



Driver Version:	1.03
Document Revision:	0

FieldServer Driver - Serial FS-8700-93 Edwards Systems Technology - QuickStart

Description

The QuickStart Serial driver allows the FieldServer to record data from Edwards System Technology QS1-2/4-8 and QSC Fire Panels over the RS-232 printer port. The FieldServer acts as a Passive Client receiving messages and updating its internal data arrays which records the status of devices connected to the QuickStart fire alarm control panel. The QuickStart panels currently do not support duplexed communications; therefore, this driver has only been designed to listen for messages passively and not to respond or to generate polls.

The main purpose of this driver is to record the status of Fire Alarm System points in bit oriented data arrays. It is limited by the information that the QuickStart control panels broadcasts in the form of text messages through its RS-232 printer port.

The types of EST messages supported by this driver are listed later in this fact sheet and in the FieldServer Driver Manual. Device status to the data array mapping is also provided. Since there are a variety of optional cards that can be selected for each QuickStart installation, each FieldServer application must be specifically configured before use. FieldServer data storage arrays for panel status will be allocated according to the number and type of cards implemented. Message information will also be stored according to card and panel addressing.

This driver is connection oriented; therefore, only one EST Panel may be connected to any single RS-232 FieldServer port.

The driver currently accommodates European and American English Conventional/Intelligent panels using the American English protocol with provisions for using the British English protocol at a later date.

FieldServer Synchronization

To synchronize the FieldServer's data arrays with the QuickStart control panel's status, the panel must have no active or disabled points on FieldServer startup. Alternatively, a panel can be hard/soft restarted to clear all point status, and then re-annunciate any active devices after the FieldServer has been started. This should only be undertaken by qualified technicians.

Should the panel be soft restarted unexpectedly, the FieldServer will recognize the "restart" command and clear all internal data arrays. There will be no need for FieldServer restart; however, for a hard restart, the FieldServer data arrays should be manually cleared by changing



a bit in the CLEAR_FLAG data array through RUINET, then soft restarting the panel again to ensure that status of all points is re-announced and recorded by the FieldServer.

Device States

Each addressable device (real or pseudo) can have multiple states: alarm supervisory, monitor, other (security), and troubles. These states are not exclusive; therefore, a single addressable point may occupy multiple states at the same time.

Although there may be several trouble states for each device, there can only be a single alarm, supervisory, monitor and other (security) state per address. Therefore any restoring messages for these four states indicate that the device is clear of any active problems for these types of conditions.

However, there may be several trouble states for a single addressable port. These trouble states will be recorded in a separate trouble array of 2 byte elements. Each array element will correspond to a device address and each bit within the element will correspond to a trouble type. The mapping of message trouble types to element bit configuration is given below. For modeling simplicity and flexibility, it is assumed that all addressable points (real or pseudo) can exist in all states.

Formal Driver Type

Serial
Passive Client

Compatibility Matrix

FieldServer Model	Compatible with this driver
FS-x2010	Yes
FS-x2011	Yes
FS-x40	Yes
FS-x30	No
FS-x30	Yes, No

Connection Information

Connection type: RS-232 (Simplex)
Baud Rates: 9600 (Vendor limitation)
Data Bits: 8 (Vendor limitation)
Stop Bits: 1 (Vendor limitation)
Parity: None (Vendor limitation)
Multidrop Capability No

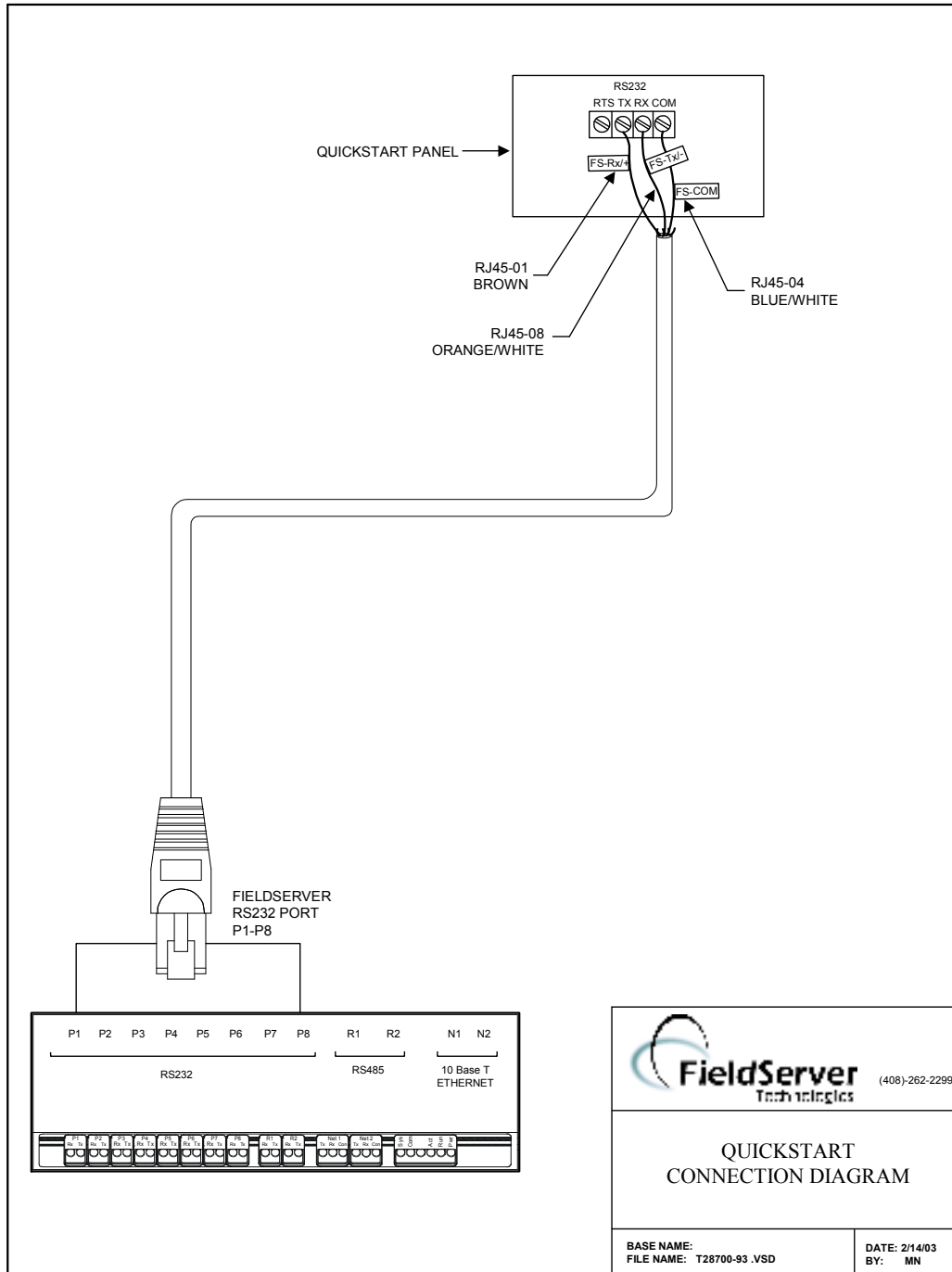
Devices tested

Device	Tested (FACTORY, SITE)
Edwards Systems Technology - European and American QS1-2/QS4-8 Addressable Panels, and the QSC Conventional Panel	SITE



Connection configurations

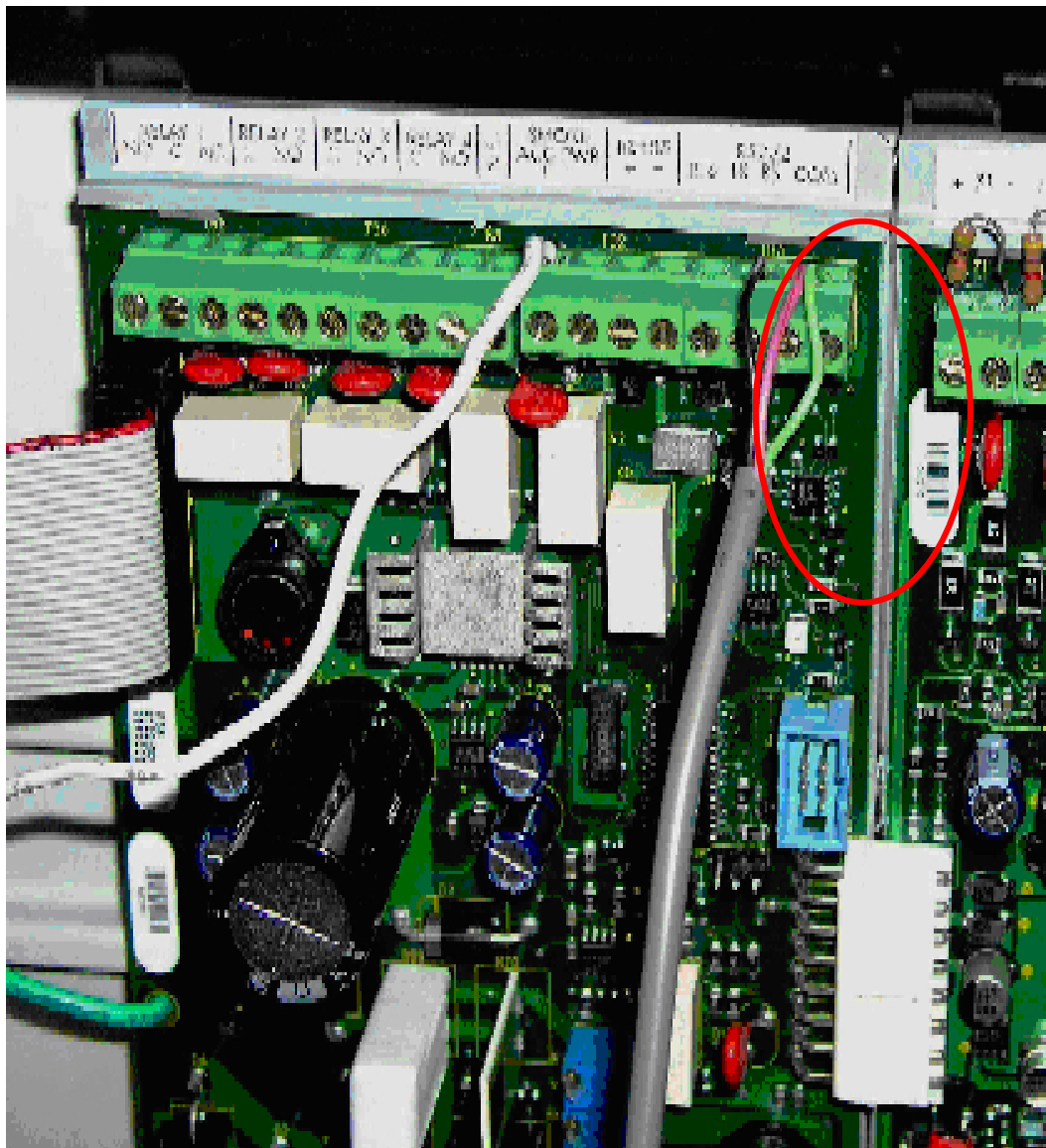
The FieldServer is connected to the EST QuickStart power supply card as shown below. Configure the EST QuickStart panel according to manufacturer's instructions.





Connection Notes

The QuickStart panels must be pre-configured using their own proprietary configuration tool to send messages to the RS-232 printer port. Ensure that this is done before attempting to connect to the FieldServer and verify that messages are being sent using a utility like Hyperterminal.





Bit Map of Trouble States for 2 Byte Array Elements

Message Type	State	Bit/UINT16/Packed Bit
TROUBLE OPEN TBL OPEN RST	T	0
TROUBLE SHRT TBL SHRT RST	T	1
LCL TROUBLE LCL TRBL RST	T	2
DIRTY HEAD DTY HEAD RST	T	3
COMMN FAULT COMM FLT RST	T	4
GROUND FAULT GND FLT RST	T	5
INTERNAL TBL INTR TRBL RS	T	6
BAD TYPE BAD TYPE RST	T	7
BAD PRSONATY BAD PRSTY RS	T	8
UNEPECT DEV UNEC DEV RST	T	9
TROUBLE TROUBLE RST	T	10
TEST TEST RST	T	11
DEV COMPATBL DEV COMP RST	T	12
SERVICE GRP SERVICE G RS	T	13
DISABLED DISABLED RST	T	14
DISAB SOUND DISSOUND RST	T	15



Device Addressing

The following table defines the address space expected by the driver for each type of card. The table includes both physical and pseudo points used by the QuickStart systems.

	Panel	Card	Address	Card Type
Point Addressing	0	0	0-18 (49)	pseudo points
	0	17	0-480 (499)	zone
	0	18	0-64 (99)	AND group
	0	19	0-64 (99)	matrix group
	0	20	0-128 (199)	service group
	0	21	0-32 (49)	time control
	0	22	0-250 (499)	output group
	1	0	0-32 (49)	CPU (reserved)
	2	0	0-33 (49)	annunciator
	3	0	0-33 (49)	annunciator
	4	0	0-33 (49)	annunciator
	5	0	0-33 (49)	annunciator
	6	0	0-33 (49)	annunciator
	7	0	0-33 (49)	annunciator
	8	0	0-33 (49)	annunciator
	9	0	0-33 (49)	annunciator
	1	01-07	0-341 (499)	ADC
	1	01-07	0-275 (499)	SLIC
	1	01-13	0-19 (49)	Class B (ZA16-8)
	1	01-13	0-11 (49)	Class A (ZA8-2)
	1	01-13	0-11 (49)	Relay (ZR-8)
	1	14	0-16 (49)	Dialer (DLD)
1	15	0-24 (49)	Power (PS6)	

Data Array Memory Allocation

Each QuickStart card (real and pseudo) is configured with BIT and UINT16 or Packed Bit data arrays. The following states are recorded in the BIT array.

1. Alarms
2. Supervisory
3. Monitor
4. Other (security)

Alarms will be stored in the first quarter of the array; Supervisory conditions will be stored in the second quarter etc. according to the above ordering.

Troubles are recorded in a separate array of UINT16 or packed bit elements. Each element represents a uniquely addressable point, and each bit within the element represents a different type of trouble condition which is described by the specific trouble message.

The following two tables list the BIT and UINT16/Packed_Bit data array sizes that should be configured for every panel by default, and arrays for each optionally installed card. The data



arrays configured for all QuickStart panels are for cards (real and pseudo) which always have fixed card addresses. Not all of these default data arrays will be utilized for every installation. Optionally installed cards can have variable card ID numbers depending on the sequence the cards are installed.

Data arrays are referenced relatively according to their declared size. Therefore, care must be taken to ensure that the array sizes are configured as noted in the tables.

Data Storage Requirements for Every Panel

Card/Array Descriptions	Array Size	Data Type
Pseudo points	200	BIT
Pseudo point troubles	50	UINT16/Packed_Bit
Zones	2000	BIT
Zone troubles	500	UINT16/Packed_Bit
AND group	400	BIT
AND group troubles	100	UINT16/Packed_Bit
Matrix group	400	BIT
Matrix group troubles	100	UINT16/Packed_Bit
Service group	800	BIT
Service group troubles	200	UINT16/Packed_Bit
Time control	200	BIT
Time control troubles	50	UINT16/Packed_Bit
Output group	2000	BIT
Output group troubles	500	UINT16/Packed_Bit
CPU reserved	200	BIT
CPU reserved troubles	50	UINT16/Packed_Bit
Power card	200	BIT
Power card troubles	50	UINT16/Packed_Bit

Data Storage Requirements for Optional Cards

Card/Array Descriptions	Array Size	Data Type
ADC (dual loop)	2000	BIT
ADC (dual loop) troubles	500	UINT16/Packed_Bit
SLIC	2000	BIT
SLIC troubles	500	UINT16/Packed_Bit
Class A card	200	BIT
Class A card troubles	50	UINT16/Packed_Bit
Class B card	200	BIT
Class B card troubles	50	UINT16/Packed_Bit
Relay card	200	BIT
Relay card troubles	50	UINT16/Packed_Bit
Annunciator (per card)	200	BIT
Annunciator troubles (per card)	50	UINT16/Packed_Bit
Dialer	200	BIT
Dialer troubles	50	UINT16/Packed_Bit



Message Types Supported

The primary purpose of this driver is to record the status of devices connected to the QuickStart Fire Control Panel by interpreting the text messages sent to its printer port. Not all messages will be interpreted, as many messages and reports do not directly affect device status. The following set of events and messages will be recognized and recorded in the data arrays.

A. Event Description Text Strings	State	Comments
ACTIVATE RESTART		-OPERATOR COMMAND- clears all the data arrays
QUIESCENT QUIE RST		Not Implemented
ALARM ACTIVE ALARM RST	A	
PULL STATION PULL STA RST	A	
HEAT ALARM HEAT ALM RS	A	
WATERFLOW WATERFLOW RS	A	
STAGE ONE STAGE ONE RS	A	
SUPERVISORY SUP RST	S	
TAMPER TAMPER RST	S	
SECURITY SECURITY RST	O	
FIREPHONE PHONE RST	M	
MONITOR MONITOR RST	M	
LATCH SUPV LAT SUPV RST	S	
LATCH TAMPER LAT TAMP RST	S	
UNKNOWN UNKNOWN RST	O	
ALARM VERIFY ALM VFY RST	M	
PREALARM PREALARM RST	M	
TROUBLE OPEN TBL OPEN RST	T	
TROUBLE SHRT TBL SHRT RST	T	
LCL TROUBLE LCL TRBL RST	T	



A. Event Description Text Strings	State	Comments
MAINT ALERT MAT ALERT RS	M	
DIRTY HEAD DTY HEAD RST	T	
COMMN FAULT COMM FLT RST	T	
GROUND FAULT GND FLT RST	T	
INTERNAL TBL INTR TRBL RS	T	
BAD TYPE BAD TYPE RST	T	
BAD PRSONATY BAD PRSTY RS	T	
UNEPECT DEV UNEC DEV RST	T	
TROUBLE TROUBLE RST	T	
RELAY CONFIR RLY CFRM RST	M	
LCL MONITOR LCL MNTR RST	M	
SWITCH SWITCH RST	M	
TEST TEST RST	T	
DEV COMPATBL DEV COMP RST	T	
AND GROUP AND GRP RST	A	
MATRIX GROUP MATRIX G RST	A	
SERVICE GRP SERVICE G RS	T	
TIME CONTROL TIME CNTL RS	M	
ACK ACK RST	M	
DISABLED DISABLED RST	T	
DISAB SOUND DISSOUND RST	T	
OBJECT RUN OBJETRUN RST	M	
ZONE ALARM ZONE ALM RST	A	
ZONE SUPER ZONE SUP RST	S	



A. Event Description Text Strings	State	Comments
ZONE MONITOR ZONE MON RST	M	
OUTPUT GROUP OUTPUT G RST	M	
AUDIBLE AUDIBLE RST	M	
VISUAL VISUAL RST	M	
SUPER OUTPUT SUPER OUT RT	M	
NONSUPER OUT NONSUP OUT R	M	
COMM ALM OUT COMMALOUTRST	M	
LED OUTPUT LEDOUTPU RST	M	

FieldServer Limitations & Exclusions

- Only one QuickStart panel may be connected to any given RS-232 port at once.
- QuickStart and FieldServer synchronization requires some manual steps. This is described in the section of this fact sheet called "FieldServer Synchronization".
- This driver cannot poll for data, thus if a message sent by the panel is lost or corrupted the status reported by the FieldServer will not correctly reflect the status of the panel until the panel is synchronized again or until the FieldServer receives a new message reporting the status of the lost message's point.
- Because of the message structure for the QuickStart protocol, it was intended to be the only protocol assigned to any single port.



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