FieldServer VADD Driver
FS-8705-09
Rapid Engineering ICSI or ICSII Controller Protocol

Description

This driver is used to exchange data between a FieldServer and an ICSI or ICSII HVAC controller device manufactured by Rapid Engineering.

The driver is a serial driver using a RS-485 serial port to connect between the FieldServer and the ICSII capable device.

The driver provides client functionality.

As a client the driver can poll for data from the ICSI or ICSII device as well as being able to some control points and set points. Details are provided below.

Server functionality is built into the driver but is not documented or supported. This functionality is implemented to support our ongoing QC efforts.

The driver is fully compatible with other FieldServer drivers and meets FieldServer's quality assurance standards. The driver was developed by Chipkin Automation Systems, an Approved FieldServer Integrator.

Fieldserver Mode	Nodes	Comments
Client	99	Up to 99 ICSI or ICSII devices can be linked on one RS485 network. The functional specification of the EIA485 standard limits the number of nodes per segment to 32. If additional network segments are required then repeaters are required. The network must consist exclusively of ICSI or ICSII devices. For mixed configurations call for more info.

Formal Driver Type

Serial
Client

Compatibility Matrix

FieldServer Model	Compatible with this driver
FS-x2010	Yes
FS-x2011	Yes
FS-X30	Yes
FS-x40	Yes

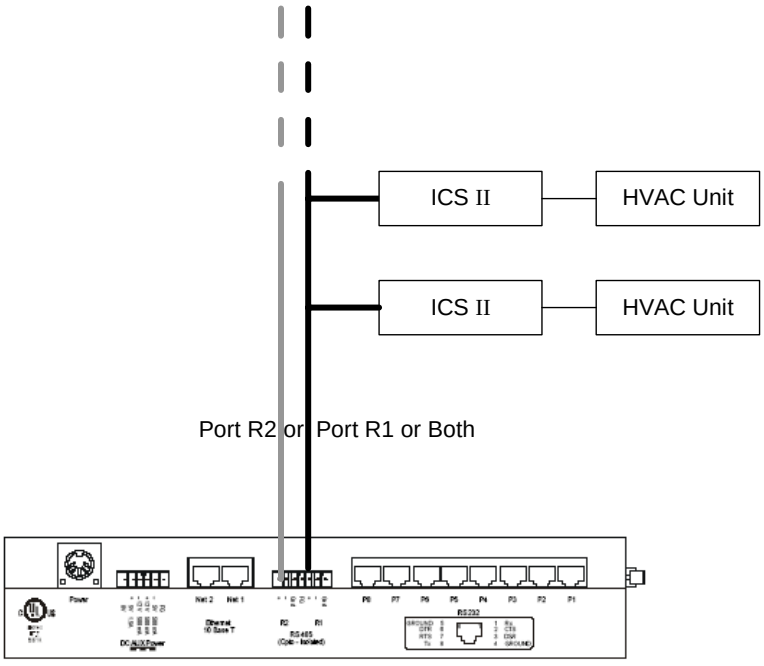
Connection Information

Connection type:	RS-485
Baud Rates:	Driver Supports : 110; 300; 600; 1200; 2400; 4800; **9600**; 19200; 28800; 38400; 57600; 115200 Baud Vendor Equipment support 9600 Baud
Data Bits:	Driver Supports : 7,**8**
Stop Bits:	Driver Supports : **1**,2
Parity:	Driver Supports : Odd, **Even**, None
Hardware interface:	N/A
Multidrop Capability	Yes

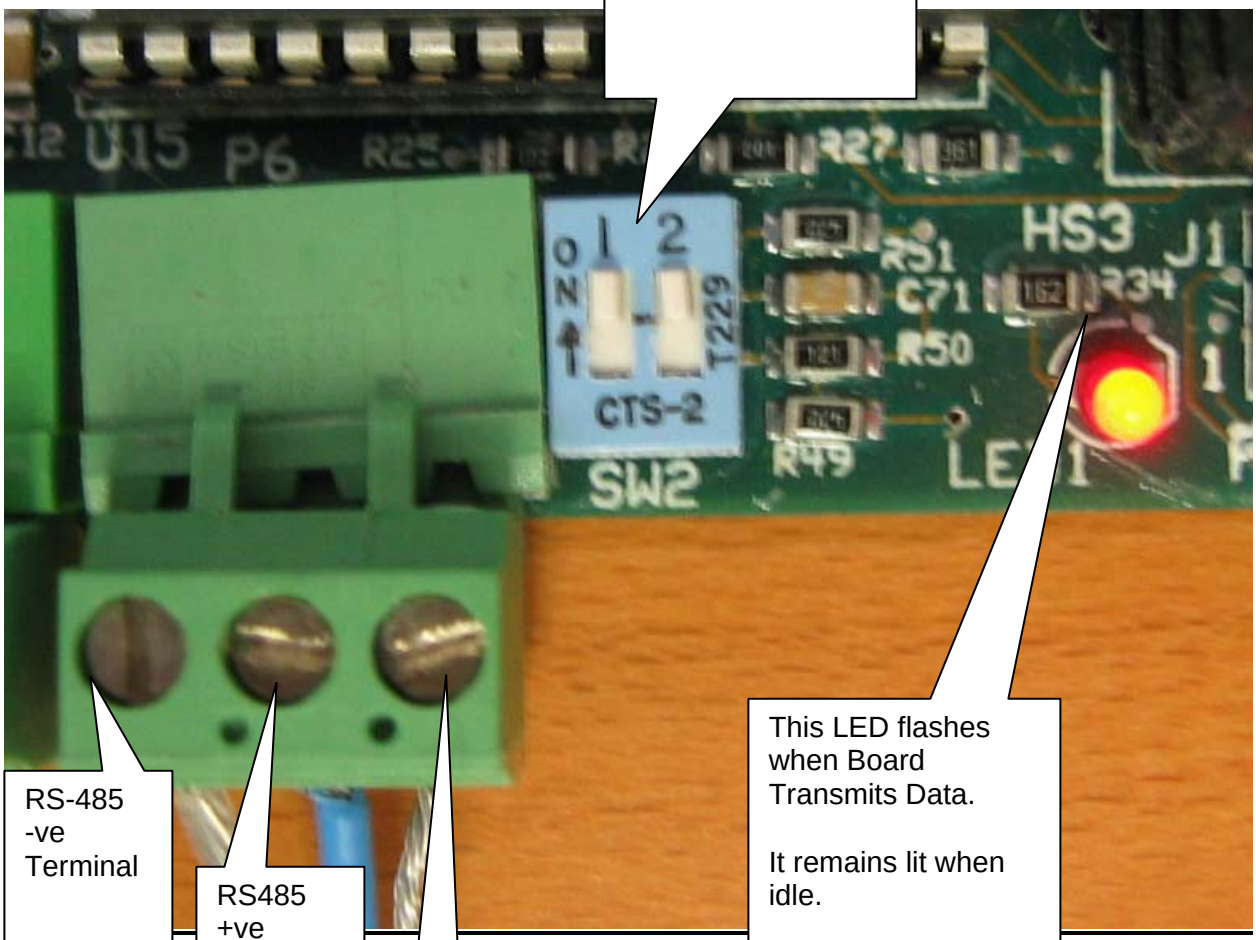
Devices tested

Device	Tested (FACTORY, SITE)
Call **Chipkin Automation Systems** for an update on this information.	This driver has been tested at Sequoia Engineering (an approved FieldServer Integrator) using an ICSII controller during July 2004. It was subsequently tested in Beta form by a customer connected to a network of ICSII controllers during August 2004. Since then the driver has been successfully installed at a number of sites.

Connection configurations



Connection Notes



Communications functions - Supported functions at a glance:

Read / Write Operations supported

Cmd #	FieldServer as a Client
1	Heater Status Report (Read command)
2	Setpoints Report (Read command)
3	Occupied Schedule for Air handler (Read Command)
4	Aux. Output Schedule Report. (Read Command)
5	Setpoint Range Report (Read Command)
6	Error and Reset (Read / Write command)
7	Last Power UP and Energy Info Report (Read Command)
8	Change Mode (Write Command)
9	Change Setpoint (Write Command)
10	Change Schedule for Air handler (Write command)
20	Change Schedule for Aux Output (Write command)
11	Zero Energy Counters (Write Command)
13	Aux Output control definition / setpoint (Write command0
12	Version Info & Config (Read Command)
Uni#1	Universal Command to Change Date, time (Write Command)

Unsupported Functions and Data Types

Cmd #	Description

Data Points

The FieldServer reads data from the ICSII device. The data points below are the points available to the FieldServer but this does not necessarily mean that they are valid for the HVAC device connected to the ICSII.

Description	Category	R/W
day of week	Heater Status Info	R
date (MMDDYY)	Heater Status Info	R
(HHMM)	Heater Status Info	R
mode	Heater Status Info	R
current state	Heater Status Info	R
current space temp setpoint	Heater Status Info	R
space temp times 10	Heater Status Info	R
discharge temp	Heater Status Info	R
outside air temp	Heater Status Info	R
pressure setpoint times 1000	Heater Status Info	R
pressure times 1000	Heater Status Info	R
outside air damper	Heater Status Info	R
return air damper	Heater Status Info	R

Description	Category	R/W
inputs (hex)	Heater Status Info	R
outputs (hex)	Heater Status Info	R
current error	Heater Status Info	R
space relative humidity	Heater Status Info	R
valve position	Heater Status Info	R
future	Heater Status Info	R
future	Heater Status Info	R
occupied temperature	Setpoints Info	RW
unoccupied temperature	Setpoints Info	RW
maximum discharge temperature	Setpoints Info	RW
minimum discharge temperature	Setpoints Info	RW
building pressure times 100	Setpoints Info	RW
occupied burner turnoff times	Setpoints Info	RW
unoccupied heater turnoff times	Setpoints Info	RW
occupied open relief times	Setpoints Info	RW
unoccupied open relief times	Setpoints Info	RW
low temperature shutdown	Setpoints Info	RW
percent outside air	Setpoints Info	RW
burner turnoff setpoint enable/disable(1=Enable)	Setpoints Info	RW
outside air temp. control enable/disable(1=Enable)	Setpoints Info	RW
room relative humidity setpoint	Setpoints Info	RW
dry-bulb enonomizer setpoint	Setpoints Info	RW
econ type (0,1,2) none, dry-bulb, enthalpy	Setpoints Info	RW
future	Setpoints Info	RW
future	Setpoints Info	RW
period(1,5,9,13,17), start (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(1,5,9,13,17), stop (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(2,6,10,14,18), start (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(2,6,10,14,18), stop (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(3,7,11,15,19), start (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(3,7,11,15,19), stop (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(4,8,12,16,20), start (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW

Description	Category	R/W
period(4,8,12,16,20), stop (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(na,na,na,na,21), start (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(na,na,na,na,21), stop (XXXXX = DHHMM)	Occupied Schedule for Air Handler	RW
period(1,5,9,13,17), start (XXXXX = DHHMM)	Aux Output Schedule	RW
period(1,5,9,13,17), stop (XXXXX = DHHMM)	Aux Output Schedule	RW
period(2,6,10,14,18), start (XXXXX = DHHMM)	Aux Output Schedule	RW
period(2,6,10,14,18), stop (XXXXX = DHHMM)	Aux Output Schedule	RW
period(3,7,11,15,19), start (XXXXX = DHHMM)	Aux Output Schedule	RW
period(3,7,11,15,19), stop (XXXXX = DHHMM)	Aux Output Schedule	RW
period(4,8,12,16,20), start (XXXXX = DHHMM)	Aux Output Schedule	RW
period(4,8,12,16,20), stop (XXXXX = DHHMM)	Aux Output Schedule	RW
period(na,na,na,na,21), start (XXXXX = DHHMM)	Aux Output Schedule	RW
period(na,na,na,na,21), stop (XXXXX = DHHMM)	Aux Output Schedule	RW
occupied temperature, minimum maximum	Setpoint Ranges	R
unoccupied temperature, minimum maximum	Setpoint Ranges	R
maximum discharge temperature, minimum maximum	Setpoint Ranges	R
minimum discharge temperature, minimum maximum	Setpoint Ranges	R
building pressure, minimum maximum	Setpoint Ranges	R
occupied burner turnoff, minimum maximum	Setpoint Ranges	R
unoccupied heater turnoff, minimum maximum	Setpoint Ranges	R
occupied open relief, minimum maximum	Setpoint Ranges	R
unoccupied open relief, minimum maximum	Setpoint Ranges	R
low temperature shutdown, minimum maximum	Setpoint Ranges	R
percent outside air, minimum maximum	Setpoint Ranges	R
error log no. 1, error no., MMDDYY, HHMM	Error Info	R
error log no. 2, error no., MMDDYY, HHMM	Error Info	R

Description	Category	R/W
error log no. 3, error no., MMDDYY, HHMM	Error Info	R
error log no. 4, error no., MMDDYY, HHMM	Error Info	R
last power up date (MMDDYY)	Last Power UP and Energy Info	R
last power up time (HHMM)	Last Power UP and Energy Info	R
number of power ups	Last Power UP and Energy Info	R
number of fan starts	Last Power UP and Energy Info	R
cumulative fan hours on, thousands	Last Power UP and Energy Info	R
cumulative fan hours on, 0-999	Last Power UP and Energy Info	R
CCF - thousands	Last Power UP and Energy Info	R
CCF - 0-999	Last Power UP and Energy Info	R
CCFH - low rate * 100 (CCF)	Last Power UP and Energy Info	R
CCFH - min rate * 100 (CCF)	Last Power UP and Energy Info	R
CCFH - max rate * 100 <- NOTE: *100 (CCF)	Last Power UP and Energy Info	R
CCFH - high rate * 100 <- NOTE: *100 (CCF)	Last Power UP and Energy Info	R
CCFH - current rate (same as 9-12 ??)	Last Power UP and Energy Info	R
Reset Fan Energy Counter	Reset Energy Counters	W
Reset Gas Energy counter	Reset Energy Counters	W
Control Type	Aux output control Settings	W
Sub Type	Aux output control Settings	W
Level	Aux output control Settings	W

Support

Please contact Chipkin Automation Systems directly for driver support.

Revision History

Date	Resp	Format	Driver Ver.	Doc. Rev.	Comment
12May2004	PMC		0.00	0	Initial Draft issued for customer review.
19Jun2004	PMC		1.00a	1	1st Release. Minor changes to DFS. Only change of note was to remove function 12 from the 'unsupported function' list.
19Aug2004	PMC		1.00a	2	Added connection information. Added part number Spelling corrections Notes on testing.
20Aug2004	PMC		1.00a	3	Add Reference to Rapid Engineering
20Oct2004	PMC		1.00a	4	References to ICSi's added
17Dec2004	PMC		1.00d	0	Time and Date write command is now supported.
14Jan2004	PMC		1.00e	0	Minor changes and banner change.