FS-8705-52 Pentadyne Serial Communication Interface

DATASHEET – Rev 1

DESCRIPTION

The Pentadyne Serial Communication Interface Driver (PSCI Driver) allows the FieldServer to poll remote stations for status data. The driver is a client/master driver – ie. It initiates the data transfer by polling for data.

The driver is a serial driver using a RS232 serial port to connect between the FieldServer and the Pentadyne Device.

The driver is based on Pentadyne Protocol Spec ES-0073 dated 6/2/08

QS-1XX0

QS-2XX0

QS-3XX0

CONNECTION FACTS

FIELDSERVER MODE	NODES	COMMENTS
Client	1	Only 1 Pentadyne Device per connection
Server	0	Not supported or documented.

FORMAL DRIVER TYPE

Serial
Client

COMPATIBILITY

FIELDSERVER MODEL	COMPATIBLE
FS-x2010	Yes
FS-x2011	Yes
FS-x25	Yes
FS-x40	Yes
FS-X30	Yes

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CONNECTION INFORMATION

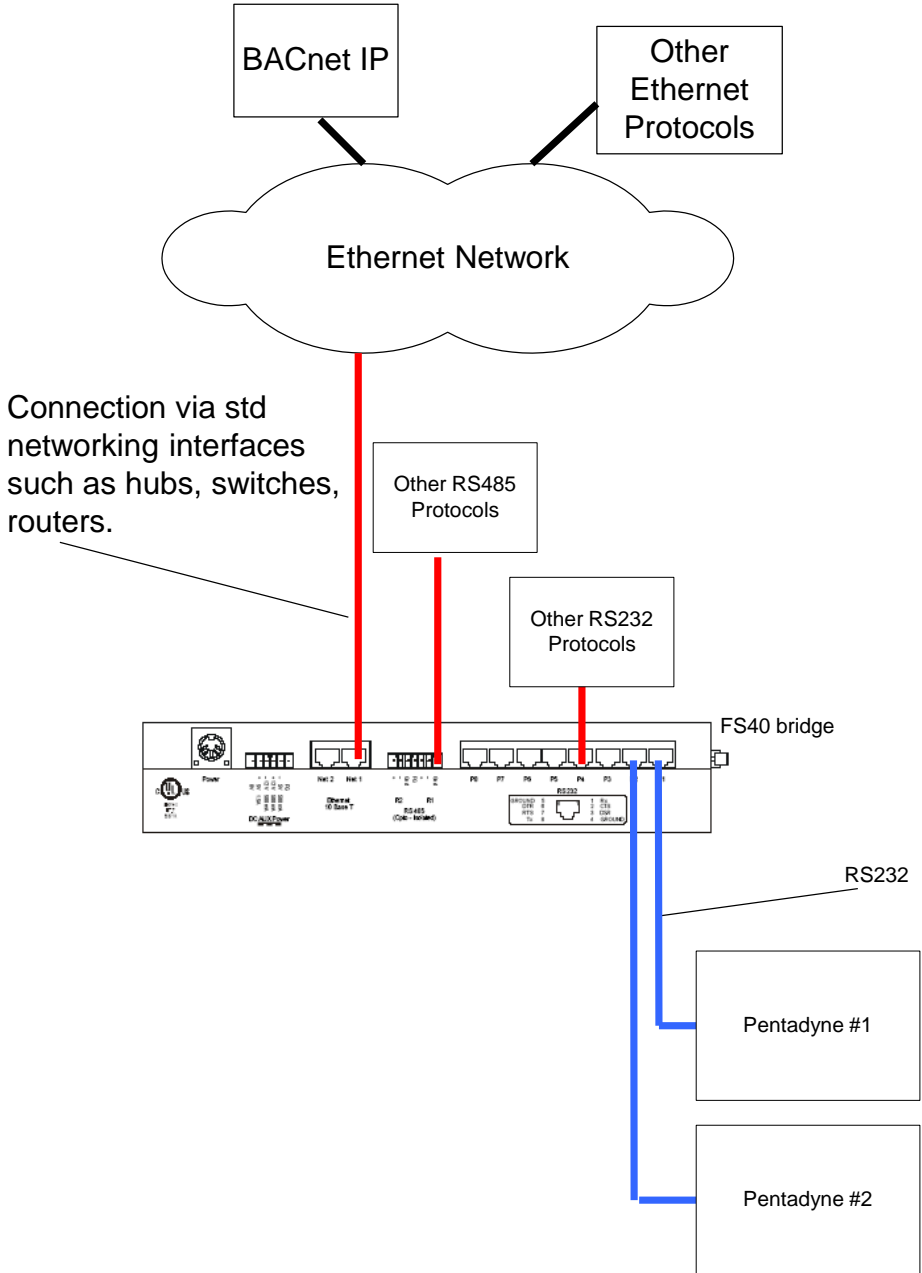|	
Connection type:	EIA232
Baud Rates:	Driver Supports: 110; 300; 600; 1200; 2400; 4800; **9600**; 19200; 28800; 38400; 57600; 115200 Baud
Data Bits:	Driver Supports: 7,**8**
Stop Bits:	Driver Supports: **1**,2
Parity:	Driver Supports: Odd, Even, **None**
Hardware interface:	N/A
Multidrop Capability	No

DEVICES TESTED

DEVICE	TESTED (FACTORY, SITE)
No devices tested yet	Customer Site

CONNECTION CONFIGURATIONS

Multiple Pentadyne Systems can be connected. One per port.
Multiple upstream protocols and connection supported. See list of FieldServer Drivers.

BACnet IP

Other Ethernet Protocols

Ethernet Network

Connection via std networking interfaces such as hubs, switches, routers.

Other RS485 Protocols

Other RS232 Protocols

FS40 bridge

RS232

Pentadyne #1

Pentadyne #2

COMMUNICATION FUNCTIONS

SUPPORTED FUNCTIONS	IMPLEMENTATION VARIATIONS / NOTES
Get Data	Configuration will allow a single parameter or all parameters to be read. It is possible to configure the FieldServer so that there are multiple tasks, each of which could read a specific parameter. The following parameters, when read will be broken out so individual bits can be monitored. Param 9 - Mode Param 10 – Status Param 11 – Control Param 12 – Warning Param 13 – Faults The driver will not support the Rt: and R0: options. If data must be read repeatedly then the FieldServer task to read that data must be executed repeatedly (Easily done with the FieldServer configuration) The driver will evaluate the checksum of responses. If invalid, data from that response will be discarded.

DATA MADE AVAILABLE BY THIS DRIVER

Parameter Data

PARAMETER TABLE		
PARAMETER	**SYMBOL**	**DESCRIPTION**
0	Speed	Flywheel Speed (RPM)
1	SOC	State of Charge (%)
2	V_ext	External voltage (V)
3	V_bus	Bus voltage (V)
4	I_bus	Bus current (A)
5	P_bus	Bus power (W)
6	I_busF	Bus current with fast filter time constant (A)
7	P_busF	Bus power with fast filter time constant (A)
8	t_dis	Last Discharge Time (sec)

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9	Mode	Mode bits – See Table 'Mode Bits'*
10	Status	System Status bits – See Table 'Status Bits'*
11	Control	System Control bits – See Table 'Control Bits'*
12	Warnings	Warning bits – See Table 'Warning Bits'*
13	Faults	Fault bits – See Table 'Fault Bits'*
14	T_cab	Cabinet temperature (°C)
15	T_rotor	Rotor temperature (°C)
16	T_stator	Stator temperature (°C)
17	T_igbt	IGBT temperature (°C)
18	T_pcm	PPM temperature (°C)
19	T_mlm	MCM temperature (°C)
20	T_ps1	24V power supply #1 temp (°C)
21	T_ps2	24V power supply #2 temp (°C) (not available in VSS120)
22	V_ps1	24V power supply voltage #1 (V)
23	V_ps2	24V power supply voltage #2 (V) (not available in VSS120)
24	P_drag	Drag Power (W)
25	t_lastdrag	Drag Power Last Update (sec)
26	Runout	Runout (mil)
27	Offset	Bearing Offset (mil) (not available in VSS120)
28	V_miser	Miser voltage (V)
29	t_oper	Operating hour count (hours)
30	time	Time since midnight (sec)
31	V_reg	Regulation setpoint (V)
32	t_bgloop	Background loop time (msec)
33	V_busR	Bus Voltage ADC count
34	I_busR	Bus current ADC count
35	V_extR	External Bus Voltage ADC count
36	I_aR	A phase Current ADC count
37	I_bR	B phase Current ADC count
38	I_cR	C phase Current ADC count
39	TimeStamp	Current Time – (hhmmss format)
40	DateStamp	Current Date – (yymmdd format)
41	rpm_drag	Speed at time of drag measurement (RPM)
42	V_psA	Aux power supply voltage (V)

*When this parameter is read, the driver will unpack the bit states so each one can be served individually, using another protocol such as BACnet.

MODE BITS	
BIT	**DESCRIPTION**
0	Initialization
1	Disable
2	Startup

3	Coast
4	Fault
5	Shutdown
6	Charge
7	Ready
8	Discharge
9	Standby
10	Off
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved

MODE BITS	
BIT	**DESCRIPTION**
0	OK
1	Ready
2	Starting
3	No bus voltage
4	Warning
5	Fault
6	Overspeed
7	Vacuum test
8	Locked
9	Closing contactor
10	Wait
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved

CONTROL BITS	
BIT	**DESCRIPTION**
0	Contactor
1	Pump
2	Fan1
3	Fan2
4	PWM
5	Start Pressed
6	Disable Pressed
7	Shutdown Pressed
8	DCM Operational

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9	VIB Operational
10	Cycling Mode
11	Sequence Mode
12	Reserved
13	Reserved
14	Reserved
15	Reserved

WARNING BITS	
BIT	**DESCRIPTION**
0	Aux Power Low
1	Vacuum High
2	Runout High
3	Miser High
4	Reserved
5	Reserved
6	Power Supply Voltage Low
7	VIB Inoperative
8	Overspeed
9	Reserved
10	Reserved
11	Reserved
12	Reserved
13	Set Time/date
14	Reserved
15	Reserved

FAULT BITS	
BIT	**DESCRIPTION**
0	Contactor Timeout
1	Reserved
2	Reserved
3	Reserved
4	Pump Open
5	Pump Short
6	Reserved
7	Auxiliary Power Low
8	Ground Fault
9	Hardware Overvoltage
10	C phase Overcurrent
11	IGBT Overtemperature
12	B phase Overcurrent
13	Contactor Open fail
14	A phase Overcurrent

15	Contactor Close fail
16	Vaccuum High
17	Runout High
18	Miser High
19	Rotor Overtemperature
20	Stator Overtemperature
21	Interprocessor Communication
22	24V Power supply
23	PDP interrupt
24	Magnetic Bearing
25	Precharge Protection
26	Bus Current Offset
27	Fan1 Open
28	Fan2 Short
29	Motor Current Offset
30	Software Overvoltage
31	Checksum Error

CUSTOMER SUPPORT

Pentadyne Serial Driver for FieldServer was developed by Chipkin, and we are proud to provide support for our products. For technical support, sales and customer service, please call us at 1 (866) 383-1657.

Thanks for choosing Chipkin's products and integration services to meet your building and industrial automation requirements!

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Sales and Customer Service

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REVISION HISTORY

DATE	RESP.	DRIVER VERSION	DOCUMENT REVISION	COMMENTS
1 Dec 2001	PMC	0.00	0	Draft for Customer Review
18 Jun 2021	YC	0.00	1	Updated to latest template