

Operation guide

Pressure transmitter CAN SAE J1939 DST P92C



Table of contents

Contents

1.	General information.....	2
1.1	Contact.....	2
1.2	General.....	2
1.3	CAN Interface.....	3
2.	Specifications.....	3
3.	J1939 communication.....	3
3.1	Introduction.....	3
3.2	Supported PGN's and SPN's.....	4
3.3	PGN of Danfoss.....	10
3.4	Definitions.....	11
3.4.1	PGN.....	11
3.4.2	SPN.....	11
3.5	Overview of the slot for pressure sensors.....	11
3.6	Additionally, Danfoss specific	12
3.7	References.....	12

1. General Information
1.1 Contact

Danfoss A/S
 Industrial Automation
 DK-6430 Nordborg
 Denmark
www.ia.danfoss.com
 E-mail: technical_support_IA@danfoss.com

1.2 General

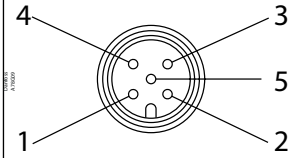
The pressure transmitter DST P92C measures the physical quantity pressure. The range depends on the sensor which is used in the transmitter and is 25–800 bar. The measured value is transmitted on the CAN-Bus with the J1939 protocol. The transmitter takes 1000 samples per second, does filtering and converts the raw value into the output format.

The CAN 2.0B interface is able to run up to a speed of 1 Mbit/sec with 11-bit and 29-bit identifiers.

1.3 CAN Interface

The device includes a Full CAN controller specified to CAN 2.0B. The physical layer of the 2-wire interface is specified according to ISO 11898. The wires are protected against short-circuit. By adjusting the rise and fall times of the CAN signals, the noise emission is minimized. The bus termination resistor is not included in the device.

2. Specifications

Electrical specifications							
Supply voltage	9 – 36 V DC protected against reverse polarity						
Current consumption at $U_s = 24$ V DC	$I < 50$ mA typical, $I_{MAX} < 100$ mA						
CAN Interface							
Physical layer	2-wire interface, 5 V level according to ISO 11898 Protected against short-circuit						
Bit rate	250 kBit/s						
Signal rise time	Bit rate < 125 kbit/s 12 V/ μ s (without bus) Bit rate ≥ 125 kbit/s > 24 V/ μ s (without bus)						
Bus termination	External						
Protokoll	SAE J1939						
Environment							
EMC	EN 61000-6-2 EN 61000-6-4						
Operating temperature	$-40 - 125$ °C						
Media temperature	$-40 - 150$ °C						
M12 connector Pin Assignment (CiA DR303-1)							
	<table border="0"> <tr> <td>Pin 1</td> <td rowspan="5">CAN shield, PE +U_B, +24 V DC GND, 0 V CAN_H, CAN+ CAN_L, CAN-</td> </tr> <tr> <td>Pin 2</td> </tr> <tr> <td>Pin 3</td> </tr> <tr> <td>Pin 4</td> </tr> <tr> <td>Pin 5</td> </tr> </table>	Pin 1	CAN shield, PE + U_B , +24 V DC GND, 0 V CAN_H, CAN+ CAN_L, CAN-	Pin 2	Pin 3	Pin 4	Pin 5
Pin 1	CAN shield, PE + U_B , +24 V DC GND, 0 V CAN_H, CAN+ CAN_L, CAN-						
Pin 2							
Pin 3							
Pin 4							
Pin 5							

3. J1939 Communication

3.1 Introduction

The Society of Automotive Engineers (SAE) developed the 1939 standard to be the preferred CAN for equipment used in industries ranging from agriculture, construction, and fire/rescue to forestry, materials handling as well as on and off-highway vehicles. It is a high-level protocol that defines how communication between nodes (modules) occurs on the bus. The 1939 network is a specific communication system, supporting specific sets of applications and a specific industry, rather than being generalized.

Any electronic control unit (ECU) using J1939 is permitted to transmit a message on the network when the bus is idle. Every message includes a 29-bit identifier, which defines the message priority, what data is contained within the 8-byte data array that follows the identifier, and which ECU sent the message.

3.2 Supported PGN's and SPN's PGN's of SAE J1939

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
61448	1762	50	1-2	SAEpr08	Hydraulic Pressure
61448	6707	50	4-5	SAEpr20	Hydraulik Intake Pressure
61448	6708	50	6-7	SAEpr08	Hydraulic Discharge Pressure Set Point
61475	4334	50	6	SAEpr13	Aftertreatment 1 Diesel Exhaust Fluid Doser 1 Absolute Pressure
61478	4387	50	6	SAEpr13	Aftertreatment 2 Diesel Exhaust Fluid Doser 1 Absolute Pressure
61538	6583	10	1-2	SAEpr22	Tranmission Hydrostatic Loop 1 Pressure
61538	6584	10	3-4	SAEpr22	Tranmission Hydrostatic Loop 2 Pressure
64557	6787	500	1-2	SAEpr03	LNG Tank 1 Vapor Pressure
64557	6788	500	3-4	SAEpr03	LNG Tank 2 Vapor Pressure
64559	7350	1000	4	SAEpr13	Fire Suppression Compressed Air Foam System Air Pressure
64563	7100	500	1-2	SAEpr12	Engine Injector Metering Rail 1 Desired Pressure
64563	7101	500	3-4	SAEpr12	Engine Injector Metering Rail 2 Desired Pressure
64564	7096	500	1-2	SAEpr12	Engine Injector Metering Rail 1 Pressure 1 (Extended Range)
64564	7097	500	3-4	SAEpr12	Engine Injector Metering Rail 1 Pressure 2 (Extended Range)
64564	7098	500	5-6	SAEpr12	Engine Injector Metering Rail 2 Pressure 1 (Extended Range)
64564	7099	500	7-8	SAEpr12	Engine Injector Metering Rail 2 Pressure 2 (Extended Range)
64569	7067	500	1-2	SAEpr06	Plant Gaseous Fuel Supply Outlet Pressure
64569	7068	500	3-4	SAEpr06	Plant Inert Gas Supply Outlet Pressure
64570	7063	500	1-2	SAEpr06	Engine Gaseous Fuel Supply Pressure 2
64570	7064	500	3-4	SAEpr06	Gaseous Fuel Supply Unit Intake Pressure
64570	7065	500	5-6	SAEpr06	Gaseous Fuel Supply Shutoff Valve 1 Intake Pressure
64570	7066	500	7-8	SAEpr06	Gaseous Fuel Supply Shutoff Valve 2 Intake Pressure
64576	7019	500	4-5	SAEpr08	Engine Fuel 2 Pump Hydraulic Pressure
64577	7021	500	1-2	SAEpr08	Engine Fuel 2 Injector Metering Rail 1 Pressure
64577	7022	500	3-4	SAEpr08	Engine Fuel 2 Injector Metering Rail 2 Pressure
64577	7513	500	7-8	SAEpr08	Engine Fuel 2 Injector Metering Rail 1 Pressure 2
64578	6988	10000	2-3	SAEpr22	Time Pressure (Extended Range)
64578	6989	10000	4-5	SAEpr22	Required Tire Pressure
64579	6980	on request	2-3	SAEpr22	Cold Inflation Pressure
64589	6876	500	1	SAEpr10	Aftertreatment 2 Diesel Exhaust Fluid Dosing Pressure
64590	6875	500	1	SAEpr10	Aftertreatment 1 Diesel Exhaust Fluid Dosing Pressure
64590	7459	500	2	SAEpr13	Aftertreatment 1 Diesel Exhaust Fluid Doser 2 Absolute Pressure
64595	6837	500	4	SAEpr10	Gas Leakage Detection 1 Pressure
64595	6838	500	5	SAEpr10	Gas Leakage Detection 2 Pressure
64595	6839	500	6	SAEpr10	Gas Leakage Detection 3 Pressure
64600	6811	1000	1	SAEpr10	Engine Turbocharger 2 Lube Oil Pressure
64600	6812	1000	2	SAEpr10	Engine Turbocharger 3 Lube Oil Pressure
64600	6813	1000	3	SAEpr10	Engine Turbocharger 4 Lube Oil Pressure
64655	6646	100	1	SAEpr09	Engine Gaseous Fuel Supply Pressure (Extended Range)
64656	6589	500	1-2	SAEpr09	Engine Injector Metering Rail 1 Pressure 1
64656	6590	500	3-4	SAEpr09	Engine Injector Metering Rail 1 Pressure 2
64656	6591	500	5-6	SAEpr09	Engine Injector Metering Rail 2 Pressure 1
64656	6592	500	7-8	SAEpr09	Engine Injector Metering Rail 2 Pressure 2

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
64659	6571	on request	1-2	SAEpr03	Engine Main Chamber Fuel Absolute Pressure
64659	6572	on request	3-4	SAEpr03	Engine Main Chamber Fuel Desired Absolute Pressure
64659	6573	on request	5-6	SAEpr03	Engine Prechamber Fuel Absolute Pressure
64659	6574	on request	7-8	SAEpr03	Engine Prechamber Fuel Desired Absolute Pressure
64662	6384	100	1-2	SAEpr04	Engine Exhaust Pressure 1 (Extended Range)
64662	7470	100	3-4	SAEpr03	Engine Pre-Filter Oil Pressure (High Resolution/Extended Range)
64671	6321	1000	1-2	SAEpr01	Engine Oil Filter Differential Pressure (Extended Range)
64705	5927	1000	1	SAEpr14	Transmission Clutch 2 Pressure
64733	5590	500	1-2	SAEpr03	Aftertreatment 2 Secondary Air Absolute Pressure
64734	5589	500	1-2	SAEpr03	Aftertreatment 1 Secondary Air Absolute Pressure
64735	5578	500	1	SAEpr10	Engine Fuel Delivery Absolute Pressure
64735	5579	500	2	SAEpr10	Engine Filtered Fuel Delivery Pressure
64735	5580	500	3	SAEpr10	Engine Filtered Fuel Delivery Absolute Pressure
64735	6816	500	5	SAEpr17	Engine Fuel Return Pressure
64735	7472	500	8	SAEpr11	Engine Fuel Supply Pump Intake Absolute Pressure (Extended Range)
64739	5541	100	1	SAEpr07	Engine Turbocharger 1 Turbine Outlet Pressure
64739	5542	100	2	SAEpr07	Engine Turbocharger 1 Turbine Desired Outlet Pressure
64739	5544	100	4	SAEpr07	Engine Turbocharger 2 Turbine Outlet Pressure
64739	5545	100	5	SAEpr07	Engine Turbocharger 2 Turbine Desired Outlet Pressure
64751	5430	500	1-2	SAEpr03	Engine Exhaust Gas Recirculation 1 Intake Absolute Pressure
64751	5431	500	3-4	SAEpr03	Engine Exhaust Gas Recirculation 1 Outlet Absolute Pressure (High Resolution)
64751	7468	500	5-6	SAEpr03	Engine Oil Pressure (High Resolution/Extended Range)
64751	7469	500	7-8	SAEpr03	Engine Fuel Delivery Pressure (High Resolution/Extended Range)
64752	5417	500	1	SAEpr07	Engine Fuel Filter (Suction Side) Intake Absolute Pressure
64752	7395	500	4-5	SAEpr03	Fuel Tank Transfer Pump Pressure
64765	5313	100	5-6	SAEpr09	Commanded Engine Fuel Rail Pressure
64765	5314	100	7-8	SAEpr09	Commanded Engine Fuel Injection Control Pressure
64766	5259	on request	3-4	SAEpr06	Engine Exhaust Gas Recirculation 2 Cooler Intake Gas Absolute Pressure
64768	5252	500	1-2	SAEpr01	Engine Exhaust Gas Recirculation 2 Differential Pressure
64768	5253	500	3	SAEpr07	Engine Exhaust Gas Recirculation 2 Intake Pressure
64768	5254	500	4-5	SAEpr03	Engine Exhaust Gas Recirculation 2 Outlet Absolute Pressure
64768	5429	500	6-7	SAEpr03	Engine Exhaust Gas Recirculation 2 Intake Absolute Pressure
64768	5708	500	8	SAEpr07	Engine Coolant Pressure 2
64799	4773	500	5-6	SAEpr06	Aftertreatment 2 Diesel Oxidation Catalyst Differential Pressure
64800	4767	500	5-6	SAEpr03	Aftertreatment 1 Diesel Oxidation Catalyst Differential Pressure
64801	4761	500		SAEpr03	Aftertreatment 2 Gas Oxidation Catalyst Differential Pressure
64802	4755	500	5-6	SAEpr03	Aftertreatment 1 Gas Oxidation Catalyst Differential Pressure
64817	1707	1000	5-6	SAEpr06	Hydraulic Fan 2 Motor Pressure
64825	4411	500	1-2	SAEpr03	Aftertreatment 2 SCR Differential Pressure
64825	6587	500	4-5	SAEpr18	Aftertreatment 2 SCR Intake Pressure
64825	6798	500	6-7	SAEpr03	Aftertreatment 2 SCR Intake Absolute Pressure
64827	4388	500	1	SAEpr13	Aftertreatment 2 SCR Dosing Air Assist Absolute Pressure
64831	4358	500	1-2	SAEpr03	Aftertreatment 1 SCR Differential Pressure
64831	6586	500	4-5	SAEpr18	Aftertreatment 1 SCR Intake Pressure
64831	6797	500	6-7	SAEpr03	Aftertreatment 1 SCR Intake Absolute Pressure
64833	4335	500	1	SAEpr13	Aftertreatment 1 SCR Dosing Air Assist Absolute Pressure
64836	4303	500	1-2	SAEpr03	Aftertreatment 2 Fuel Pressure 2
64837	4297	500	5-6	SAEpr03	Aftertreatment 2 Three Way Catalyst Differential Pressure

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
64838	4291	500	5-6	SAEpr03	Aftertreatment 1 Three Way Catalyst Differential Pressure
64869	4077	500	1-2	SAEpr03	Aftertreatment 1 Fuel Pressure 2
64876	3833	500	1-2	SAEpr01	Aftertreatment 2 Secondary Air Differential Pressure
64876	3838	500	7-8	SAEpr03	Aftertreatment 2 Secondary Air Pressure
64877	3830	500	1-2	SAEpr01	Aftertreatment 1 Secondary Air Differential Pressure
64877	3837	500	7-8	SAEpr03	Aftertreatment 1 Secondary Air Pressure
64879	4751	on request	5-6	SAEpr06	Engine Exhaust Gas Recirculation 1 Cooler Intake Absolute Pressure
64900	3640	500	1-2	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #17
64900	3641	500	3-4	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #18
64900	3642	500	5-6	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #19
64900	3643	500	7-8	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #20
64901	3636	500	1-2	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #13
64901	3637	500	3-4	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #14
64901	3638	500	5-6	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #15
64901	3639	500	7-8	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #16
64902	3632	500	1-2	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #9
64902	3633	500	3-4	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #10
64902	3634	500	5-6	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #11
64902	3635	500	7-8	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #12
64903	3628	500	1-2	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #5
64903	3629	500	3-4	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #6
64903	3630	500	5-6	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #7
64903	3631	500	7-8	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #8
64904	3624	500	1-2	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #1
64904	3625	500	3-4	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #2
64904	3626	500	5-6	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #3
64904	3627	500	7-8	SAEpr03	Engine Intake Valve Actuation Oil Pressure for Cylinder #4
64907	3611	500	1-2	SAEpr03	Aftertreatment 2 Diesel Particulate Filter Intake Pressure
64907	3612	500	3-4	SAEpr03	Aftertreatment 2 Diesel Particulate Filter Outlet Pressure
64908	3609	500	1-2	SAEpr03	Aftertreatment 1 Diesel Particulate Filter Intake Pressure
64908	3610	500	3-4	SAEpr03	Aftertreatment 1 Diesel Particulate Filter Outlet Pressure
64916	5312	100	7-8	SAEpr04	Engine Intake Manifold Commanded Pressure
64926	3499	500	1-2	SAEpr03	Aftertreatment 2 Supply Air Pressure
64926	3500	500	3-4	SAEpr03	Aftertreatment 2 Purge Air Pressure
64927	3485	500	1-2	SAEpr03	Aftertreatment 1 Aupply Air Pressure
64927	3486	500	3-4	SAEpr03	Aftertreatment 1 Purge Air Pressure
64928	3494	500	1-2	SAEpr03	Aftertreatment 2 Fuel Pressure 1
64929	3480	500	1-2	SAEpr03	Aftertreatment 1 Fuel Pressure 1
64930	3466	500	1-2	SAEpr03	Engine Fuel Valve 2 Intake Absolute Pressure
64930	3469	500	7-8	SAEpr03	Engine Fuel Valve 2 Outlet Absolute Pressure
64938	3340	500	1	SAEpr07	Engine Charge Air Cooler 1 Intake Pressure
64938	3341	500	2	SAEpr07	Engine Charge Air Cooler 2 Intake Pressure
64938	3342	500	3	SAEpr17	Engine Coolant Pump Differential Pressure
64938	2631	500	8	SAEpr07	Engine Charge Air Cooler Outlet Pressure
64943	3285	500	5-6	SAEpr03	Aftertreatment 2 Diesel Particulate Filter Differential Pressure
64946	3251	500	5-6	SAEpr03	Aftertreatment 1 Diesel Particulate Filter Differential Pressure
64953	3191	on request	2	SAEpr13	Reference Tire Pressure
64961	2948	500	1-2	SAEpr09	Engine Intake Valve Actuation System Oil Pressure

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
64961	3358	500	3	SAEpr07	Engine Exhaust Gas Recirculation 1 Intake Pressure
64961	4287	500	4-5	SAEpr09	Engine Exhaust Valve Actuation System Oil Pressure
64961	5019	500	6	SAEpr07	Engine Exhaust Gas Recirculation 1 Outlet Pressure
64961	5631	500	7-8	SAEpr03	Engine Throttle Valve 1 Differential Pressure
64976	2809	500	1	SAEpr02	Engine Air Filter 2 Differential Pressure
64976	2810	500	2	SAEpr02	Engine Air Filter 3 Differential Pressure
64976	2811	500	3	SAEpr02	Engine Air Filter 4 Differential Pressure
64976	3562	500	4	SAEpr07	Engine Intake Manifold #2 Pressure
64976	3563	500	5	SAEpr07	Engine Intake Manifolds #1 Absolute Pressure
64976	4817	500	6-7	SAEpr03	Engine Intake Manifold 1 Absolute Pressure (High Resolution)
64976	5422	500	8	SAEpr07	Engine Intake Manifold 2 Absolute Pressure
64992	5685	1000	7-8	SAEpr03	Barometric Absolute Pressure (High Resolution)
64993	2609	1000	1	SAEpr14	Cab A/C Refrigerant Compressor Outlet Pressure
64994	2603	1000	1	SAEpr13	Pneumatic Supply Pressure Request
64994	2604	1000	2	SAEpr13	Parking and/or Trailer Air Pressure Request
64994	2605	1000	3	SAEpr13	Service Brake Air Pressure Request, Circuit #1
64994	2606	1000	4	SAEpr13	Service Brake Air Pressure Request, Circuit #2
64994	2607	1000	5	SAEpr13	Auxiliary Equipment Supply Pressure Request
64994	2608	1000	6	SAEpr13	Air Suspension Supply Pressure Request
64994	6306	1000	7	SAEpr13	Powertrain Circuit Air Supply Pressure Request
64998	2580	100	1	SAEpr15	Hydraulic Brake Pressure Circuit 1
64998	2581	100	2	SAEpr15	Hydraulic Brake Pressure Circuit 2
65112	1725	100	1-2	SAEpr03	Bellow Pressure Front Axle Left
65112	1726	100	3-4	SAEpr03	Bellow Pressure Front Axle Right
65112	1727	100	5-6	SAEpr03	Bellow Pressure Rear Axle Left
65112	1728	100	7-8	SAEpr03	Bellow Pressure Rear Axle Right
65130	1381	500	2	SAEpr07	Engine Fuel Supply Pump Intake Absolute Pressure
65130	1382	500	3	SAEpr07	Engine Fuel Filter (suction side) Differential Pressure
65130	3549	500	5	SAEpr10	Engine Oil-Filter Outlet Pressure
65130	7104	500	8	SAEpr07	Engine Fuel Supply Pump Intake Pressure
65143	136	on request	1-2	SAEpr06	Auxiliary Vacuum Pressure Reading
65143	137	on request	3-4	SAEpr06	Auxiliary Gage Pressure Reading 1
65143	138	on request	5-6	SAEpr06	Auxiliary Absolute Pressure Reading
65145	141	on request	1-2	SAEpr06	Trailer, Tag or Push Channel Tire Pressure Target
65145	142	on request	3-4	SAEpr06	Drive Channel Tire Pressure Target
65145	143	on request	5-6	SAEpr06	Steer Channel Tire Pressure Target
65146	144	on request	1-2	SAEpr06	Trailer, Tag or Push Channel Tire Pressure
65146	145	on request	3-4	SAEpr06	Drive Channel Tire Pressure
65146	146	on request	5-6	SAEpr06	Steer Channel Tire Pressure
65163	1390	on request	1-2	SAEpr03	Engine Fuel Valve 1 Intake Absolute Pressure
65163	1391	on request	3-4	SAEpr03	Engine Fuel Valve 1 Differential Pressure
65163	1392	on request	5-6	SAEpr03	Engine Air to Fuel Differential Pressure
65163	2980	on request	7-8	SAEpr03	Engine Fuel Valve 1 Outlet Absolute Pressure
65164	1387	on request	3	SAEpr14	Auxiliary Pressure #1
65163	1388	on request	4	SAEpr14	Auxiliary Pressure #2
65167	1320	1000	1-2	SAEpr06	Engine External Shutdown Air Supply Pressure
65170	1208	100	1	SAEpr10	Engine Pre-filter Oil Pressure
65170	1209	100	2-3	SAEpr01	Engine Exhaust Pressure 1

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
65172	1203	500	1	SAEpr10	Engine Auxiliary Coolant Pressure
65172	2435	500	3	SAEpr07	Sea Water Pump Outlet Pressure
65172	20	500	4	SAEpr10	Engine Coolant Pressure 1 (Extended Range)
65172	7313	500	5	SAEpr10	Engine Coolant Pressure 2 (Extended Range)
65174	1192	100	5	SAEpr10	Engine Turbocharger Wastegate Actuator Control Air Pressure
65177	1176	1000	1-2	SAEpr01	Engine Turbocharger 1 Compressor Intake Pressure
65177	1177	1000	3-4	SAEpr01	Engine Turbocharger 2 Compressor Intake Pressure
65177	1178	1000	5-6	SAEpr01	Engine Turbocharger 3 Compressor Intake Pressure
65177	1179	1000	7-8	SAEpr01	Engine Turbocharger 4 Compressor Intake Pressure
65179	1168	1000	1	SAEpr10	Engine Turbocharger Lube Oil Pressure 2
65188	411	1000	5-6	SAEpr01	Engine Exhaust Gas Recirculation 1 Differential Pressure
65190	1127	500	1-2	SAEpr04	Engine Turbocharger 1 Boost Pressure
65190	1128	500	3-4	SAEpr04	Engine Turbocharger 2 Boost Pressure
65190	1129	500	5-6	SAEpr04	Engine Turbocharger 3 Boost Pressure
65190	1130	500	7-8	SAEpr04	Engine Turbocharger 4 Boost Pressure
65194	1692	on request	2-3	SAEpr03	Engine Intake Manifold Desired Absolute Pressure
65197	1091	100	1	SAEpr11	Brake Application Pressure High Range, Front Axle, Left Wheel
65197	1092	100	2	SAEpr11	Brake Application Pressure High Range, Front Axle, Right Wheel
65197	1093	100	3	SAEpr11	Brake Application Pressure High Range, Rear Axle #1, Left Wheel
65197	1094	100	4	SAEpr11	Brake Application Pressure High Range, Rear Axle, Right Wheel
65197	1095	100	5	SAEpr11	Brake Application Pressure High Range, Rear Axle #2, Left Wheel
65197	1096	100	6	SAEpr11	Brake Application Pressure High Range, Rear Axle #2, Right Wheel
65197	1097	100	7	SAEpr11	Brake Application Pressure High Range, Rear Axle #3, Left Wheel
65197	1098	100	8	SAEpr11	Brake Application Pressure High Range, Rear Axle #3, Right Wheel
65198	46	1000	1	SAEpr13	Pneumatic Supply Pressure
65198	1086	1000	2	SAEpr13	Parking and/or Trailer Air Pressure
65198	1087	1000	3	SAEpr13	Service Brake Circuit 1 Air Pressure
65198	1088	1000	4	SAEpr13	Service Brake Circuit 21 Air Pressure
65198	1089	1000	5	SAEpr13	Auxiliary Equipment Supply Pressure
65198	1090	1000	6	SAEpr13	Air Suspension Supply Pressure
65198	6305	1000	8	SAEpr13	Powertrain Circuit Air Supply Pressure
65213	4211	1000	5-6	SAEpr06	Hydraulic Fan Motor Pressure
65243	164	500	1-2	SAEpr09	Engine Injection Control Pressure
65243	147	500	3-4	SAEpr09	Engine Injection Metering Rail 1 Pressure
65243	156	500	5-6	SAEpr09	Engine Injection Timing Rail 1 Pressure
65243	1349	500	7-8	SAEpr09	Engine Injection Metering Rail 2 Pressure
65245	104	1000	1	SAEpr10	Engine Turbocharger Lube Oil Pressure 1
65246	82	on request	1	SAEpr10	Engine Air Start Pressure
65246	6831	on request	2	SAEpr14	Engine Air Start Pressure (Extended Range)
65246	6832	on request	3	SAEpr10	Engine Air Stop Pressure
65263	94	500	1	SAEpr10	Engine Fuel Delivery Pressure
65263	22	500	2	SAEpr02	Engine Extended Crankcase Blow-by Pressure
65263	100	500	4	SAEpr10	Engine Oil Pressure
65263	101	500	5-6	SAEpr01	Engine Crankcase Pressure 1
65263	109	500	7	SAEpr07	Engine Coolant Pressure 1
65268	241	10000	2	SAEpr10	Tire Pressure
65269	108	1000	1	SAEpr05	Barometric Pressure
65270	81	500	1	SAEpr05	Aftertreatment 1 Diesel Particulate Filter Intake Pressure (use SPN 3609)

PGN	SPN	TTR [ms]	Data Position	Slot	SPN Name
65270	102	500	2	SAEpr07	Engine Intake Manifold #1 Pressure
65270	106	500	4	SAEpr07	Engine Intake Air Pressure
65270	107	500	5	SAEpr02	Engine Air Filter 1 Differential Pressure
65270	112	500	8	SAEpr05	Engine Coolant Filter Differential Pressure
65272	123	1000	1	SAEpr14	Clutch Pressure
65272	126	1000	3	SAEpr07	Transmission Filter Differential Pressure
65272	127	1000	4	SAEpr14	Transmission Oil Pressure
65273	579	1000	3	SAEpr10	Drive Axle Lift Air Pressure
65273	2613	1000	5	SAEpr10	Drive Axle Lube Pressure
65273	2614	1000	8	SAEpr10	Steering Axlke Lube Pressure
65274	116	1000	1	SAEpr10	Brake Applcation Pressure
65274	117	1000	2	SAEpr10	Brake Primary Pressure
65274	118	1000	3	SAEpr10	Brake Secondary Pressure
65275	119	1000	1	SAEpr14	Hydraulic Retarder Pressure
65276	95	1000	3	SAEpr07	Engine Fuel Filter Differential Pressure
65276	99	1000	4	SAEpr05	Engine Oil Filter Differential Pressure
65276	7471	1000	8	SAEpr11	Engine Oil Filter Differential Pressure (Extended Range)
65277	159	500	2-3	SAEpr06	Engine Gaseous Fuel Supply Pressure 1
65277	6814	500	4-5	SAEpr06	Engine Gaseous Fuel Vent Pressure
65278	73	1000	1	SAEpr14	Auxiliary Pump Pressure

3.3 PGNs of Danfoss

There are some additional Danfoss-specific PGNs and SPNs to use the DST P92C with J1939 in general

PGN	SPN	TTR [ms]	Data Position	Slot	Description
65280	Danfoss01	100	1-2	Danfosspr01	General purpose
65281	Danfoss02	100	1-2	Danfosspr02	General purpose
65282	Danfoss03	100	1-2	Danfosspr03	General purpose
65283	Danfoss04	100	1-2	Danfosspr04	General purpose
65284	Danfoss05	100	1-2	Danfosspr05	General purpose
65285	Danfoss06	100	1-2	Danfosspr06	General purpose
65286	Danfoss07	100	1-2	Danfosspr07	General purpose
65287	Danfoss08	100	1-2	Danfosspr08	General purpose
65288	Danfoss09	100	1-2	Danfosspr09	General purpose
65289	Danfoss10	100	1-2	Danfosspr10	General purpose
65290	Danfoss11	100	1-2	Danfosspr11	General purpose
65291	Danfoss12	100	1-2	Danfosspr12	General purpose
65292	Danfoss13	100	1-2	Danfosspr13	General purpose
65293	Danfoss14	100	1-2	Danfosspr14	General purpose
65294	Danfoss15	100	1-2	Danfosspr15	General purpose
65295	Danfoss16	100	1-2	Danfosspr16	General purpose
65296	Danfoss17	100	1-2	Danfosspr17	General purpose
65297	Danfoss18	100	1-2	Danfosspr18	General purpose
65298	Danfoss19	100	1-2	Danfosspr19	General purpose
65299	Danfoss20	100	1-2	Danfosspr20	General purpose
65300	Danfoss21	100	1-2	Danfosspr21	General purpose
65301	Danfoss22	100	1-2	Danfosspr22	General purpose
65302	Danfoss23	100	1-2	Danfosspr23	General purpose
65303	Danfoss24	100	1-2	Danfosspr24	General purpose
65304	Danfoss25	100	1-2	Danfosspr25	General purpose
65305	Danfoss26	100	1-2	Danfosspr26	General purpose
65306	Danfoss27	100	1-2	Danfosspr27	General purpose
65307	Danfoss28	100	1-2	Danfosspr28	General purpose
65308	Danfoss29	100	1-2	Danfosspr29	General purpose
65309	Danfoss30	100	1-2	Danfosspr30	General purpose
65310	Danfoss31	100	1-2	Danfosspr31	General purpose
65311	Danfoss32	100	1-2	Danfosspr32	General purpose

3.4 Definitions

3.4.1 PGN

The PGN (Parameter Group Number) uniquely identifies the Parameter Group (PG) that is being transmitted in the message. The Parameter Group Number (PGN) is a part of the 29-bit identifier sent with every message.

3.4.2 SPN

Each parameter used in the J1939 network is described by the standard. A Suspect Parameter Number (SPN) is a number that has been assigned by SAE committee to a specific parameter. Each SPN has the following detailed information associated with it: data length (in bytes); data type; resolution, offset; range; and a tag (label) for reference. SPNs that share common characteristics will be grouped into a Parameter Group (PG) and will be transmitted to the network using the same PGN.

3.5 Overview of the slots for pressure sensors

Slot Name	Slot Type	Units	Scaling	Range	Offset	Length
SAEpr01	Pressure	kPa	1/128 kPa/bit	-250 kPa – 251.99 kPa	-250 kPa	2 bytes
SAEpr02	Pressure	kPa	0.05 kPa/bit	0 – 12.5 kPa	0 kPa	1 byte
SAEpr03	Pressure	kPa	0.1 kPa/bit	0 – 6425.5 kPa	0 kPa	2 bytes
SAEpr04	Pressure	kPa	0.125 kPa/bit	0 – 8031.875 kPa (0 – 1164.62 psi)	0 kPa	2 bytes
SAEpr05	Pressure	kPa	0.5 kPa/bit	0 – 125 kPa	0 kPa	1 byte
SAEpr06	Pressure	kPa	0.5 kPa/bit	0 – 32127.5 kPa	0 kPa	2 bytes
SAEpr07	Pressure	kPa	2 kPa/bit	0 – 500 kPa	0 kPa	1 byte
SAEpr08	Pressure	kPa	2 kPa/bit	0 – 128510 kPa	0 kPa	2 bytes
SAEpr09	Pressure	MPa	1/256 MPa/bit	0 – 251 MPa	0 kPa	2 bytes
SAEpr10	Pressure	kPa	4 kPa/bit	0 – 1000 kPa	0 kPa	1 byte
SAEpr11	Pressure	kPa	5 kPa/bit	0 – 1250 kPa	0 kPa	1 byte
SAEpr12	Pressure	kPa	5 kPa/bit	0 – 321275 kPa	0 kPa	2 bytes
SAEpr13	Pressure	kPa	8 kPa/bit	0 – 2000 kPa	0 kPa	1 byte
SAEpr14	Pressure	kPa	16 kPa/bit	0 – 4000 kPa	0 kPa	1 byte
SAEpr15	Pressure	kPa	100 kPa/bit	0 – 25 MPa	0 kPa	1 byte
SAEpr16	Pressure	kPa	50 kPa/bit	0 – 12500 kPa	0 kPa	1 byte
SAEpr17	Pressure	kPa	1.64 kPa/bit	-7 – 403 kPa	-7 kPa	1 byte
SAEpr18	Pressure	kPa	0.1 kPa/bit	-3212.7 – 3212.8 kPa	-3212.7 kPa	2 bytes
SAEpr19	Pressure	kPa	1/128 kPa/bit	0 – 501.9921875 kPa	0 kPa	2 bytes
SAEpr20	Pressure	MPa	1/8192 MPa/bit	-1 – 6.84362793 MPa	-1 MPa	2 bytes
SAEpr21	Pressure	MPa	1/1024 MPa/bit	0 – 62.74902344 MPa	0 MPa	2 bytes
SAEpr22	Pressure	kPa	1 kPa/bit	0 – 64255 kPa	0 kPa	2 bytes
SAEpr23	Pressure	kPa	10 kPa/bit	-40000 – 602550 kPa	-40000 kPa	2 bytes
SAEpr24	Pressure	MPa	0.0035176 MPa/bit	-102.0104 – 124.012988 MPa	-102.0104 MPa	2 bytes

3.6 Additionally, there are some Danfoss specific

Slot Name	Slot Type	Units	Scaling	Range	Offset	Length
Danfosspr01	Pressure	bar	0.4 mbar/bit	0 – 25.702 bar	0 bar	2 bytes
Danfosspr02	Pressure	bar	0.75 mbar/bit	0 – 48.19125 bar	0 bar	2 bytes
Danfosspr03	Pressure	bar	1.5 mbar/bit	0 – 96.3825 bar	0 bar	2 bytes
Danfosspr04	Pressure	bar	4 mbar/bit	0 – 257.02 bar	0 bar	2 bytes
Danfosspr05	Pressure	bar	6 mbar/bit	0 – 385.53 bar	0 bar	2 bytes
Danfosspr06	Pressure	bar	10 mbar/bit	0 – 642.55 bar	0 bar	2 bytes
Danfosspr07	Pressure	bar	12.5 mbar/bit	0 – 803.1875 bar	0 bar	2 bytes
Danfosspr08	Pressure	psi	0.006 psi/bit	0 – 385.53 psi	0 psi	2 bytes
Danfosspr09	Pressure	psi	0.01 psi/bit	0 – 642.55 psi	0 psi	2 bytes
Danfosspr10	Pressure	psi	0.02 psi/bit	0 – 1285.1 psi	0 psi	2 bytes
Danfosspr11	Pressure	psi	0.05 psi/bit	0 – 3212.75 psi	0 psi	2 bytes
Danfosspr12	Pressure	psi	0.09 psi/bit	0 – 5782.95 psi	0 psi	2 bytes
Danfosspr13	Pressure	psi	0.125 psi/bit	0 – 8031.875 psi	0 psi	2 bytes
Danfosspr14	Pressure	psi	0.175 psi/bit	0 – 11244.625 psi	0 psi	2 bytes
Danfosspr15	Pressure	bar	19 mbar/bit	0 – 1220.845 bar	0 bar	2 bytes
Danfosspr16	Pressure	bar	32 mbar/bit	0 – 2056.160 bar	0 bar	2 bytes
Danfosspr17	Pressure	bar	47 mbar/bit	0 – 3019.985 bar	0 bar	2 bytes
Danfosspr18	Pressure	psi	0.271 psi/bit	0 – 17413.105	0 psi	2 bytes
Danfosspr19	Pressure	psi	0.452 psi/bit	0 – 29043.260 psi	0 psi	2 bytes
Danfosspr20	Pressure	psi	0.678 psi	0 – 43564.890 psi	0 psi	2 bytes
Danfosspr21	Pressure	bar	0.032 mbar/bit	-1 – 1.05616 bar	-1 bar	2 bytes
Danfosspr22	Pressure	bar	0.18 mbar/bit	-1 – 10.5659 bar	-1 bar	2 bytes
Danfosspr23	Pressure	bar	0.41 mbar/bit	-1 – 25.34455 bar	-1 bar	2 bytes
Danfosspr24	Pressure	bar	0.016 mbar/bit	0 – 1.02808 bar	0 bar	2 bytes
Danfosspr25	Pressure	bar	0.078 mbar/bit	0 – 5.01189 bar	0 bar	2 bytes
Danfosspr26	Pressure	bar	0.16 mbar/bit	0 – 10.2808 bar	0 bar	2 bytes
Danfosspr27	Pressure	psi	0.00046 psi/bit	-14.5 – 15.0573 psi	-14.5 psi	2 bytes
Danfosspr28	Pressure	psi	0.0025 psi/bit	-14.5 – 146.1375 psi	-14.5 psi	2 bytes
Danfosspr29	Pressure	psi	0.0063 psi/bit	-14.5 – 390.3065 psi	-14.5 psi	2 bytes
Danfosspr30	Pressure	psi	0.0003 psi/bit	0 – 19.2765 psi	0 psi	2 bytes
Danfosspr31	Pressure	psi	0.0012 psi/bit	0 – 77.106 psi	0 psi	2 bytes
Danfosspr32	Pressure	psi	0.0023 psi/bit	0 – 147.7865 psi	0 psi	2 bytes

3.7 References

ISO11783-3 Data Link Layer
J1939-71

Danfoss A/S | Industrial Automation | Nordborgvej 81 | DK-6430 Nordborg | Denmark | www.ia.danfoss.com

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.