28/SRIO DPA will begin responding to requests. A typical value is 10.
DI Offset	00 .. DO Offset	Offset (in words) to the start of the digital input table partition within the ANSI table. Normal setting is 00.
DO Offset	00 .. EV Offset	Offset (in words) to the start of the digital output partition within the ANSI table. Normal setting is 500.
EV Offset	00 .. AI Offset	Offset (in words) to the start of the event storage partition within the ANSI table. Normal setting is 750.
AI Offset	00 .. AO Offset	Offset (in words) to the start of the analog input partition within the ANSI table. Normal setting is 1000.
AO Offset	00 .. PD Offset	Offset (in words) to the start of the analog output partition within the ANSI table. Normal setting is 1500.
PD Offset	00 .. TM Offset	Offset (in words) to the start of the parameter data partition within the ANSI table. Normal setting is 2000.
TM Offset	00 .. EVNT Offset	Offset (in words) to the start of the time partition within the ANSI table. Normal setting is 2300.
EVNT Offset	00 .. DD Offset	Offset (in words) to the start of the event partition within the ANSI table. Normal setting is 2400.
DD Offset	00 .. Sys Offset	Offset (in words) to the start of the diagnostic data partition within the ANSI table. Normal setting is 2500.
SYS Offset	00 .. Obj Offset	Offset (in words) to the start of the system partition within the ANSI table. Normal setting is 3000.
OBJ Offset	00 .. 27000	Offset (in words) to the start of the object partition within the ANSI table. Normal setting is 5000.
Spontaneous Event Enable	No (00) Yes (non-zero)	Indicates whether or not spontaneous events are to be reported to the host. A typical value is Yes.
Spontaneous Data Enable	No (00) Yes (non-zero)	Indicates whether of not spontaneous data is to be reported to the host. A typical value is Yes.
Store Configuration	No (00) Yes (non-zero)	Indicates whether or not the configuration should be stored. A typical value is No.
Analog Format	32 Bit Binary (32)	Format required by the host station for returned analogs.

NAME	RANGE	DESCRIPTION
	6 Digit BCD (6) 3 Digit BCD (3)	A typical value is 32 Bit Binary.
Analog Scale	-32768 .. 32767	Returned to the master, but NOT USED ! Default setting is 1000.
Timed Poll Interval	-32768 .. 32767	Returned to the master to complete system partition, but NOT USED by the ANSI software. Default setting is 30.

 **NOTE:** The sequence of the data partitions listed above may not be altered, but the sizes and start addresses may be changed at configuration time. For a complete detailed description of each data partition, refer to the ANSI X3.28/SRIO Functional Specification listed in the Additional Documentation section.

Baud Rate	One Character Time (ms)
300	34
600	17
1200	9
2400	5
4800	3
9600	2

Table 3 Character Times

 **NOTE:** All character times in Table 3 are based on a 10-bit character, and are rounded up to the nearest millisecond.

Chapter 3: Configuring the Mapping Tables

The ANSI X3.28/SRIO DPA mapping tables specify the data to be placed in the corresponding data partition. This data will be returned to the master station in response to a read command for those partitions. Not all data partitions require a data-mapping table.

The ANSI X3.28/SRIO DPA contains the following mapping tables:

- Digital Input Map Table, A071DIMP
- Digital Output Map Table, A071DOMP
- Event Data Map Table, A071EVMP
- Analog Input Map Table, A071AIMP
- Analog Output Map Table, A071AOMP

Each of the mapping tables contains the same configuration parameter, and are configured in the same way.

 **NOTE:** The SPABUS DCA Item Table, A070ITEM, must be configured before the ANSI X3.28/SRIO DPA mapping tables can be configured.

Name	Range	Description
Item Table Offset	00 .. 65535	<p>This parameter specifies a one-based offset into the SPABUS Item Table, A070ITEM, for the data item to be returned to the master.</p> <p>00 indicates a spare point.</p> <p> NOTE: It is the user's responsibility to ensure the SPABUS data item being mapped contains the correct data type for this mapping table.</p>

Table 4 Mapping Table Configuration Parameters

Chapter 4: Configuring WESMAINT for the ANSI X3.28/SRIO DPA

This chapter describes how to configure the WESMAINT application to allow ANSI X3.28/SRIO DPA user's access to the ANSI X3.28/SRIO DPA custom WESMAINT screens.

4.1 Log-In User (B014USER)

B014USER contains WESMAINT application access information for individual users. The B014USER table is part of the WESMAINT configuration, B014, and is mentioned here for completeness only. It is not part of the ANSI X3.28/SRIO DPA configuration, but must be configured if any of the desired options are required for the ANSI X3.28/SRIO DPA custom WESMAINT menus.

The application control parameters in B014USER are used to provide users access to the ANSI X3.28/SRIO DPA custom WESMAINT screens. The first application control parameter is the application number. For control of the ANSI X3.28/SRIO DPA it must always be 71. The second parameter is the modify access flag and the third is the read- access flag. A description of the read flags used by the ANSI X3.28/SRIO DPA is shown in *Figure 2*. All unmarked bits are unused, and should be set to zero. The ANSI X3.28/SRIO DPA does not use any of the modify access flags.

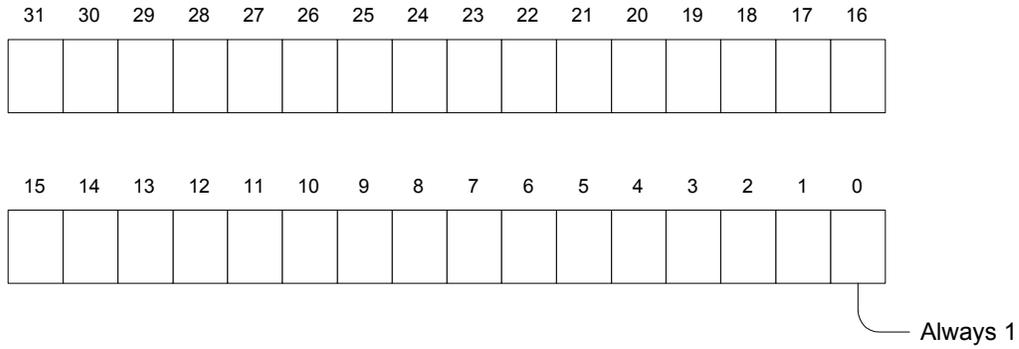


Figure 2 Read Access Flags

For more information on configuring the WESMAINT application refer to the appropriate WESMAINT configuration guide listed in the Additional Documentation section at the beginning of this guide.

Appendix A:Error Messages

This section contains a description of all error messages posted to the WESMAINT Error Log by the ANSI X3.28/SRIO DPA

A.1 Error Messages

Messages logged to the WESMAINT Error Log by the DPA will be pre-pended with a process name. This name will be one of the following:

- A071:
- E071:
- L071:
- R071:
- T071:

4.2 Fatal Error Messages

Fatal error messages indicate the application is suspending due to either an invalid critical configuration parameter, or a critical process initialization sequence failed.

ANSI Application process died

Cause:

- During regular operation one of the standard operating processes has suspended.

Remedy:

- Contact the Customer Service Department to report this error.

Can't allocate rx sinks**Cause:**

- Not enough RAM available for the receive buffer queue to be created.

Remedy:

- Reduce the amount of memory used by this or other applications in the system.
- Upgrade to a larger memory model.

Can't create required exchanges. Suspending**Cause:**

- The system cannot create the external interface inter-process message exchange.

Remedy:

- Contact the Customer Service Department to report this error.

Can't create T071 exchange**Cause:**

- The system cannot create the external interface inter-process message exchange.

Remedy:

- Contact the Customer Service Department to report this error.

Can't get enough memory for ANSI Application. Suspending**Cause:**

- The system cannot retrieve enough ram for operation of the ANSI DPA.

Remedy:

- Reduce the amount of memory used by this or other applications in the system.
- Upgrade to a larger memory model.

Can't allocate memory for event queue. Suspending !**Cause:**

- The system cannot retrieve enough ram for operation of the ANSI DPA.

Remedy:

- Reduce the amount of memory used by this or other applications in the system.
- Upgrade to a larger memory model.

Can't open communications port**Cause:**

- The system has found that this port is invalid, or already in use by another process.

Remedy:

- Ensure the Port configured in A071MAIN contains a valid port name.
- Ensure the Port configured in A071MAIN is not in use by another application.

Can't set communications timers

Cause:

- The system was unable to configure the port timers.

Remedy:

- Contact the Customer Service Department to report this error.

Can't set configured bit rate

Cause:

- The system was unable to initialize the port using the configured baud rate.

Remedy:

- Refer to the chapter entitled Configuring the Main Table (A071MAIN) and ensure the configured baud rate is valid.

Can't spawn/activate E071 process

Cause:

- The system cannot create the Event handler process.

Remedy:

- Contact the Customer Service Department to report this error.

Can't spawn/activate L071 process

Cause:

- The system cannot create the LRU process.

Remedy:

- Contact the Customer Service Department to report this error.

Can't spawn R071 process

Cause:

- The system cannot create the Receiver process.

Remedy:

- Contact the Customer Service Department to report this error.

Can't spawn T071 process

Cause:

- The system cannot create the Transmitter process.

Remedy:

- Contact the Customer Service Department to report this error.

Invalid ACK time-out**Cause:**

- The configured ACK Timeout is invalid.

Remedy:

- Ensure the configured ACK Timeout in A071MAIN is a positive value.

Invalid AI offset configured**Cause:**

- The configured analog input offset is invalid.

Remedy:

- Ensure the configured AI Offset in A071MAIN is a positive value.
- Ensure the configured AI Offset is less than the AO Offset.

Invalid Analog Format configured 32 (BIN), 6 or 3 (BCD)**Cause:**

- The configured Analog Formats is invalid.

Remedy:

- Ensure the configured Analog Format in A071MAIN is either 32 Bit Binary (32), 6 Digit BCD (6), or 3 Digit BCD (3).

Invalid AO offset configured**Cause:**

- The configured analog output offset is invalid.

Remedy:

- Ensure the configured AO Offset in A071MAIN is a positive value.
- Ensure the configured AO Offset is less than the PD Offset.

Invalid checksum configured (B)cc or (C)rc**Cause:**

- The configured checksum type is invalid.

Remedy:

- Ensure the configured Checksum in A071MAIN is either BCC (B) or CRC (C).

Invalid COMX configuration**Cause:**

- The configured port name is invalid.

Remedy:

- Ensure the configured Port in A071MAIN is in the range "COM1" to "COM7".

Invalid DD offset configured

Cause:

- The configured direct data offset is invalid.

Remedy:

- Ensure the configured DD Offset in A071MAIN is a positive value.
- Ensure the configured DD Offset is less than the Sys Offset.

Invalid destination number

Cause:

- The configured RTU address is invalid.

Remedy:

- Ensure the configured RTU Address in A071MAIN is not the broadcast address (255).

Invalid DI offset configured

Cause:

- The configured digital input offset is invalid.

Remedy:

- Ensure the configured DI Offset in A071MAIN is a positive value.
- Ensure the configured DI Offset is less than the DO Offset.

Invalid DO offset configured

Cause:

- The configured digital output offset is invalid.

Remedy:

- Ensure the configured DO Offset in A071MAIN is a positive value.
- Ensure the configured DO Offset is less than the EV Offset.

Invalid embedded response enable (Y)es or (N)o

Cause:

- The configured embedded response enable parameter is invalid.

Remedy:

- Ensure the configured Embedded Rsp in A071MAIN is either Yes (Y) or No (N).

Invalid event timeout configured

Cause:

- The configured spontaneous event timeout is invalid.

Remedy:

- Ensure the configured Spontaneous Event Timeout in A071MAIN is a positive value.

Invalid EVNT offset configured**Cause:**

- The configured event partition offset is invalid.

Remedy:

- Ensure the configured EVNT Offset in A071MAIN is a positive value.
- Ensure the configured EVNT Offset is less than the DD Offset.

Invalid EV offset configured**Cause:**

- The configured event storage partition offset is invalid.

Remedy:

- Ensure the configured EV Offset in A071MAIN is a positive value.
- Ensure the configured EV Offset is less than the AI Offset.

Invalid modem enable (Y)es or (N)o**Cause:**

- The configured modem enable parameter is invalid.

Remedy:

- Ensure the configured Modem Enabled parameter in A071MAIN is either Yes (Y) or No (N).

Invalid Number of ENQS**Cause:**

- The configured number of ENQs to be re-transmitted is invalid.

Remedy:

- Ensure the configured ENQ Count in A071MAIN is a positive number.

Invalid Number of NAKS**Cause:**

- The configured number of ENQs to be re-transmitted is invalid.

Remedy:

- Ensure the configured ENQ Count in A071MAIN is a positive number.

Invalid OBJ offset configured**Cause:**

- The configured object partition offset is invalid.

Remedy:

- Ensure the configured Obj Offset in A071MAIN is a positive value.
- Ensure the configured Obj Offset is less than 27000.

Invalid parity configured (N)one, (E)ven, (O)dd

Cause:

- The configured parity is invalid.

Remedy:

- Ensure the configured Parity in A071MAIN is either None (N), Even (E), or Odd (O).

Invalid PD offset configured

Cause:

- The configured parameter data partition offset is invalid.

Remedy:

- Ensure the configured PD Offset in A071MAIN is a positive value.
- Ensure the configured PD Offset is less than the TM Offset.

Invalid Retransmit analog configured -1 to 255

Cause:

- The number of analog event data retries configured is invalid.

Remedy:

- Ensure the number of AI Retries configured in A071MAIN is in the range -1 through 255. (-1 indicates try forever.)

Invalid Retransmit digital configured -1 to 255

Cause:

- The number of digital event data retries configured is invalid.

Remedy:

- Ensure the number of DI Retries configured in A071MAIN is in the range -1 through 255. (-1 indicates try forever.)

Invalid Retransmit ev data configured -1 to 255

Cause:

- The number of EV event data retries configured is invalid.

Remedy:

- Ensure the number of EV Retries configured in A071MAIN is in the range -1 through 255. (-1 indicates try forever.)

Invalid Re-transmit event configured -1 to 255

Cause:

- The number of SPA event data retries configured is invalid.

Remedy:

- Ensure the number of SPA Event Retries configured in A071MAIN is in the range -1 through 255. (-1 indicates try forever.)

Invalid source number**Cause:**

- The configured master station address is invalid.

Remedy:

- Ensure the configured Master Address in A071MAIN is not the broadcast address (255).

Invalid SYS offset configured**Cause:**

- The configured system partition offset is invalid.

Remedy:

- Ensure the configured Sys Offset in A071MAIN is a positive value.
- Ensure the configured Sys Offset is less than the Obj Offset.

Invalid TM offset configured**Cause:**

- The configured time partition offset is invalid.

Remedy:

- Ensure the configured TM Offset in A071MAIN is a positive value.
- Ensure the configured TM Offset is less than the EVNT Offset.

Mapped AI point not Found. Check config**Cause:**

- One of the mapped analog input points could not be located in the SPABUS configuration.

Remedy:

- Ensure none of the Item Table Offsets in A071AIMP are greater than the number of records in the SPABUS item configuration table, A070ITEM.
- Ensure all of the Item Table Offsets in A071AIMP refer only to records in the SPABUS item configuration table, A070ITEM, of type AI, PI, or Spare (-1).

Mapped AO point not Found. Check config**Cause:**

- One of the mapped analog output points could not be located in the SPABUS configuration.

Remedy:

- Ensure none of the Item Table Offsets in A071AOMP are greater than the number of records in the SPABUS item configuration table, A070ITEM.
- Ensure all of the Item Table Offsets in A071AOMP refer only to records in the SPABUS item configuration table, A070ITEM, of type AO or Spare (-1).

Mapped DI point not Found. Check config

Cause:

- One of the mapped digital input points could not be located in the SPABUS configuration.

Remedy:

- Ensure none of the Item Table Offsets in A071DIMP are greater than the number of records in the SPABUS item configuration table, A070ITEM.
- Ensure all of the Item Table Offsets in A071DIMP refer only to records in the SPABUS item configuration table, A070ITEM, of type DI, PD, or Spare (-1).

Mapped DO point not Found. Check config

Cause:

- One of the mapped digital output points could not be located in the SPABUS configuration.

Remedy:

- Ensure none of the Item Table Offsets in A071DOMP are greater than the number of records in the SPABUS item configuration table, A070ITEM.
- Ensure all of the Item Table Offsets in A071DOMP refer only to records in the SPABUS item configuration table, A070ITEM, of type DO or Spare (1-).

Mapped EV point not Found. Check config

Cause:

- One of the mapped event data points could not be located in the SPABUS configuration.

Remedy:

- Ensure none of the Item Table Offsets in A071EVMP are greater than the number of records in the SPABUS item configuration table, A070ITEM.
- Ensure all of the Item Table Offsets in A071EVMP refer only to records in the SPABUS item configuration table, A070ITEM, of type EV or Spare (-1).

Missing Configuration ... Deleting

Cause:

- The system was unable to locate the main configuration table for the ANSI X3.28/SRIO DPA.

Remedy:

- Ensure the main configuration table, A071MAIN, exists in the configuration and is comprised of a single record.

Glossary of Terms

application	A piece of software (a program) consisting of one or more processes and supporting functions.
ASCII	American Standard Code for Information Interchange. A seven-bit code that standardizes a set of characters representing letters and numbers for international use.
baud rate	A measurement of the speed of a communications line; the number of times a line can change state in one second; the rate at which a signal is modulated.
binary	A number system having only two symbols (1 and 0), and where values are expressed in the base two number system.
bit	Abbreviation of binary digit. The smallest unit of information in a binary system. Has a value of either one (1) or zero (0).
char	The name of a data-type in the C programming language. Stands for character, or a group of eight bits that function as a single unit.
cyclic redundancy check	An error-detection scheme that checks the integrity of a transmitted message for errors introduced during transmission. Abbreviated as CRC.
data-collection application	A software application that acquires data from and sends data to various intelligent electronic devices. Abbreviated as DCA.
data-processing application	A software application that requests and processes data as it is required by (usually) a master station. Abbreviated as DPA.
host	The client or host station/computer, with which the RTU equipment communicates. Also called a master or master station.
logical remote unit	An RTU that exists in software, but not physically. LRUs are created by software partitioning of a single physical

	RTU so that it appears to the master station as two or more RTUs. This technique is usually employed as a means by which to overcome the point-addressing limitations of a particular protocol, or to form a logical grouping of data. Abbreviated as LRU.
master	The client or host station or computer, with which the RTU equipment communicates. Also referred to as a host or host computer.
port	An interface point connecting a communications channel and a device.
random-access memory	A type of temporary data storage (memory) that can be read and changed while the computer is in use. Data stored in random-access memory is lost if the system loses power. Abbreviated as RAM.
remote terminal unit	A piece of equipment located at a distance from a master station to monitor and control the status of outlying equipment, and to communicate the information back to the master station or host. Abbreviated as RTU.
source code	A piece of code that has not yet been compiled or assembled (that is, it is still in the language it was programmed in) and so cannot yet run on a machine.
WESDAC Configuration System	A menu-oriented software program that operates on a personal computer and allows you to download configuration information to D20 RTUs or CPM RTUs.
WESDAC Interface Node	A module of software that manages the transfer, storage, and manipulation of data between data- collection applications (DCA), data-processing applications (DPA) and data-translation applications (DTA). Abbreviated as WIN.

List of Acronyms and Abbreviations

ACK	acknowledgement
AI	analog input
ANSI	American National Standards Institute
AO	analog output
ASCII	American Standard Code for Information Interchange
BCC	block check character
BCD	binary coded decimal
CCU	central control unit
CRC	cyclic redundancy check
CTS	clear to send
DCA	data-collection application
DI	digital input
DO	digital output
DPA	data-processing application
LRU	logical remote unit
MAXRECS	maximum number of records
NAKS	negative acknowledgement
RAM	random-access memory
RTS	request to send
RTU	remote terminal unit
WESDAC	WESDAC Data Acquisition and Control
WESMAINT	WESDAC Maintenance Facility
WIN	WESDAC Interface Node