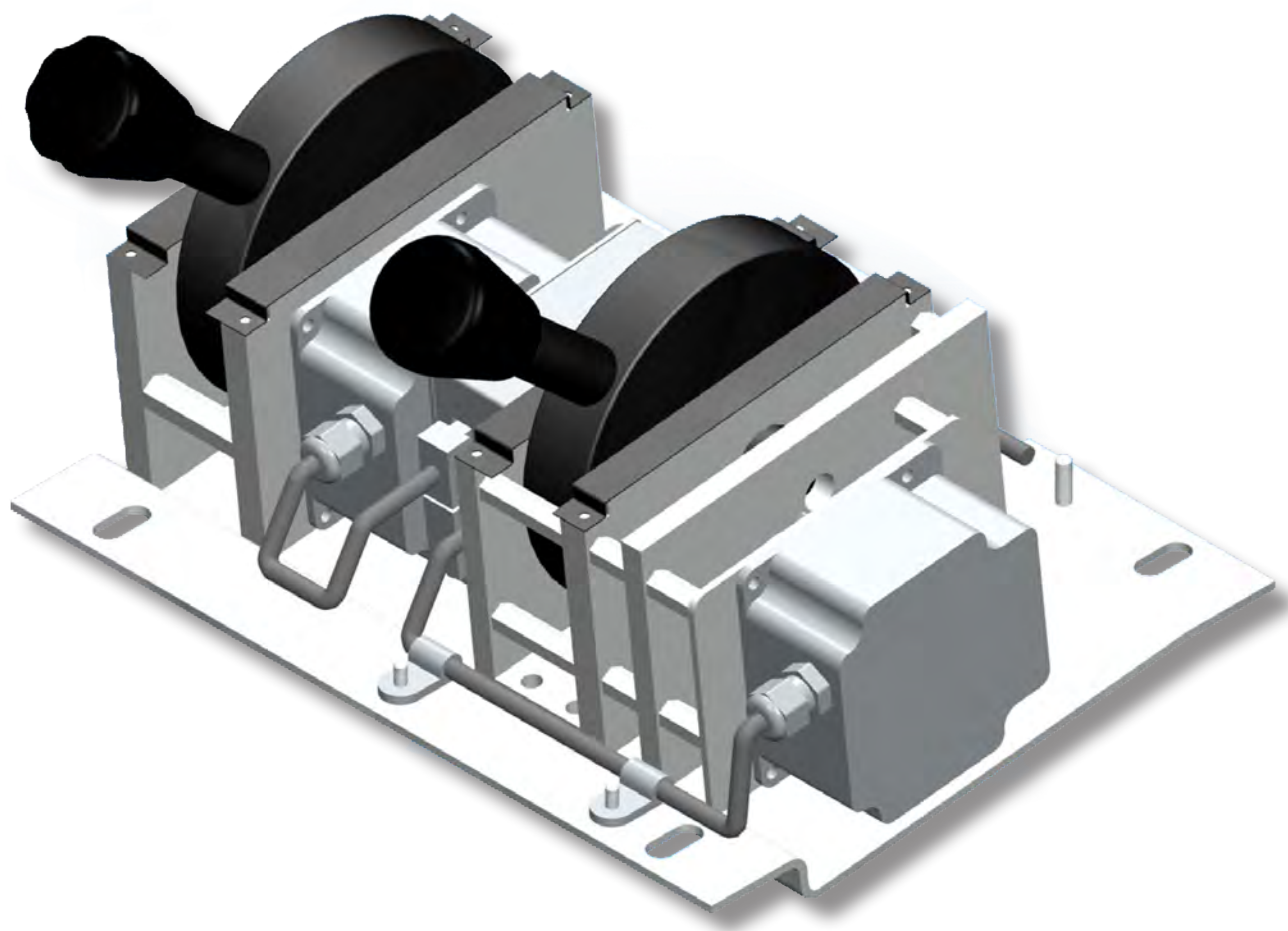




## Master Control unit M 3753

Application: Locomotives



### Components

- Traction power control unit
- Speed setpoint selector

### Technical Data

Traction power control unit:

Includes one snap action switch for automatic vigilance control (actuated by pushing down the grip) as well as one 9-Bit-Graycode optoelectronic absolute encoder. The encoder is equipped with a CAN-Bus interface transmitting all electrical signals of the traction power control unit to the vehicle's control system.

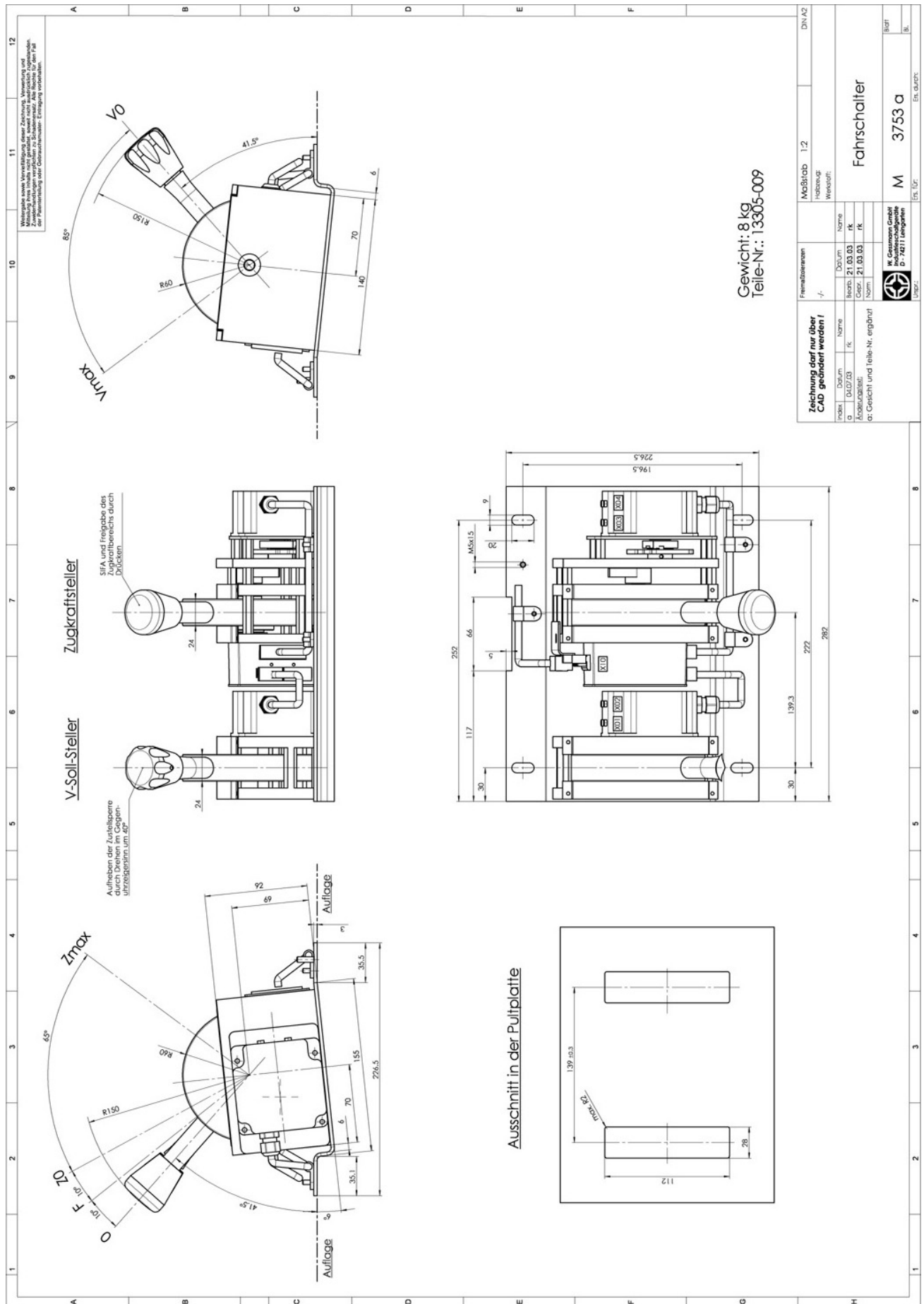
Speed setpoint selector:

Includes one 9-Bit-Graycode optoelectronic absolute encoder with CAN-Bus interface.

Both components are mounted to a carrier plate and are internally wired according to customer's specification.



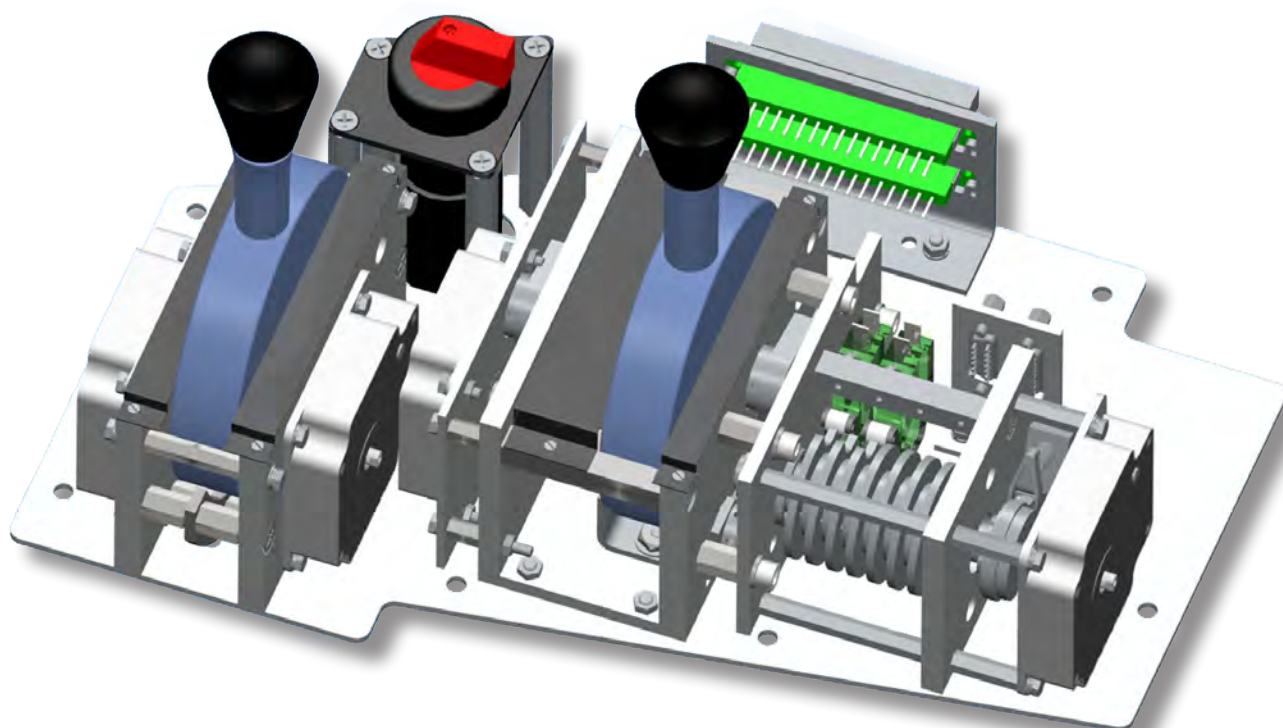
Outline drawing no. M 3753





### Master Control unit M 3699

Application: High speed train



#### Components

- Power- / brake control unit
- Speed setpoint selector
- Direction switch

#### Technical Data

The power- / brake control unit::

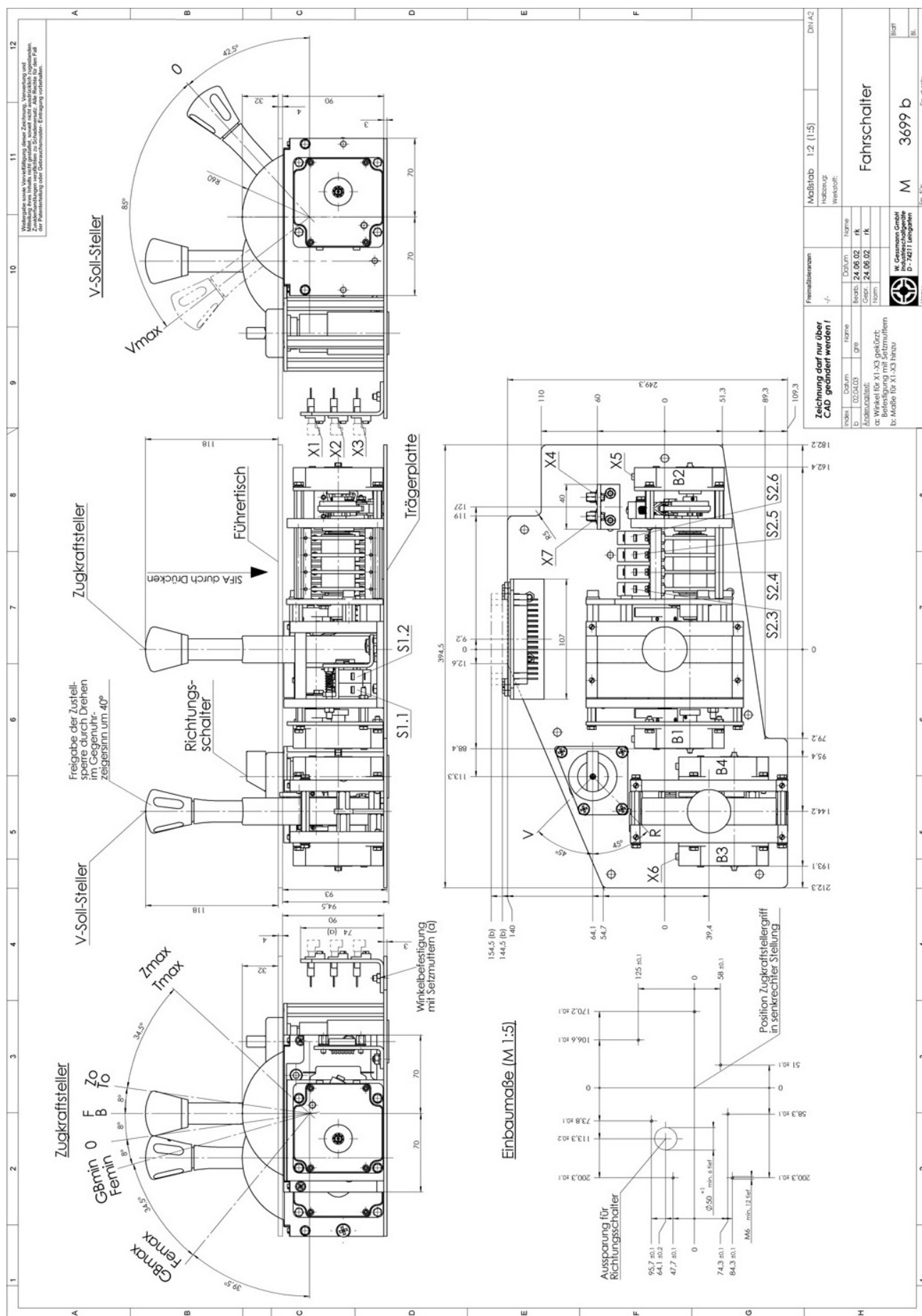
Includes two snap action switches for automatic vigilance control (actuated by pushing down the grip), 4 snap action switches being operated via a camshaft as well as two 9-Bit-Graycode optoelectronic absolute encoders.

The Speed setpoint selector:

Includes two 9-Bit-Graycode optoelectronic absolute encoders

The direction switch is a three-position rotary switch operating 8 switches according to customer's specification.

## Outline drawing no. M 3699

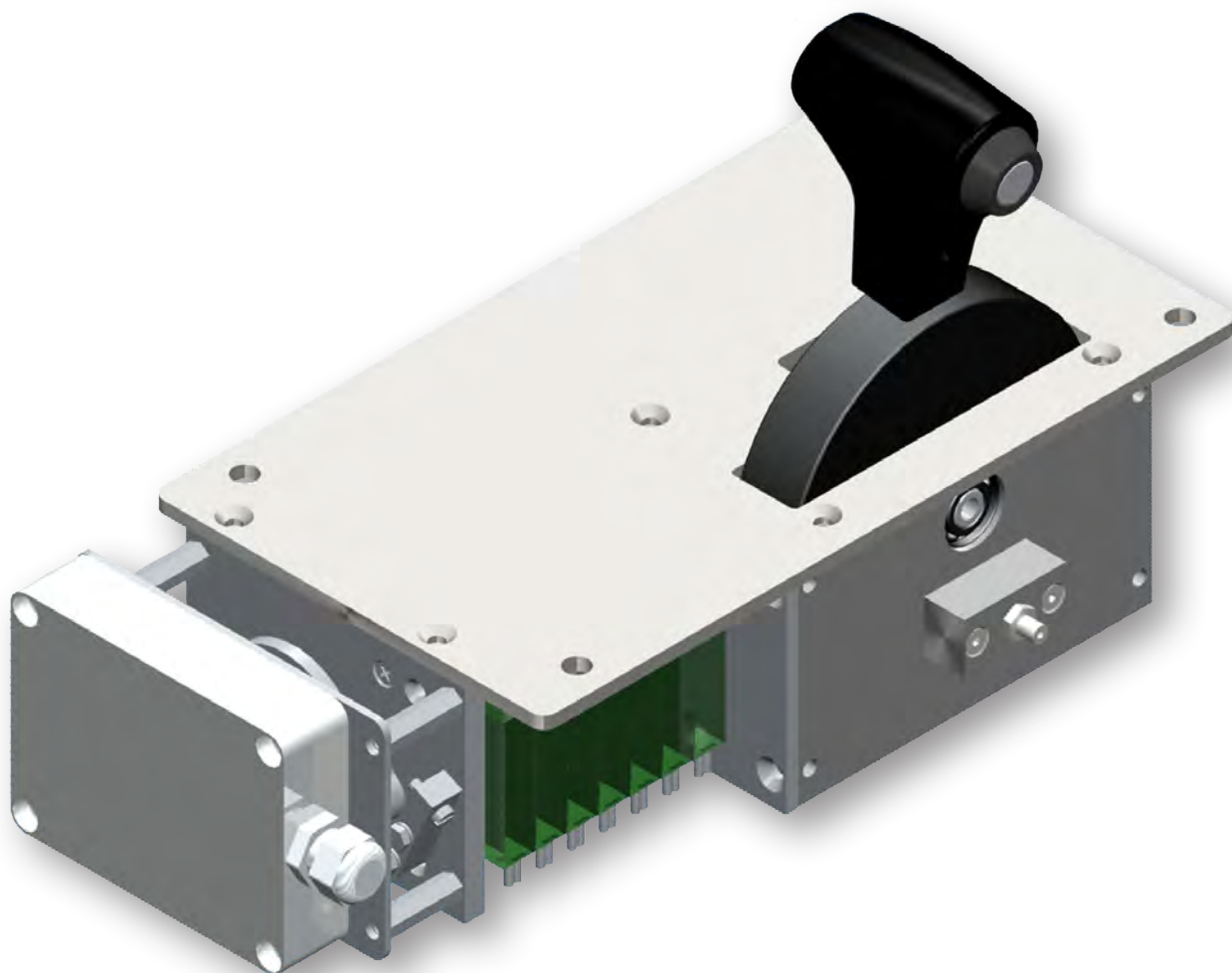






### Master control unit M 3833

Application: Tram



#### Components

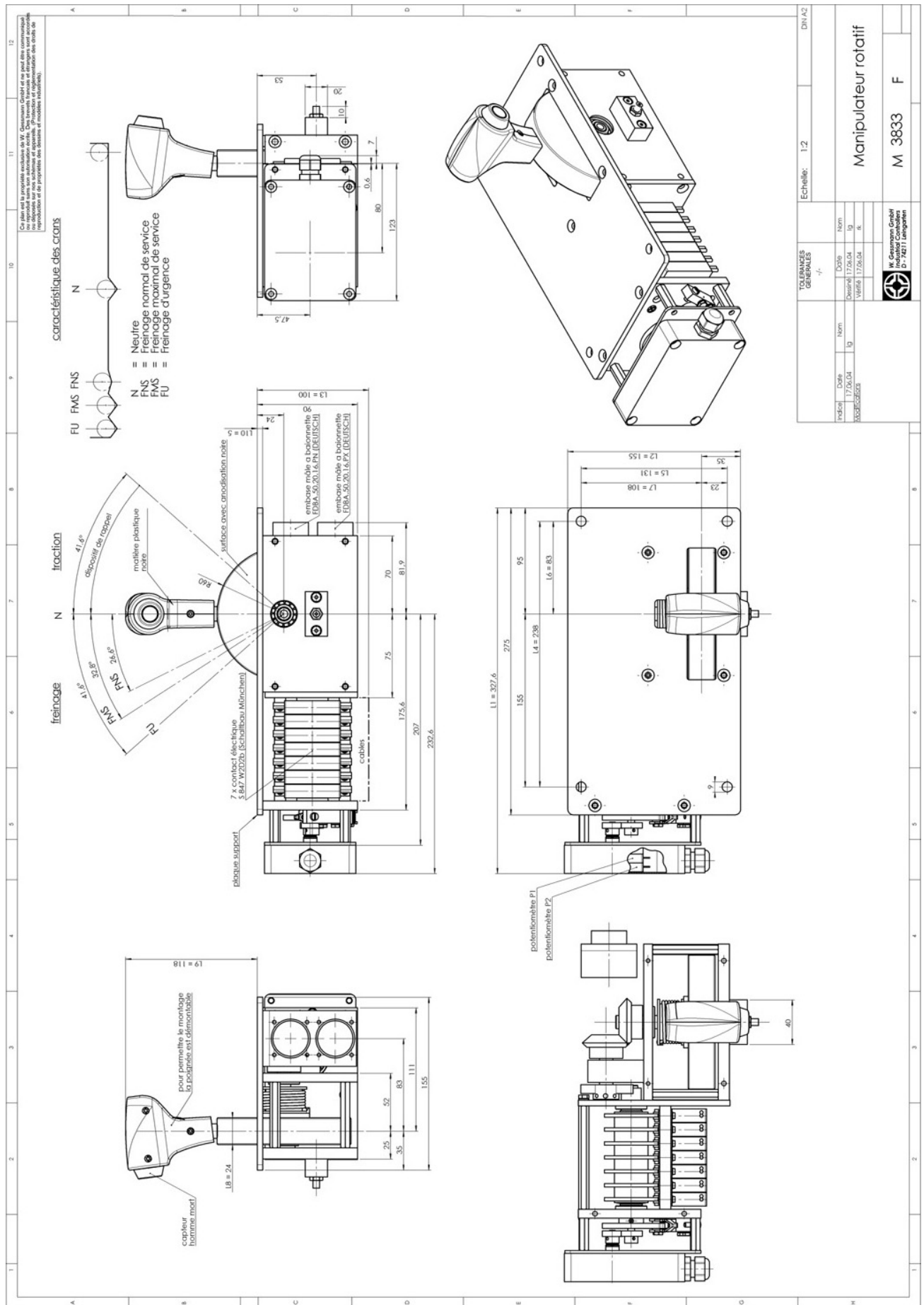
- Power- / brake control unit

#### Technical Data

The power- / brake control unit includes 7 snap action switches being operated via a camshaft as well as two high performance potentiometers. For the automatic vigilance control the grip includes a capacitive sensor that is to be operated by touching the sensitive area with the thumb. A spring mechanism makes sure that the control lever returns to the neutral-position when released within the traction or the braking range. All components are mounted to the bottom side of a common carrier plate and wired according to customers specification.



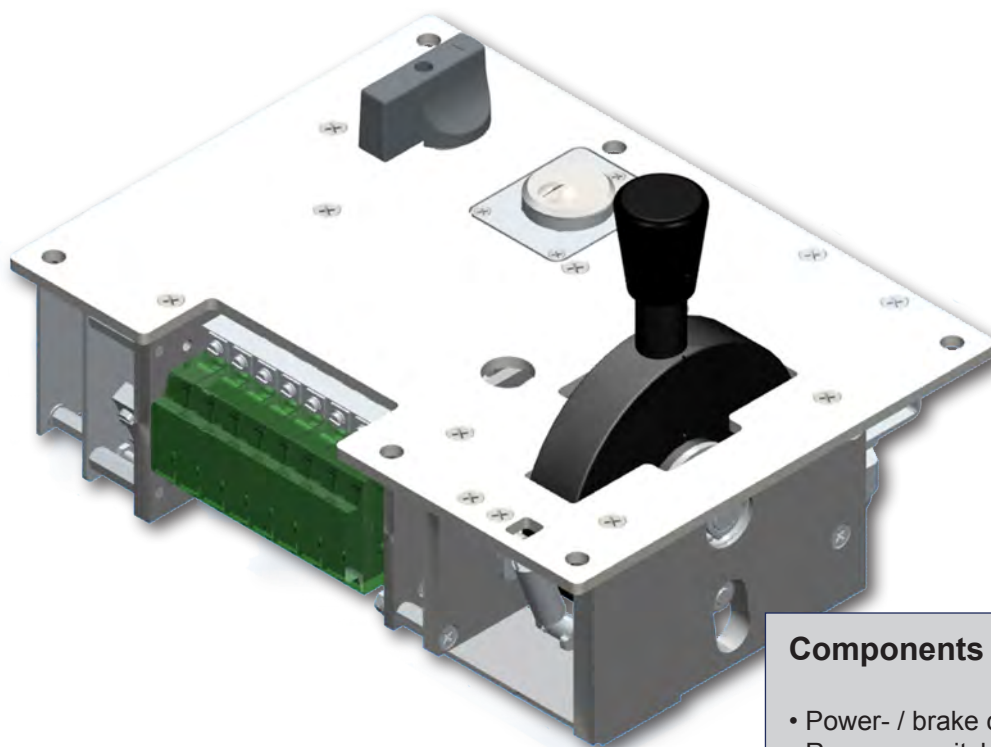
Outline drawing no. M 3833





## Master control unit M 3720

Application: Metro



### Components

- Power- / brake control unit
- Reverser switch
- Key switch
- Mechanical interlocking system

### Technical Data

The power- / brake control unit includes 8 snap action switches being operated via a camshaft as well as one high performance potentiometer with electronic interface module. For the automatic vigilance control the grip includes two snap action switches that are to be operated pushing down the grip. A spring mechanism makes sure that the control lever returns to the neutral-position when released within the traction or the braking range.

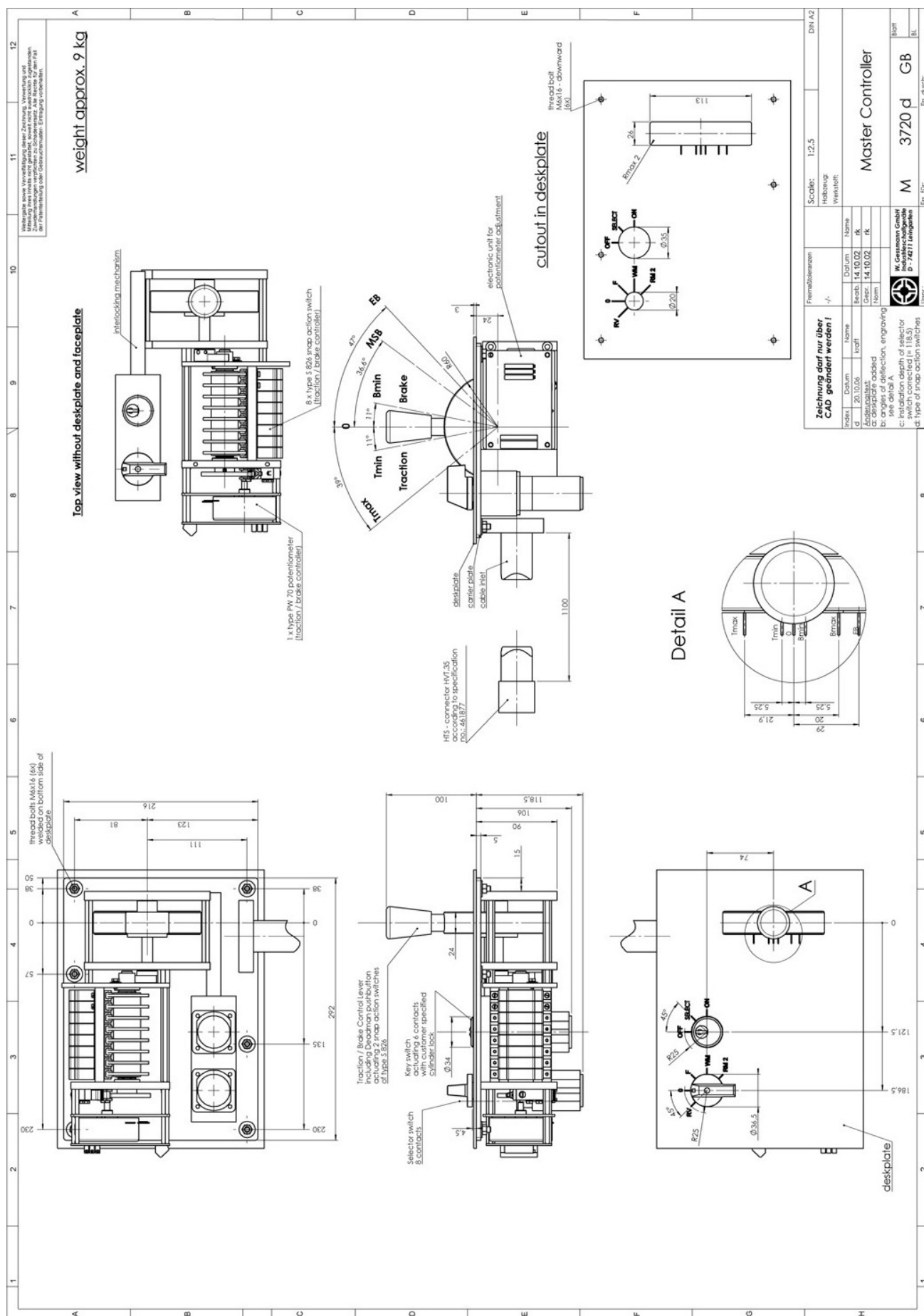
The selector switch is a five-position rotary switch operating 8 switches according to customer's specification

The key switch is a three-position rotary switch operating 6 switches according to customer's specification. The cylinder lock belongs to a master key system that is specified by the customer.

The interlocking system serves the purpose of preventing erroneous operation of the individual components power- / brake control unit, selector switch and key switch. Whether or not a component is interlocked depends on the positions of the two other components.

All components are mounted to the bottom side of a carrier plate. Furthermore a cover plate with customer specified surface treatment and engraving is included. The complete unit is provided with a pigtail wiring.

Outline drawing no. M 3720

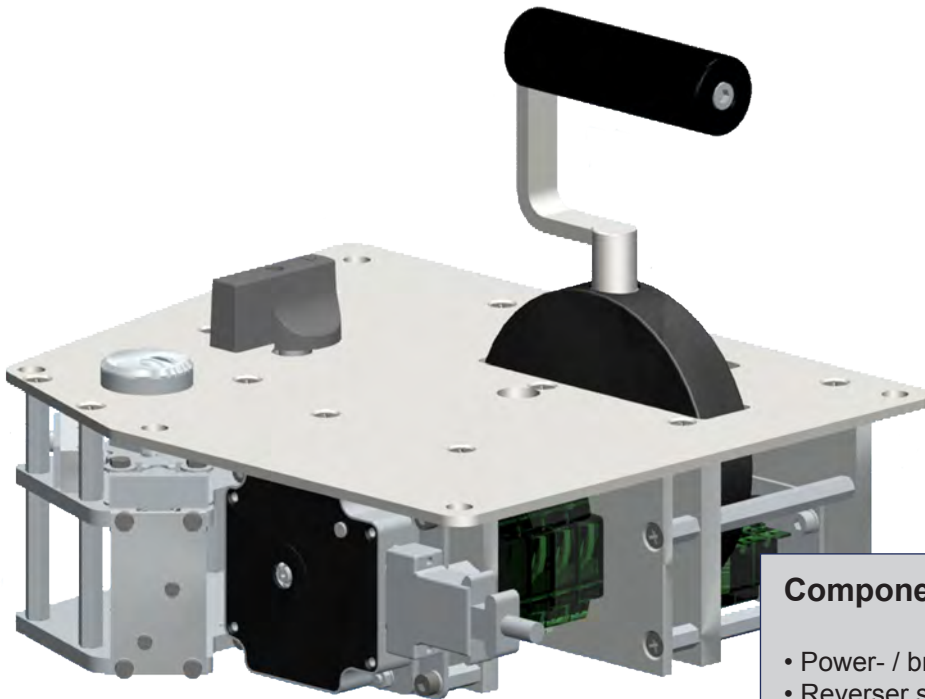






## Master control unit M 3762

Application: Tram



### Components

- Power- / brake control unit
- Reverser switch
- Key switch
- Mechanical interlocking system
- Electro-mechanic interlocking system

### Technical Data

The power- / brake control unit includes 4 snap action switches being operated via a camshaft as well as one optoelectronic absolute encoder providing a 9-bit Gray code signal. For the automatic vigilance control two snap action switches are to be operated by turning the control lever about 90° in clockwise direction.

The reverser switch is a three-position rotary switch operating 2 snap action switches according to customer's specification

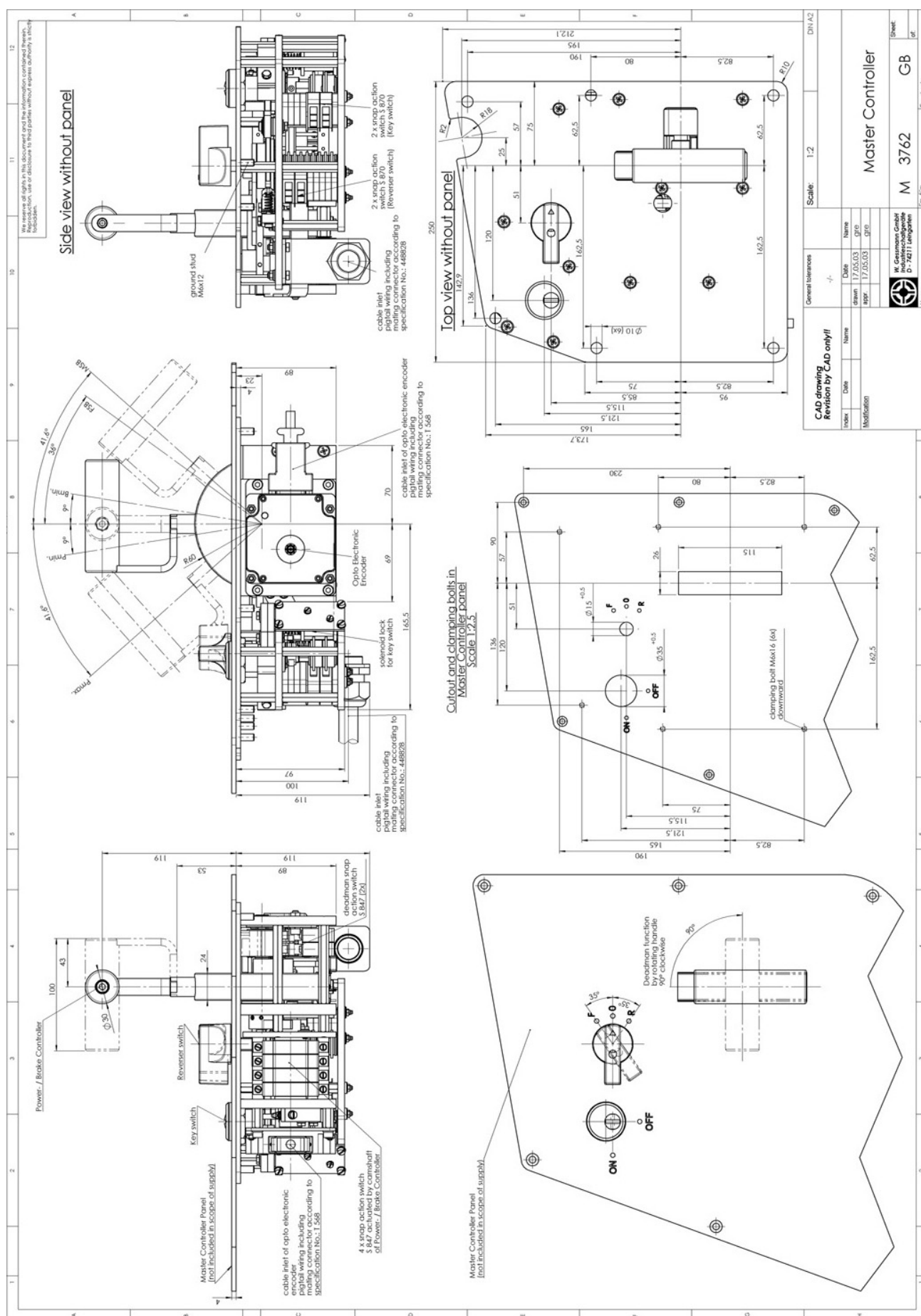
The key switch is a two-position rotary switch operating 2 snap action switches according to customer's specification. The cylinder lock belongs to a master key system that is specified by the customer.

The mechanical interlocking system serves the purpose of preventing erroneous operation of the individual components power- / brake control unit, reverser switch and key switch. Whether or not a component is interlocked depends on the positions of the two other components.

The electro-mechanic interlocking system blocks the key switch as long as the vehicle's opposite Master Controller is activated.

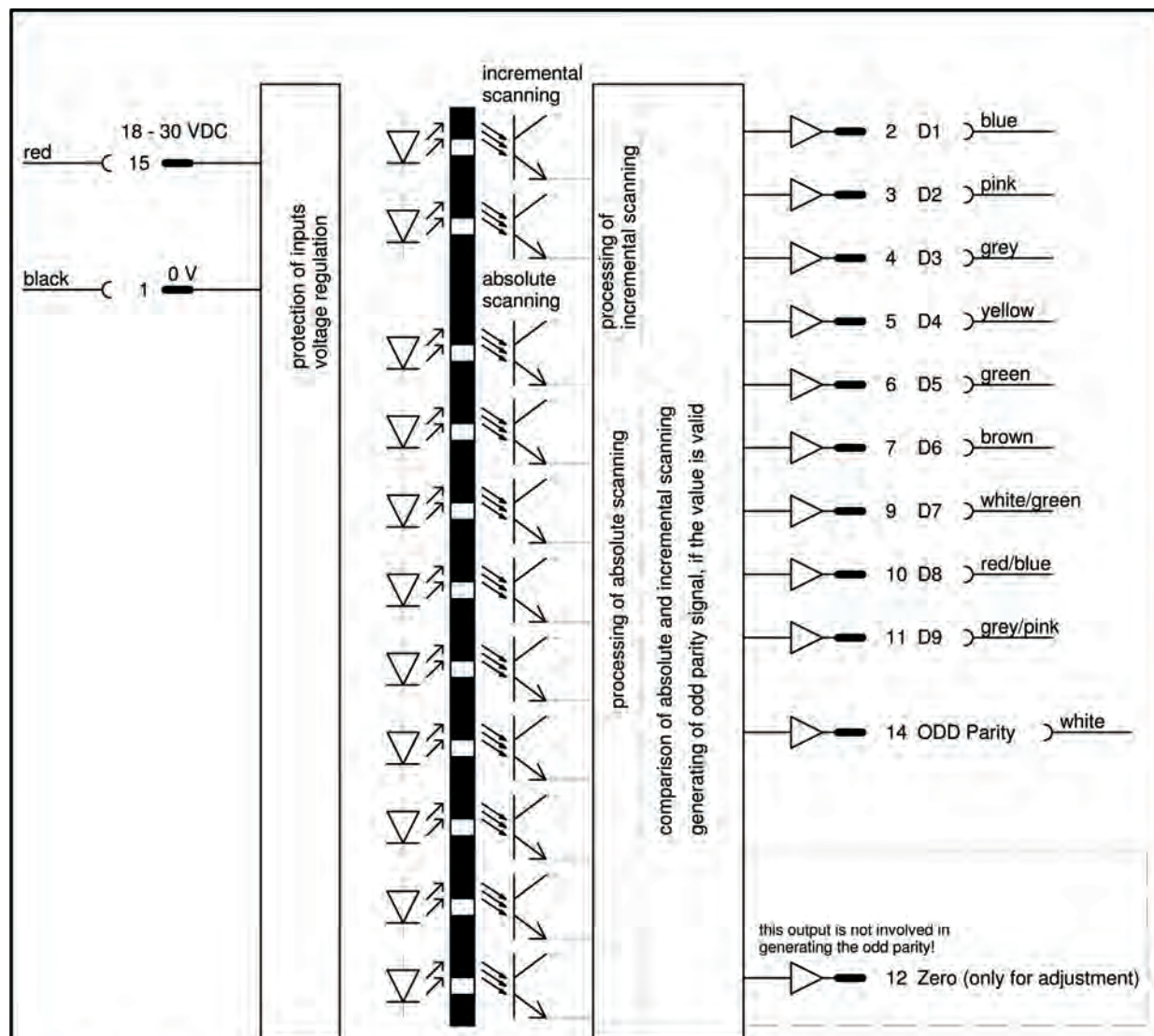
All components are mounted to the bottom side of a carrier plate. The complete unit is provided with a pigtail wiring.

## Outline drawing no. M 3762

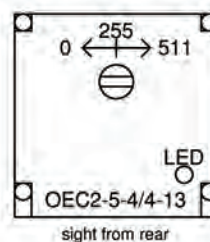




Data sheet of encoder no. EO / 35-11



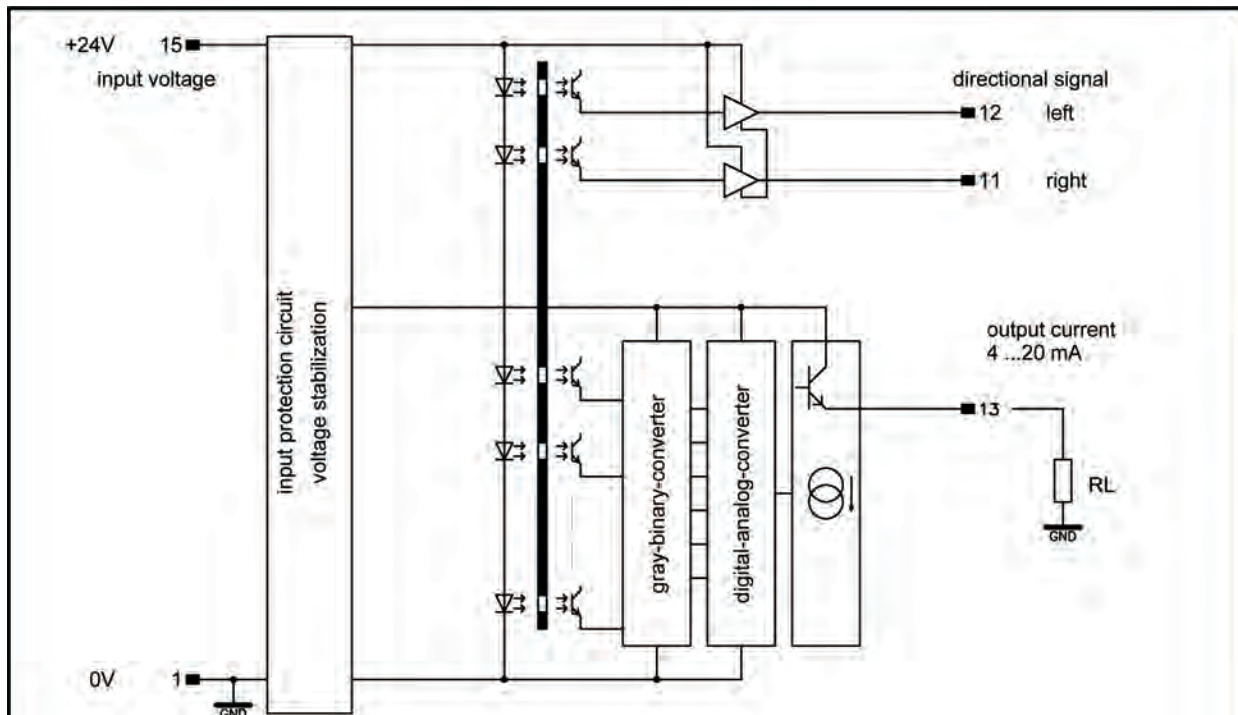
power supply: 18 - 30 V DC  
current consumption: 60 mA (+ output current)  
output: push-pull output 24 V  
max. current: 60 mA activ high, short-circuit proof  
temperature range: -30 °C - +70 °C  
connection: DSUB 15 male  
encoder disk: 512 steps (0 - 511, 0 - 341 degree, Graycode)  
output code: 9 Bit Graycode  
ODD parity if value is available  
connection cable: LiY(c)y, 15 \* 0,25 qmm, 1500 mm (screened), wired on DSUB - Connector  
DA15 (male) with housing and other end of cable with end-plug. (10 cm bared).



Zeichnung darf nur über CAD geändert werden				1999	Datum:	Name:	OEC2 with absolute und incrementale sampling point, 9 Bit Gray Code, ODD Parity	Größe A4
				Bearb.	10.05.	Bachmann		
				Gepr.	10.05.	Bachmann		
				W. Gessmann GmbH Industrieschaltgeräte D-74211 Leingarten			Anschlussplan	Seite 1v.1
							EO / 35d - 11a GB	
							Datei: eo_35_11_gb.sch	
a	watchdog error in zero pos. gating	05.02.01	Ba.					
Zust.	Änderung	Datum	Name					



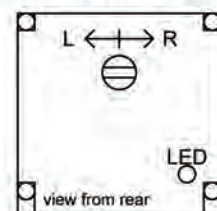
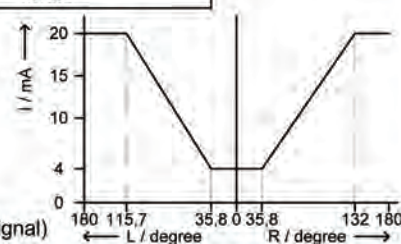
Data sheet of encoder no. EO / 22-20



pin	function	color code
1	ground 0V	blue
15	supply voltage 18-30V DC	brown
13	current output 4 .. 20 mA	green
12	directional signal L	yellow
11	directional signal R	grey
—	screening	white

#### electrical characteristics:

supply voltage:	18 - 30 V DC
current consumption:	ca. 55 mA (+ output current + current directional signal)
output current:	4 .. 20 mA (+/- 0,2 mA) short-circuit proof
burden RL:	100 .. 500 Ohm
output directional signal:	push-pull output 60 mA activ high
temperature range:	-20...+60 °C
scanning:	6-Bit gray encoder disk
contact:	DSUB 15 male

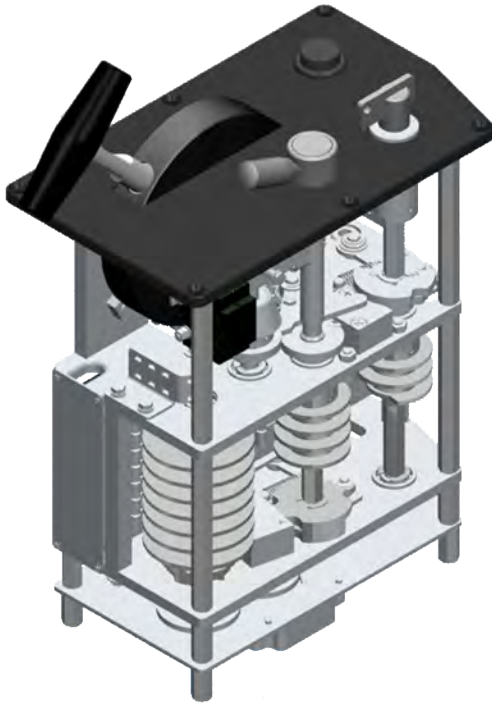


Zeichnung darf nur über CAD geändert werden				2002	Datum:	Name:	output current 20 ... 4 .. 20 mA OEC2-3-1/5-5	
				Bearb.	02.05.	Hutt		
				Gepr.	02.05.	Hutt		
				W. Gessmann GMBH			wiring diagram	Größe A4
				Industrieschaltgeräte			<b>EO / 22C - 20b GB</b>	Seite 1v.1
				D-74211 Leingarten			Datei: EO_22_20_GB.sch	
b	additions	17.09.02	Ba.					
a	additions	23.05.02	Ba.					
Zust.	Änderung	Datum	Name					



## Master control unit M 3678

Application: Metro – heavy design



### Components

- Power- / brake control unit
- Reverser switch
- Key switch
- Handle release button
- Mechanical interlocking system

### Technical Data

The power- / brake control unit includes 7 snap action switches being operated via a camshaft as well as one optoelectronic absolute encoder providing a 9-bit Gray code signal. For the automatic vigilance control two snap action switches are to be operated by turning the control lever about 90° in clockwise direction.

The reverser switch is a three-position rotary switch operating 3 snap action switches according to customer's specification

The key switch (two position rotary-switch) is operated by means of a special key and actuates 2 snap action switches according to customer's specification.

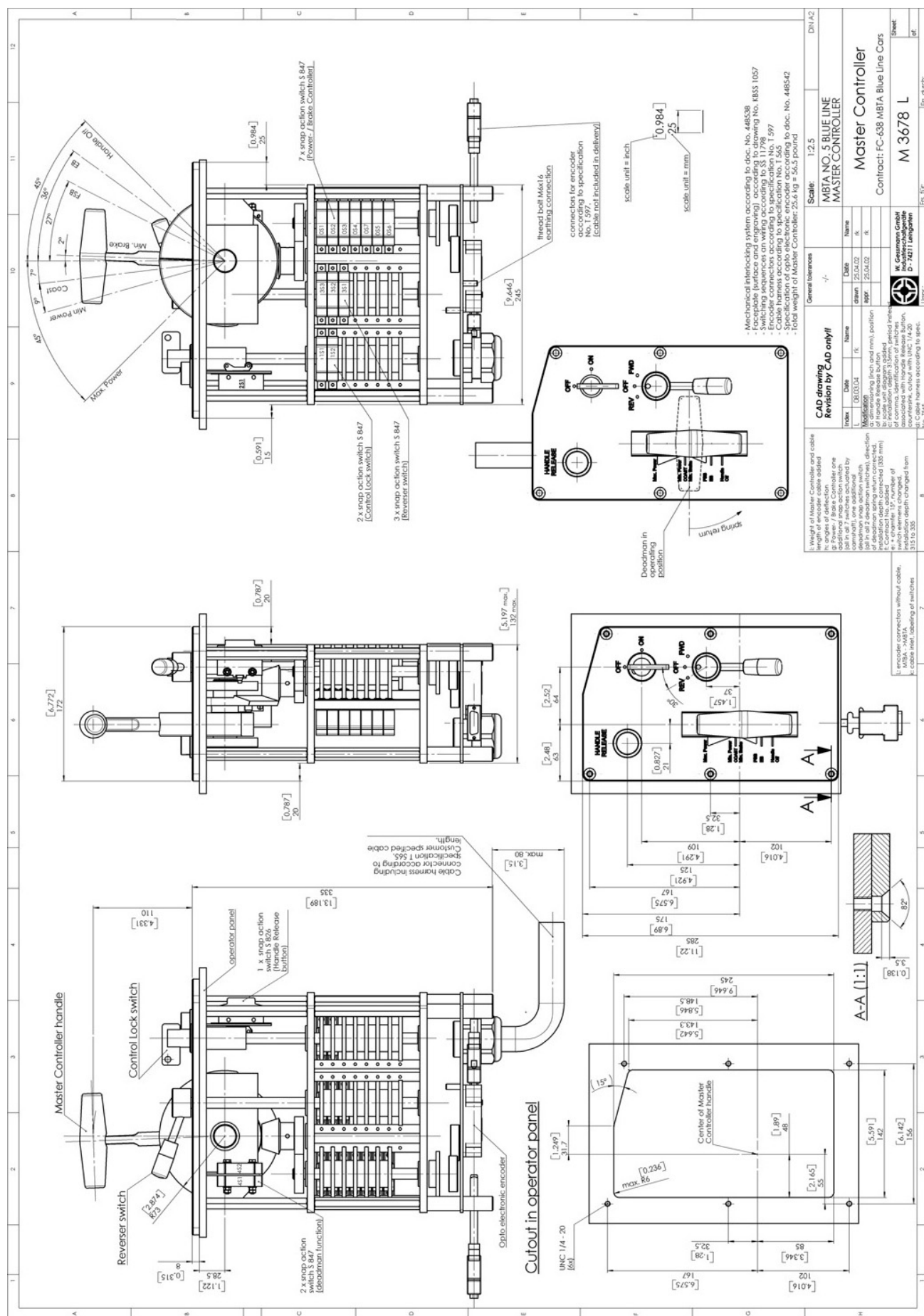
The handle release button is a pushbutton that operates one snap action switch.

The mechanical interlocking system serves the purpose of preventing erroneous operation of the individual components power- / brake control unit, reverser switch and key switch and Handle release button. Whether or not a component is interlocked depends on the positions of the two other components.

All components are mounted to the bottom side of a carrier plate. The complete unit is provided with a pigtail wiring. A faceplate with customer specified surface treatment and engraving is also included.



Outline drawing no. M 3678





### Output analog OEC 2

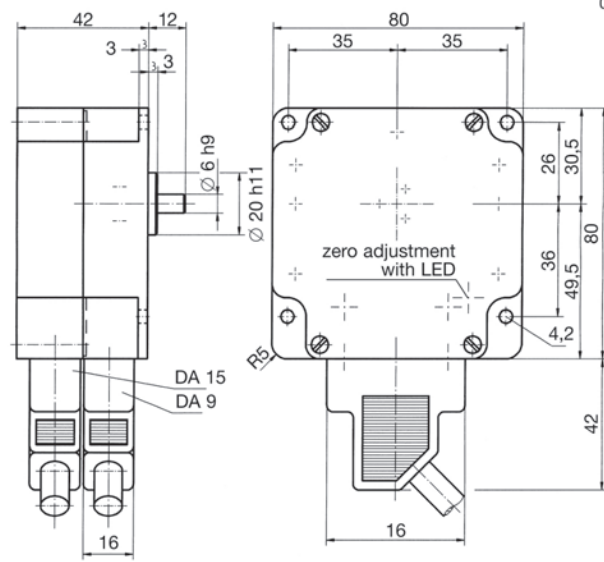
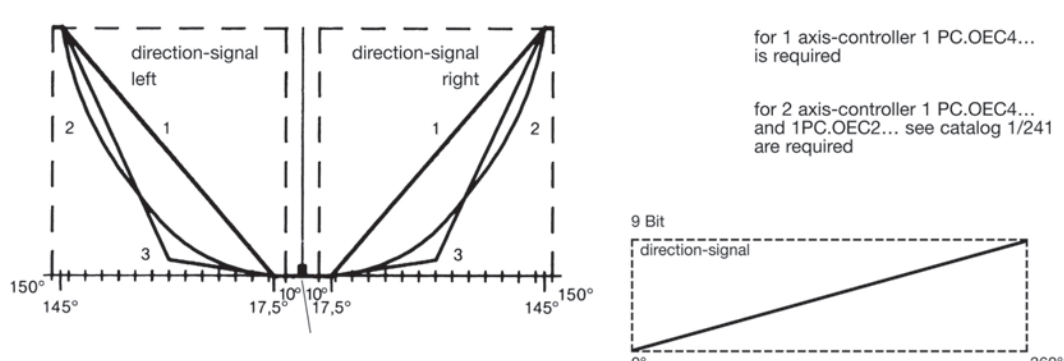
with attach to our switching device

Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6		Type-expansion	Weight gramm	Type
1	Opto-electronic encoder Output power impressed 4 – 20 mA T 368		OEC 2-3-□-5	410	C19□
2	Opto-electronic encoder Output power impressed 0 – 20 mA T 368		OEC 2-3-□-8	410	C20□
3					
4					
	<div>□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive</div> <div><b>Technical data</b> Power supply 18-30 V DC Output 4/0 – 20 mA Scanning 6 bit Gray-Code Rotation angle max. ± 150°</div> <div><p>zero adjustment with LED</p></div>				
5	Opto-electronic encoder T 369 Output power impressed ± 20 mA		OEC 2-3-□-6	410	C23□
6					
7					
8					
	<div>□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive</div> <div><b>Technical data</b> Power supply 18-30 V DC Output ± 20 mA Scanning 6 bit Gray-Code Rotation angle max. ± 150°</div> <div><p>zero adjustment with LED</p></div>				
40	Cable Llcy 14 x 0,25 mm² 2000 mm long wired on connector DA 15 with end splice				
41	Prepared for mounting encoder adjusting-angle switching-gear ≙ encoder				(C)
42	Prepared for mounting encoder adjusting-angle variable.				(C)
43	Additional price per metre cable Llcy 14 x 0,25 mm²				



### Output digital OEC 4 with Profi-Bus System DP

with attach to our switching device

Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6		Type-expansion	Weight gramm	Type
1	Opto-electronic encoder	8 Bit Gray-Code T 496	OEC 4-1-1-2	820	C27
2		8 Bit Binary-Code T 496	OEC 4-2-1-2	820	C28
3		6 Bit Gray-Code T 496	OEC 4-3-□-2	820	C29□
4		6 Bit Binary-Code T 496	OEC 4-4-□-2	820	C30□
5		9 Bit Gray-Code T 497	OEC 4-5-□-2	820	C31□
6		9 Bit Binary-Code T 497	OEC 4-6-□-2	820	C32□
<div><div><b>Technical data</b> Power supply 18-30 V DC, Output 6, 8 or 9 Bit, Scanning Gray-Code Communication Profibus DP (DIN 19245 Part 3) Ident.-No. 045 CH address 0-99 adjustable above selector-switch Rotation angle max. <math>\pm 150^\circ</math> (<math>360^\circ</math>), with connection for OEC 2 see catalog 1/241</div><div><div>□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive 4 = Linear one sided right turn 5 = Linear one sided left turn</div><div>for 1 axis-controller 1 PC.OEC4... is required  for 2 axis-controller 1 PC.OEC4... and 1PC.OEC2... see catalog 1/241 are required</div></div><div></div></div>					
38	Profibus-cable FDPL2/F/P 1x 2 x 0,64mm <sup>2</sup> 2000mm long wired on 2 connectors DE9				
39	Cable (power supply) for 1 axis-controller Llycy 2 x 0,25mm <sup>2</sup> 2000mm long wired on connector DA15 with end splice				
40	Cable for 2 axis-controller Llycy 16 x 0,25mm <sup>2</sup> x 450mm lang wired on 2 connectors DA15 for OEC4/OEC2 with cable (power supply) 2 x 0,25mm <sup>2</sup> 2000mm long wired with end splice				
41	Prepared for mounting encoder adjusting-angle switching-gear $\triangle$ encoder				
42	Prepared for mounting encoder adjusting-angle variable				(C)
43	Additional price per metre cable Llycy 14 x 0,25 mm <sup>2</sup>				(C)
44	Additional price per metre Profibus-cable FDPL2/F/P 1 x 2 x 0,64mm <sup>2</sup>				

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