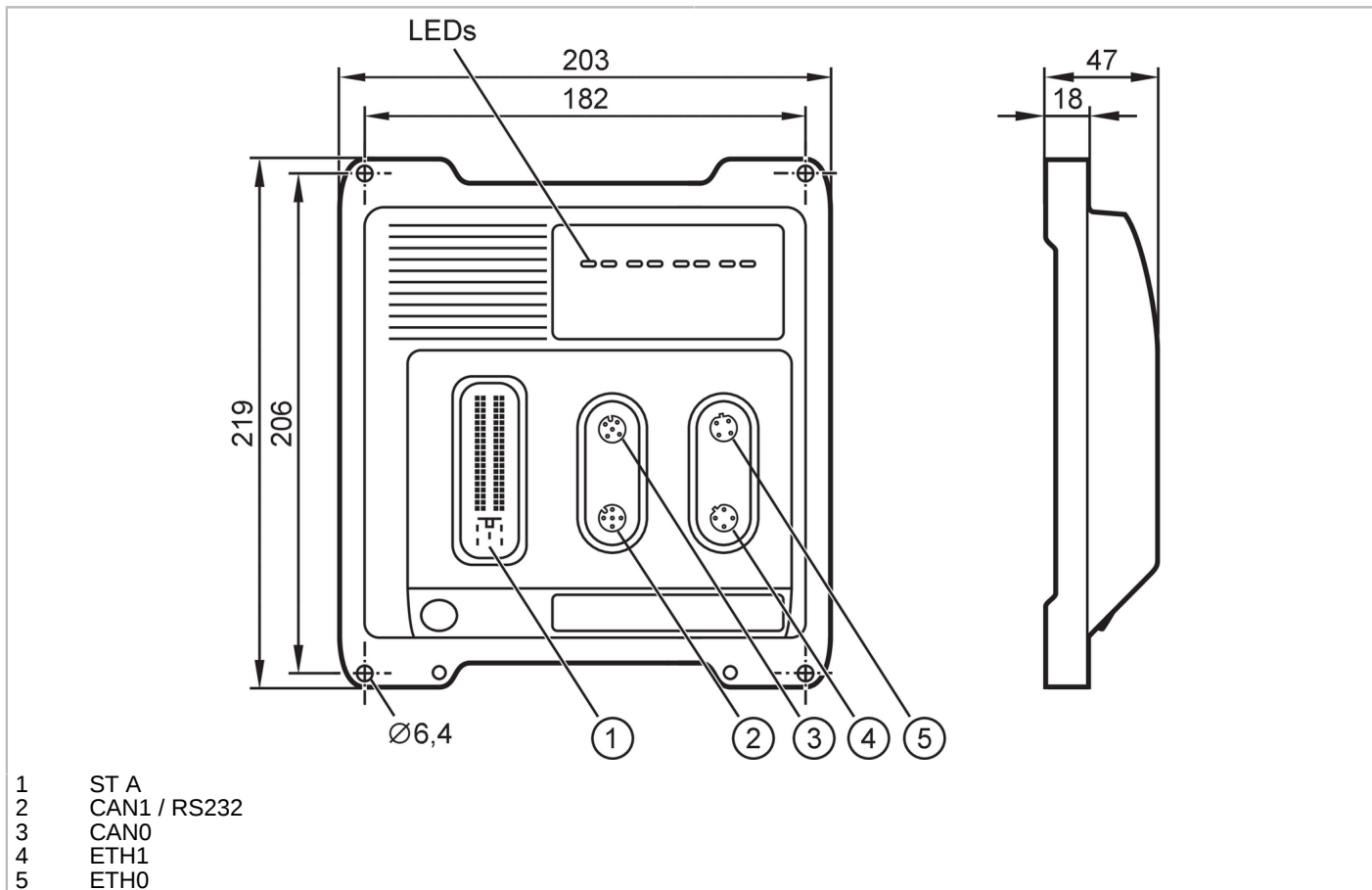


# CR0709



## Programmable controller for mobile machines

ecomatController/60/Std.



### Product characteristics

Total number of inputs	32
Total number of outputs	28
Communication interface	Ethernet; CAN; RS232
Protection	IP 65; IP 67; (for inserted connectors with individually sealed cores and inserted M12 connectors or sealing caps: IP 67)

### Electrical data

Operating voltage [V]	8...32 DC; (t < 10 s: 36 V)
Nominal voltage DC [V]	12 / 24
Current consumption [mA]	< 400
Power consumption [W]	8; (VBB30)
Reverse polarity protection	yes; (in case of supply via the on-board system / battery)

### Inputs / outputs

Total number of inputs and outputs	60
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### Inputs

Total number of inputs	32
Number of frequency inputs	8
Number of resistor inputs	4
Number of digital inputs	32



## Programmable controller for mobile machines

ecomatController/60/Std.

Number of analogue inputs	16	
Digital inputs, frequency signal (IN FREQUENCY-B)		
Number	8	
Plug ST A	IN0000...IN0003	
	IN0500...IN0503	
Frequency input	function type	frequency, Zykluszeit
	software mode	IN_PERIOD_RATIO_CSO/CSI
	frequency [Hz]	0,01...5000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs
Frequency input	function type	frequency, Zykluszeit
	software mode	IN_PERIOD_RATIO_US_CSO/CSI
	frequency [Hz]	0,1...5000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs
Frequency input	function type	frequency
	software mode	IN_FREQUENCY_CSO/CSI
	frequency [Hz]	0,5...30000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs
Frequency input	function type	pulse
	software mode	IN_COUNT_CSO/CSI
	frequency [Hz]	0...30000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs
Frequency input	function type	pulse, incremental
	software mode	IN_INC_ENCODER_CSO/CSI
	frequency [Hz]	0,0625...5000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs
Frequency input	function type	phase
	software mode	IN_PHASE_CSO/CSI
	frequency [Hz]	0,0625...5000
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	input resistance [Ω]	10000
	accuracy	± 10 μs



## Programmable controller for mobile machines

ecomatController/60/Std.

Analogue input	function type	Voltage
	software mode	IN_VOLTAGE_10
	input range [V]	0...10
	input resistance [ $\Omega$ ]	67600
	Resolution	12 Bit
	accuracy	100 mV
	input frequency [Hz]	< 330
	diagnostic level low	0 V; (parameterisable)
	diagnostic level high	10 V; (parameterisable)
Digital input	function type	binary, High-Side
	software mode	IN_DIGITAL_CSO
	switching level high [V]	> 65 % VBB30; (parameterisable)
	switching level low [V]	< 25 % VBB30; (parameterisable)
	Resolution	12 Bit
	accuracy	960 mV
	input frequency [Hz]	< 330
	input resistance [ $\Omega$ ]	10000
	diagnostic level low	0 % VBB30; (parameterisable)
diagnostic level high	100 % VBB30; (parameterisable)	
Digital input	function type	binary, low-side
	software mode	IN_DIGITAL_CSI
	switching level high [V]	> 70 % VBB30; (parameterisable)
	switching level low [V]	< 30 % VBB30; (parameterisable)
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	input resistance [ $\Omega$ ]	10000
	diagnostic level low	0 % VBB30; (parameterisable)
diagnostic level high	400 % VBB30; (parameterisable)	
<b>Multi-function inputs, analogue / digital (IN MULTIFUNCTION-A)</b>		
Number	16	
Plug ST A	IN0100...IN0103	
	IN0200...IN0203	
	IN0600...IN0603	
	IN0700...IN0703	
Analogue input	function type	Current
	software mode	IN_CURRENT_CSI
	input range [mA]	0...20
	input resistance [ $\Omega$ ]	298
	Resolution	12 Bit
	accuracy	$\pm$ 345 $\mu$ A
	input frequency [Hz]	< 330
	diagnostic level low	0 mA; (parameterisable)
	diagnostic level high	20 mA; (parameterisable)



## Programmable controller for mobile machines

ecomatController/60/Std.

Analogue input	function type	Voltage
	software mode	IN_VOLTAGE_10
	input range [V]	0...10
	input resistance [ $\Omega$ ]	67600
	Resolution	12 Bit
	accuracy	100 mV
	input frequency [Hz]	< 330
	diagnostic level low	0 V; (parameterisable)
	diagnostic level high	10 V; (parameterisable)
Analogue input	function type	Voltage
	software mode	IN_VOLTAGE_32
	input range [V]	0...32
	input resistance [ $\Omega$ ]	51000
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	diagnostic level low	0 V; (parameterisable)
	diagnostic level high	32 V; (parameterisable)
Analogue input	function type	Voltage, ratiometric
	software mode	IN_VOLTAGE_RATIO
	input range [V]	0...100 % VBB30
	input resistance [ $\Omega$ ]	51000
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	diagnostic level low	0 ‰; (parameterisable)
	diagnostic level high	1000 ‰; (parameterisable)
Digital input	function type	binary, low-side
	software mode	IN_DIGITAL_CSI
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	input resistance [ $\Omega$ ]	9500
	diagnostic level low	1 V; (parameterisable)
diagnostic level high	95 % VBB30; (parameterisable)	
<b>Digital / resistor inputs (IN RESISTOR-A)</b>		
Number	4	
Plug ST A	IN0400...IN0401	
	IN0900...IN0901	



## Programmable controller for mobile machines

ecomatController/60/Std.

Digital input	function type	binary, low-side
	software mode	IN_DIGITAL_CSI
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	input resistance [Ω]	3200
	diagnostic level low	0 % VBB30; (parameterisable)
	diagnostic level high	400 % VBB30; (parameterisable)
Resistor input	function type	binary, high side
	software mode	IN_RESISTOR
	input range [Ω]	16...30000
	measuring current [mA]	< 2,0
	Resolution	12 Bit
	accuracy	16...3000 Ω: ± 600 Ω
		3000...15000 Ω: ± 1500 Ω
		15000...30000 Ω: ± 3000 Ω
	diagnostic level low	0 Ω; (parameterisable)
	diagnostic level high	31000 Ω; (parameterisable)

### Digital inputs (IN DIGITAL-B)

Number	4	
Plug ST A	IN0300, IN0301	
	IN0800, IN0801	
Digital input	function type	binary, low-side
	software mode	IN_DIGITAL_CSI
	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	Resolution	12 Bit
	accuracy	320 mV
	input frequency [Hz]	< 330
	input resistance [Ω]	3200
	diagnostic level low	1 V; (parameterisable)
diagnostic level high	95 % VBB30; (parameterisable)	

### Reset (RESET-COM)

Number	1	
Digital input	switching level high [V]	> 70 % VBB30
	switching level low [V]	< 30 % VBB30
	accuracy	1,6 V

### Outputs

Total number of outputs	28
Number of digital outputs	27
Number of analogue outputs	1
Number of PWM outputs	27
Number of PWM-I outputs	18
Number of outputs with H-bridge	6; (3 x 2)



## Programmable controller for mobile machines

ecomatController/60/Std.

Output groups		
Number	3	
Plug ST A	VBB0...VBB2	
Output group switch	function type	second independent option for safety shut-down of the output group
	voltage range [V]	6...32 DC
	voltage measurement [V]	0...36
	accuracy of the voltage measurement [mV]	360
	diagnostic function	current monitoring, voltage monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	12000; (parameterisable)
Digital / PWM outputs; 4,0 A; H-bridge (OUT PWM-40-BRIDGE-A)		
Number	6	
Plug ST A	OUT0006, OUT0007	
	OUT0106, OUT0107	
	OUT0206, OUT0207	
PWM output	function type	binary, high side
	software mode	OUT_PWM_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...4
	output frequency [Hz]	20...2000
	pulse/pause ratio	1...1000 ‰; (parameterisable)
	Resolution	1 ‰; (20...250 Hz)
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...6
	accuracy of the current measurement [A]	0,04
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	4000; (parameterisable)
PWM output	function type	binary, low-side
	software mode	OUT_PWM_CSI
	voltage range [V]	6...32 DC
	switching current [A]	0,025...4
	output frequency [Hz]	20...500
	pulse/pause ratio	1...1000 ‰; (parameterisable)
	Resolution	1 ‰; (20...250 Hz)
	protective circuitry	inductive load; thermal protection



## Programmable controller for mobile machines

ecomatController/60/Std.

PWM-I output	function type	PID-Stromregler	
	software mode	OUT_CURRENT_CSO	
	voltage range [V]	6...32 DC	
	switching current [A]	0,025...4	
	output frequency [Hz]	20...2000	
	control range [A]	0,05...4	
	setting resolution [mA]	1	
	control resolution [mA]	2	
	Min. load resistance [ $\Omega$ ]	12 V: 3 $\Omega$ / 24 V: 6 $\Omega$	
	protective circuitry	inductive load; thermal protection	
	current measurement [A]	0...6	
	accuracy of the current measurement [A]	0,04	
	diagnostic functions	wire break; short circuit; current monitoring	
	lower limit of current monitoring [mA]	0; (parameterisable)	
	upper limit of current monitoring [mA]	4000; (parameterisable)	
Digital output	function type	binary, high side	
	software mode	OUT_DIGITAL_CSO	
	voltage range [V]	6...32 DC	
	switching current [A]	0,025...4	
	protective circuitry	inductive load; thermal protection	
	current measurement [A]	0...6	
	accuracy of the current measurement [A]	0,04	
	switching status monitoring [V]	2	
	accuracy of the switching status monitoring [V]	$\pm 1$	
	diagnostic function	wire break; short circuit; current monitoring	
	lower limit of current monitoring [mA]	0; (parameterisable)	
	upper limit of current monitoring [mA]	4000; (parameterisable)	
	Digital output	function type	binary, low-side
		software mode	OUT_DIGITAL_CSI
		voltage range [V]	6...32 DC
switching current [A]		0,025...4	
protective circuitry		inductive load; thermal protection	
<b>Digital / PWM outputs; 4,0 A (OUT PWM-40-A)</b>			
Number	3		
Plug ST A	OUT0008, OUT0108, OUT0208		
PWM output	function type	binary, high side	
	software mode	OUT_PWM_CSO	
	voltage range [V]	6...32 DC	
	switching current [A]	0,025...4	
	output frequency [Hz]	20...2000	
	pulse/pause ratio	1...1000 ‰; (parameterisable)	
	Resolution	1 ‰; (20...250 Hz)	
	protective circuitry	inductive load; thermal protection	
	current measurement [A]	0...6	
	accuracy of the current measurement [A]	0,04	
	diagnostic functions	wire break; short circuit; current monitoring	
	lower limit of current monitoring [mA]	0; (parameterisable)	
	upper limit of current monitoring [mA]	4000; (parameterisable)	



## Programmable controller for mobile machines

ecomatController/60/Std.

PWM-I output	function type	current-controlled
	software mode	OUT_CURRENT_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...4
	output frequency [Hz]	20...2000
	control range [A]	0,05...4
	setting resolution [mA]	1
	control resolution [mA]	2
	Min. load resistance [ $\Omega$ ]	12 V: 3 $\Omega$ / 24 V: 6 $\Omega$
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...6
	accuracy of the current measurement [A]	0,04
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	4000; (parameterisable)
Digital output	function type	binary, high side
	software mode	OUT_DIGITAL_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...4
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...6
	accuracy of the current measurement [A]	0,04
	switching status monitoring [V]	2
	accuracy of the switching status monitoring [V]	$\pm 1$
	diagnostic function	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	4000; (parameterisable)
	Digital / PWM outputs; 2,5 A (OUT PWM-25-A)	
Number	9	
Plug ST A	OUT0000, OUT0002, OUT0004	
	OUT0100, OUT0102, OUT0104	
	OUT0200, OUT0202, OUT0204	
PWM output	function type	binary, high side
	software mode	OUT_PWM_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...2,5
	output frequency [Hz]	20...2000
	pulse/pause ratio	1...1000 ‰; (parameterisable)
	Resolution	1 ‰; (20...250 Hz)
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...4
	accuracy of the current measurement [mA]	37,5
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)



## Programmable controller for mobile machines

ecomatController/60/Std.

PWM-I output	function type	current-controlled
	software mode	OUT_CURRENT_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...2,5
	output frequency [Hz]	20...2000
	control range [A]	0,05...2,5
	setting resolution [mA]	1
	control resolution [mA]	2
	Min. load resistance [ $\Omega$ ]	12 V: 3 $\Omega$ / 24 V: 6 $\Omega$
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...4
	accuracy of the current measurement [mA]	37,5
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)
	Digital output	function type
software mode		OUT_DIGITAL_CSO
voltage range [V]		6...32 DC
switching current [A]		0,025...2,5
protective circuitry		inductive load; thermal protection
current measurement [A]		0...4
accuracy of the current measurement [mA]		37,5
switching status monitoring [V]		2
accuracy of the switching status monitoring [V]		$\pm 1$
diagnostic function		wire break; short circuit; current monitoring
lower limit of current monitoring [mA]		0; (parameterisable)
upper limit of current monitoring [mA]		2500; (parameterisable)
<b>Digital / PWM outputs; 2,5 A (OUT PWM-25-B)</b>		
Number	9	
Plug ST A	OUT0001, OUT0003, OUT0005	
	OUT0101, OUT0103, OUT0105	
	OUT0201, OUT0203, OUT0205	
PWM output	function type	binary, high side
	software mode	OUT_PWM_CSO
	voltage range [V]	6...32 DC
	switching current [A]	0,025...2,5
	output frequency [Hz]	20...2000
	pulse/pause ratio	1...1000 ‰; (parameterisable)
	Resolution	1 ‰; (20...250 Hz)
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...4
	accuracy of the current measurement [mA]	125
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)



## Programmable controller for mobile machines

ecomatController/60/Std.

Digital output	function type	binary, high side
	software mode	OUT_DIGITAL_CS0
	voltage range [V]	6...32 DC
	switching current [A]	0,025...2,5
	protective circuitry	inductive load; thermal protection
	current measurement [A]	0...4
	accuracy of the current measurement [mA]	125
	switching status monitoring [V]	2
	accuracy of the switching status monitoring [V]	± 1
	diagnostic function	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)
<b>Sensor supply (OUT SUPPLY-A)</b>		
Number	1	
Plug ST A	OUT3000	
Sensor supply	function type	power supply
	software mode	OUT_SENSOR_05
	Output voltage [V]	5
	accuracy	5 %
	min. load current [mA]	10
	max. load current [mA]	400
	current measurement [A]	0...2,5
	accuracy of the current measurement [mA]	125
	voltage measurement [V]	0...10
	accuracy of the voltage measurement [mV]	500
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)
Sensor supply	function type	power supply
	software mode	OUT_SENSOR_10
	Output voltage [V]	10
	accuracy	5 %
	min. load current [mA]	10
	max. load current [mA]	200
	current measurement [A]	0...2,5
	accuracy of the current measurement [mA]	125
	voltage measurement [V]	0...10
	accuracy of the voltage measurement [mV]	500
	diagnostic functions	wire break; short circuit; current monitoring
	lower limit of current monitoring [mA]	0; (parameterisable)
	upper limit of current monitoring [mA]	2500; (parameterisable)
<b>Analogue outputs (OUT VOLTAGE-A)</b>		
Number	1	
Plug ST A	OUT3001	



## Programmable controller for mobile machines

ecomatController/60/Std.

Analogue output	function type	Voltage
	software mode	OUT_ANALOG_10
	voltage range [V]	0...10 DC
	accuracy	5 %
	max. load current [mA]	5
	step response time [ms]	< 1,8 (10...90 %)
	voltage measurement [V]	0...10
	accuracy of the voltage measurement [V]	0,5 V

### Software / programming

Parameter setting options	CODESYS 3.5
PLC function to IEC 61131-3	yes
Operating system	Echtzeit-Betriebssystem

### Interfaces

Communication interface	Ethernet; CAN; RS232
Number of CAN interfaces	4
Number of Ethernet interfaces	2
Number of R232 interfaces	1

### CAN

Transmission rate	20 kBit/s... 1 MBit/s
Protocol	CANopen; SAE J1939; free protocol
Profile	CiA DS 301 Version 4.2; CiA DS 401 Version 1.4
Interface	CAN Interface 2.0 A/B ISO 11898
Factory settings	Transmission rate: 250 kBit/s

### Ethernet

Transmission standard	10Base-T; 100Base-TX
Transmission rate	10 MBit/s; 100 MBit/s
Protocol	TCP/IP; UDP/IP; Modbus TCP
Note on interfaces	2 ports with integrated switch

### RS232 - service interface

Transmission rate	9,6...115,2 kBit/s
Factory settings	Transmission rate: 115,2 kBit/s

### Operating conditions

Housing temperature	[°C]	-40...85
Storage temperature	[°C]	-40...85
Max. relative air humidity	[%]	90; (non condensing)
Max. height above sea level	[m]	3000
Protection		IP 65; IP 67; (for inserted connectors with individually sealed cores and inserted M12 connectors or sealing caps: IP 67)
Pollution degree		2
Chemical media	ISO 16750-5	AA, BA, BD, CC, DB, DC, DD



## Programmable controller for mobile machines

ecomatController/60/Std.

Tests / approvals		
EMC	DIN EN 61000-6-2 ESD	
	DIN EN 61000-6-4 Burst	
	ISO 7637-2 pulse 1	severity level 4 / function state C (24 V)
	ISO 7637-2 pulse 2a	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 2b	severity level 4 / function state C (24 V)
	ISO 7637-2 pulse 3a	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 3b	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 4	severity level 4 / function state A (24 V)
	ISO 7637-2 pulse 5	severity level 3 / function state A (24 V)
ISO 7637-2 pulse 4	severity level 4 / function state A (12 V)	
Continuous shock resistance	ISO 16750-3	30 g 6 ms / 24000 shocks
Fast temperature change	EN 60068-2-30 damp heat: cyclical	55 °C upper temperature limit / 6 cycles
	EN 60068-2-78 damp heat: constant	40 °C 93 % rH / test period 21 days
Vibration resistance	ISO 16750-3 Test VII	random, mounting place car body
	EN 60068-2-6 sine	10...500 Hz / 10 cycles/axis, sine
Salt spray test	EN 60068-2-52 Salt spray	severity level 3 / motor vehicle
Mechanical data		
Weight	[g]	1455.5
Housing		rectangular
Type of mounting		screw mounting; (4 x M6)
Dimensions	[mm]	219 x 203 x 47
Materials		housing: diecast aluminium passivated
Displays / operating elements		
Display	status (SYS0)	1 LED, multi-colour
	status (SYS1)	1 LED, multi-colour
	Ethernet (ETH0)	1 LED, green
	Ethernet (ETH1)	1 LED, green
	status (APP0)	1 LED, multi-colour programmable
	status (APP1)	1 LED, multi-colour programmable
	status (APP2)	1 LED, multi-colour programmable
	status (APP3)	1 LED, multi-colour programmable
Operating states - system / hardware		
Display	no operating system loaded	LED (SYS0), green flashing 5 Hz
	hardware error (Fatal Error+)	LED (SYS0), red lights
	system error (Fatal Error)	LED (SYS0), red lights
		LED (SYS1), red lights
	update	LED (SYS0), yellow/green flashing 2 Hz
		LED (SYS1), yellow/green flashing 2 Hz
	sleep mode	LED (SYS0), blue lights
PLC application (SYS0 / SYS1)		
Display	no application	LED, green lights
	Run	LED, green flashing 2 Hz
	fault	LED, red flashing 10 Hz
	Debug Run	LED, yellow flashing 2 Hz
	Debug Stop	LED, yellow lights

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## Programmable controller for mobile machines

ecomatController/60/Std.

Ethernet (ETH0 / ETH1)		
Display	connection	LED, green lights
	data transmission	LED, green flashing
Hardware		
Processor	32-Bit Triple-Core	
RAM	2,7 MByte RAM	
Mass storage	9 MByte Flash	
Non-volatile memory	10 kByte	
Accessories		
Items supplied	Protective cap: M12	
	self-tapping screw: 1 x M4, for shield connection	
Remarks		
Pack quantity	1 pcs.	
Electrical connection - CAN0		
Connector: 1 x M12; coding: A		
1	n.c.	
2	n.c.	
3	GND_COM	
4	CAN0_H	
5	CAN0_L	
Electrical connection - CAN1 / RS232		
Connector: 1 x M12; coding: A		
1	RS232_TxD	
2	RS232_RxD	
3	GND_COM	
4	CAN1_H	
5	CAN1_L	
Electrical connection - Ethernet		
Connector: 2 x M12; coding: D		
ETH0 / ETH1		
1	TD+	
2	RD+	
3	TD-	
4	RD-	

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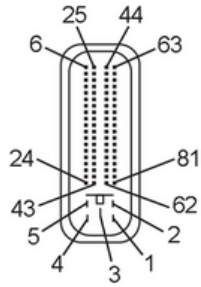


## Programmable controller for mobile machines

ecomatController/60/Std.

### Electrical connection - ST A

Connector: 1 x AMP; coding: A

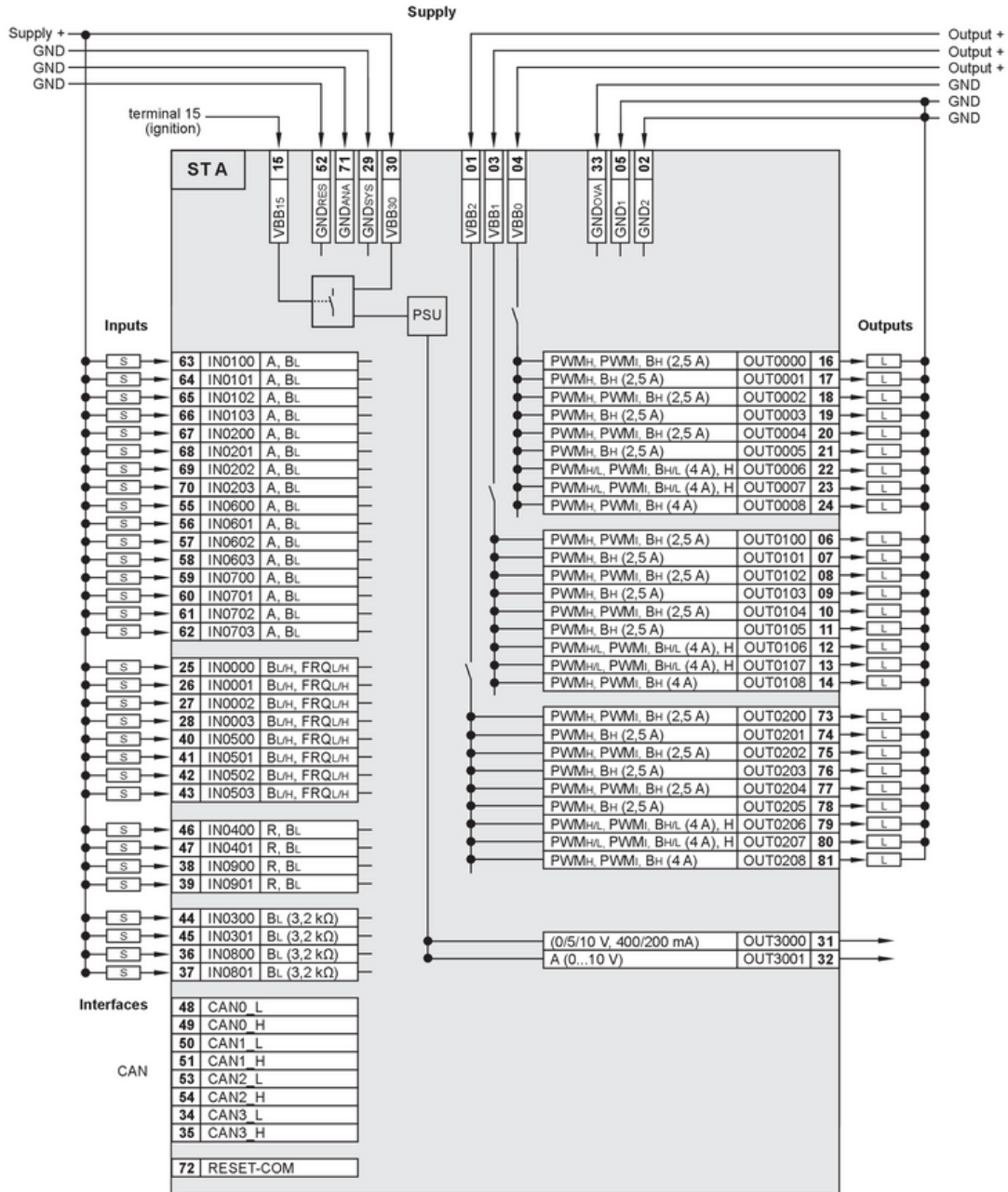




## Programmable controller for mobile machines

ecomatController/60/Std.

### Connection



- A analogue
- B-L/H binary, low-side (CSI) / high side (CSO)
- FRQ-L/H frequency/pulse input, low-side (CSI) / high side (CSO)
- H H-bridge
- PSU voltage supply for the system
- PWM-L/H pulse width modulation, low-side (CSI) / high side (CSO)
- PWM-I pulse width modulation, current-controlled
- R resistor input
- VBB0...VBB2 power supply, output group
- VBB30 power supply, controller



## Programmable controller for mobile machines

ecomatController/60/Std.

### power supply

15	VBB15
30	VBB30
4	VBB0
3	VBB1
1	VBB2
29	GND_SYS
71	GND_ANA
52	GND_RES
33	GND_OVA
5	GND1
2	GND2

### multi-function inputs - analogue / digital

63	IN0100 - INMULTIFUNCTION-A
64	IN0101 - INMULTIFUNCTION-A
65	IN0102 - INMULTIFUNCTION-A
66	IN0103 - INMULTIFUNCTION-A
67	IN0200 - INMULTIFUNCTION-A
68	IN0201 - INMULTIFUNCTION-A
69	IN0202 - INMULTIFUNCTION-A
70	IN0203 - INMULTIFUNCTION-A
55	IN0600 - INMULTIFUNCTION-A
56	IN0601 - INMULTIFUNCTION-A
57	IN0602 - INMULTIFUNCTION-A
58	IN0603 - INMULTIFUNCTION-A
59	IN0700 - INMULTIFUNCTION-A
60	IN0701 - INMULTIFUNCTION-A
61	IN0702 - INMULTIFUNCTION-A
62	IN0703 - INMULTIFUNCTION-A

### digital inputs - frequency signal

25	IN0000 - INFREQUENCY-B
26	IN0001 - INFREQUENCY-B
27	IN0002 - INFREQUENCY-B
28	IN0003 - INFREQUENCY-B
40	IN0500 - INFREQUENCY-B
41	IN0501 - INFREQUENCY-B
42	IN0502 - INFREQUENCY-B
43	IN0503 - INFREQUENCY-B

### digital / resistor inputs

46	IN0400 - INRESISTOR-A
47	IN0401 - INRESISTOR-A
38	IN0900 - INRESISTOR-A
39	IN0901 - INRESISTOR-A

### digital inputs

44	IN0300 - IN DIGITAL-B
45	IN0301 - IN DIGITAL-B
36	IN0302 - IN DIGITAL-B
37	IN0303 - IN DIGITAL-B



## Programmable controller for mobile machines

ecomatController/60/Std.

Interfaces	
48	CAN0_L
49	CAN0_H
50	CAN1_L
51	CAN1_H
53	CAN2_L
54	CAN2_H
34	CAN3_L
35	CAN3_H
72	RESET-COM

Outputs - group: VBB0	
16	OUT0000 - OUT PWM-25-A
17	OUT0001 - OUT PWM-25-B
18	OUT0002 - OUT PWM-25-A
19	OUT0003 - OUT PWM-25-B
20	OUT0004 - OUT PWM-25-A
21	OUT0005 - OUT PWM-25-B
22	OUT0006 - OUT PWM-40-BRIDGE-A
23	OUT0007 - OUT PWM-40-BRIDGE-A
24	OUT0008 - OUT PWM-40-A

Outputs - group: VBB1	
6	OUT0100 - OUTPWM-25-A
7	OUT0101 - OUTPWM-25-B
8	OUT0102 - OUTPWM-25-A
9	OUT0103 - OUTPWM-25-B
10	OUT0104 - OUTPWM-25-A
11	OUT0105 - OUTPWM-25-B
12	OUT0106 - OUTPWM-40-BRIDGE-A
13	OUT0107 - OUTPWM-40-BRIDGE-A
14	OUT0108 - OUTPWM-40-A

Outputs - group: VBB2	
73	OUT0200 - OUTPWM-25-A
74	OUT0201 - OUTPWM-25-B
75	OUT0202 - OUTPWM-25-A
76	OUT0203 - OUTPWM-25-B
77	OUT0204 - OUTPWM-25-A
78	OUT0205 - OUTPWM-25-B
79	OUT0206 - OUTPWM-40-BRIDGE-A
80	OUT0207 - OUTPWM-40-BRIDGE-A
81	OUT0208 - OUTPWM-40-A

Sensor supply	
31	OUT3000 - OUTSUPPLY-A

analogue output	
32	OUT3001 - OUTVOLTAGE-A