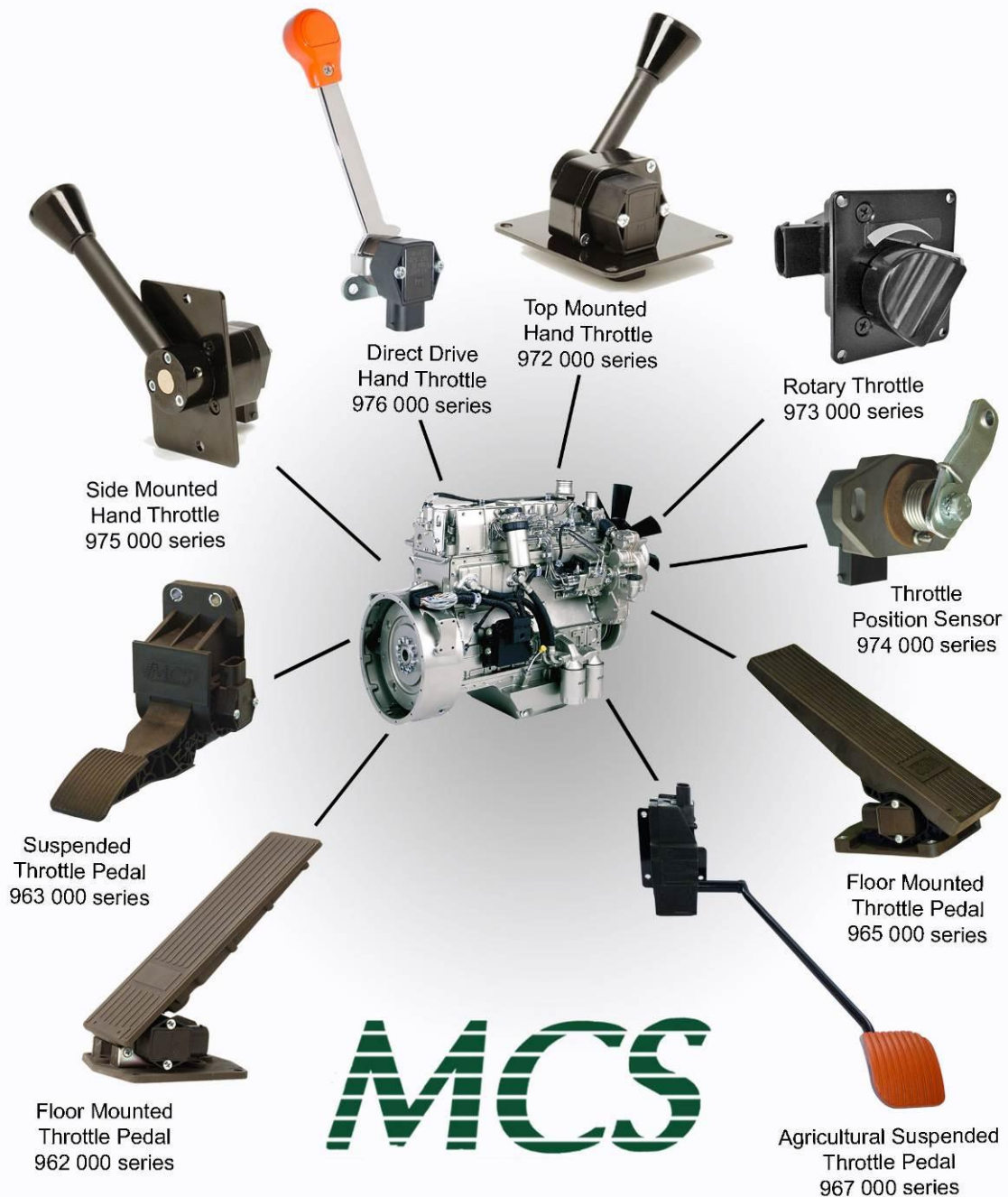



MCS Analogue Electronic Throttle Controls for **SISU DIESEL** Engines



We make your engine run

	ELECTRONIC THROTTLE CONTROLS	SISU DIESEL Analogue	Page 2 of 11 V8
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Technical description:

The **MCS**[®] Electronic Analogue Throttle Controls have been developed to match the signal required to operate the **SISU DIESEL** Engine Management System, and has been **approved by SISU Engineering**. The signal generated by the Throttle Controls will allow a smooth and precise engine speed control.

The Hall Effect Sensor, fitted on the Throttle Control has two galvanic separated output signals. Depending upon setting, the sensor can deliver one single analogue signal, two analogue signals or one analogue signal + IVS, PWM or Kick-down signal. The second signal is nevertheless not activated for applications on **SISU DIESEL** engines.

The output values of the two channels are programmable and hence can be adapted to the customer's specification.

For the **SISU DIESEL** Engine Management System, the sensor is factory preset according to **SISU Engineering Standards**. IVS is not activated.

The **MCS**[®] Electronic Analogue Throttle Control can be connected directly to the **SISU DIESEL** Engine Management System.

Optional wire harness according to customer specification (length and connector models) is available upon request.

Please don't hesitate to contact our factory if you need any assistance about your application.

1. Electronic Heavy Duty Throttle Pedal



- Analogue output signal: 0,5V – 4,5V +/- 0,05V
- Fitted with Hall Effect Sensor
- Two built-in return springs
- Additional return spring built in the Sensor
- Angle options : 30°, 35° or 45°
- Protection classification : IP 66
- Die cast aluminium treadle and mounting plates
- Kick down virtual feedback and kick down signal available in option
- **CE** certified / Complies with 72/245/EEC
- Complies with FMVSS 124

Mechanical specification:

Pedal angle in < rest position>	45°, 35° or 30°
Pedal travel angle	22°
Return springs	2
Storage temperature	- 40°C to + 95° C
Operating temperature	- 40°C to + 85° C
Protection classification (sealing)	IP 66
Connector	AMP – 6 pins – waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal, IVS or Kick-Down signal available in option.
Resolution	5 mV


Throttle Pedal part numbers:

MCS Part number	Pedal angle	MCS drawing number*
962 145 L101	45°	504 420
962 135 L101	35°	504 336
962 130 L103	30°	504 422

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Throttle Pedals with options such as twin sensors, kick down, swivel arm, wire harness or connectors are available upon request.

2. Electronic Suspended Throttle Pedal

	<ul style="list-style-type: none"> ➤ Analogue output signal: 0,5V – 4,5V +/- 0,05V ➤ Fitted with Hall Effect Sensor ➤ Two built-in return springs ➤ Protection classification : IP 69K ➤ Material: PA66 GF30 ➤ Magnetic kick down with optional kick down signal available in option ➤ CE certified / Complies with 72/245/EEC ➤ Complies with FMVSS 124
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Mechanical specification:

Pedal angle in < rest position>	15°
Pedal travel angle	24°
Return springs	2
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP 69K
Connector	AMP – 6 pins – waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal, IVS or Kick-Down signal available in option.
Resolution	5 mV


Throttle Pedal part numbers:

MCS Part number	Pedal angle	MCS drawing number*
963 115 L101	15°	504 199

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Throttle Pedals with options such as twin sensors, kick down, swivel arm, wire harness or connectors are available upon request.

3. Electronic Floor Mounted Throttle Pedal

	<ul style="list-style-type: none"> ➤ Analogue output signal: 0,5V – 4,5V +/- 0,05V ➤ Fitted with Hall Effect Sensor ➤ Two built-in return springs ➤ Angle options : 30°, 35° or 45° ➤ Protection classification : IP 69K ➤ Material: PA66 GF30 ➤ Long or short treadle plate available ➤ Magnetic kick down with optional kick down signal available in option ➤ CE certified / Complies with 72/245/EEC ➤ Complies with FMVSS 124
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Mechanical specification:

Pedal angle in < rest position>	45°, 35° or 30°
Pedal travel angle	22°
Return springs	2
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP 69K
Connector	AMP – 6 pins – waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal, IVS or Kick-Down signal available in option.
Resolution	5 mV


Throttle Pedal part numbers:

MCS Part number	Pedal angle	MCS drawing number*
965 145 L103	45°	504 421
Available upon request	35°	-
965 130 L104	30°	504 337

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Throttle Pedals with options such as kick down, swivel arm, wire harness or connectors are available upon request.

4. Electronic Agricultural Throttle Pedal

	<ul style="list-style-type: none"> ➤ Analogue output signal: 0,5V – 4,5V +/- 0,05V ➤ Fitted with Hall Effect Sensor ➤ Two built-in return springs ➤ Travel angle : max 20° ➤ Protection classification : IP 69K ➤ Material: PA66 GF30 / Steel ➤ Mounting plate and pedal arm are customizable ➤ Pedal pad design and color are customizable ➤ Pedal full position reached on cabin floor ➤ CE certified / Complies with 72/245/EEC ➤ Complies with FMVSS 124
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Mechanical specification:

Pedal angle in < rest position>	customizable
Pedal travel angle	Max 20°
Return springs	2
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP 69K
Connector	AMP – 6 pins – waterproof

Electrical specification:

Analogue Sensor – 1 Signal 0,5V - 4,5V

Current consumption	< 8 mA
Power source (Vs)	5V DC
Output current	Max. 1 mA
Channel 1: output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel 2: output value	Not activated. Analogue signal, PWM signal, IVS or Kick-Down signal available in option.
Resolution	5 mV


Throttle Pedal part numbers:

MCS Part number	Pedal angle	MCS drawing number*
967 117 P101	17°	504 197

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Throttle Pedals with options such as customized mounting plate, customized pedal arm, customized pedal pad, swivel arm, wire harness or connectors are available upon request.

5. Electronic Hand Throttle

	<ul style="list-style-type: none"> ➤ Analogue output signal: 0,5V – 4,5V +/- 0,05V ➤ Fitted with Hall Effect Sensor ➤ Adjustable actuating force ➤ Travel angle : 90° ➤ Protection classification : IP 66 ➤ Allows engine constant RPM at selected rate through lever position ➤ Easy to use in combination with Throttle Pedal or Throttle Position Sensor ➤ Very convenient whenever engine is operated from more than one station ➤ CE certified / Complies with 72/245/EEC
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Mechanical specification:

Travel angle – Idle to full throttle -	90°
Actuating force	adjustable
Return spring	none
Storage temperature	- 40°C to + 95° C
Operating temperature	- 40°C to + 85° C
Protection classification (sealing)	IP 66
Connector	AMP - 6 pins - waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal or IVS available in option.
Resolution	5 mV

Hand Throttle part number:

MCS Part number	Travel angle	MCS drawing number*
972 190 P105	90°	501 812

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Hand Throttle with options such as wire harness or connectors are available upon request.

6. Electronic Rotary Control



- Analogue output signal: 0,5V – 4,5V +/- 0,05V
- Fitted with Hall Effect Sensor
- Adjustable actuating force
- Travel angle : 90°
- Protection classification : IP 66
- Allows engine constant RPM at selected rate through knob position
- Easy to use in combination with Throttle Pedal or Throttle Position Sensor
- Very convenient whenever engine is operated from more than one station
- **CE** certified / Complies with 72/245/EEC

Mechanical specification:

Travel angle – Idle to full throttle -	90°
Actuating force	adjustable
Return spring	none
Storage temperature	- 40°C to + 95° C
Operating temperature	- 40°C to + 85° C
Protection classification (sealing)	IP 66
Connector	AMP – 6 pins - waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal or IVS available in option.
Resolution	5 mV


Rotary Control part number:

MCS Part number	Travel angle	MCS drawing number*
Available upon request	90°	-

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Rotary Control with options such as wire harness or connectors are available upon request.

7. Electronic Throttle Position Sensor

	<ul style="list-style-type: none"> ➤ Analogue output signal: 0,5V – 4,5V +/- 0,05V ➤ Fitted with Hall Effect Sensor ➤ One return spring: 20N Idle – 25N Full +/-2N ➤ Travel angle : 42° ➤ Protection classification : IP69K ➤ Easy to be fitted on an existing pedal cable or linkage ➤ Very convenient whenever engine is operated from more than one station ➤ One additional external return spring required on throttle mechanism in order to be FMVSS 124 compatible ➤ CE certified / Complies with 72/245/EEC
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Mechanical specification:

Travel angle – Idle to full throttle -	42°
Return spring	1
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP69K
Connector	AMP – 6 pins - waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal or IVS available in option.
Resolution	5 mV

Throttle Position Sensor part number:

MCS Part number	Travel angle	MCS drawing number*
974 145 L154	42°	504 514

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Throttle Position Sensor with options such as wire harness or connectors are available upon request.

8. Electronic Side Mounted Hand Throttle



- Analogue output signal: 0,5V – 4,5V +/- 0,05V
- Fitted with Hall Effect Sensor
- Adjustable actuating force
- Travel angle : 90°
- Protection classification : IP 66
- Allows engine constant RPM at selected rate through lever position
- Easy to use in combination with Throttle Pedal or Throttle Position Sensor
- Very convenient whenever engine is operated from more than one station
- **CE** certified / Complies with 72/245/EEC

Mechanical specification:

Travel angle – Idle to full throttle -	90°
Actuating force	adjustable
Return spring	none
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP 66
Connector	AMP – 6 pins - waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal or IVS available in option.
Resolution	5 mV

Side Mounted Hand Throttle part number:

MCS Part number	Travel angle	MCS drawing number*
975 190 L103	90°	504 504

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Side Mounted Hand Throttle with options such as wire harness or connectors are available upon request.

9. Electronic Direct Drive Hand Throttle



- Analogue output signal: 0,5V – 4,5V +/- 0,05V
- Fitted with Hall Effect Sensor
- Travel angle : 45°
- Protection classification : IP 66
- Allows engine constant RPM at selected rate through lever position
- Easy to use in combination with Throttle Pedal or Throttle Position Sensor
- Very convenient whenever engine is operated from more than one station
- **CE** certified / Complies with 72/245/EEC

Mechanical specification:

Travel angle – Idle to full throttle -	45°
Return spring	none
Storage temperature	– 40°C to + 95° C
Operating temperature	– 40°C to + 85° C
Protection classification (sealing)	IP 66
Connector	AMP - 6 pins - waterproof

Electrical specification:

Analogue Sensor – 1 Channel 0,5V - 4,5V

Current consumption	< 8 mA per channel
Power source (Vs)	5 Volt DC
Output current	Max. 1 mA
Channel # 1 : output value	0,5V (idle) – 4,5V (full throttle) set for SISU DIESEL
Channel # 2 : output value	Not activated. Analogue signal, PWM signal or IVS available in option.
Resolution	5 mV

Direct Drive Hand Throttle part number:

MCS Part number	Travel angle	MCS drawing number*
Available upon request	45°	-

* MCS reserves the right to update drawings at any time without notice.

Technical spec sheets and part numbers of Analogue Direct Drive Hand Throttles with options such as wire harness or connectors are available upon request.