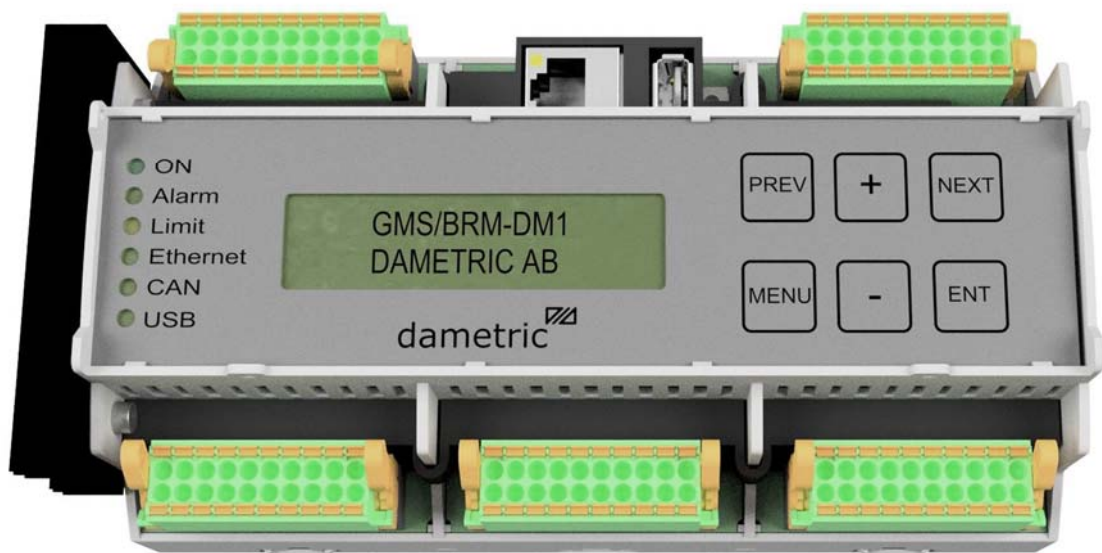




BRM-DM1 BRM-DM2



GMS Basic Refiner Module

USER MANUAL

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1 Document revision

- Feb. 1, 2018/BL First release.
- Aug. 7, 2018/BL Updated for the SSM-function.
- Oct. 1, 2018/BL BRM-DM2 added.
- Jan. 8, 2020/BL Revised the menu structure for BRM-DM1 and BRM-DM2. Program version 1.25. Added descriptions of the parameters.
- Feb. 18, 2020/BL Revised connection description.

2 Article number SKC / Valmet

<i>Unit</i>	<i>SKC</i>	<i>Valmet</i>
BRM-DM1	SKC2594365	VAL0399295
BRM-DM2	SKC2601904	VAL0405083.

3 Installation manual and technical specification

See document "BRM-DM12 IM EN YYMMDD.pdf" regarding the installation.
 See document "BRM-DM12 TS EN YYMMDD.pdf" regarding the technical specification.

4 Handling

4.1 Panel indicators

The LED indicators have the following meaning:

<i>Name</i>	<i>Function</i>	<i>off</i>	<i>flashes</i>	<i>on</i>
ON	Power supply	No power supply	-	Power supply OK
Alarm	Alarm indication	No alarm activated	An alarm detected	A sum alarm detected
Limit	Alarm limit	No limit deactivated	-	A limit is deactivated
Ethernet	Ethernet	Not activated	Activated with traffic	Activated with no traffic
CAN	CAN	Not activated	Activated with traffic	Activated with no traffic
USB	USB	Not activated	Activated with traffic	Activated with no traffic

4.2 Configuration

Several parameters are used to give the user the desired operation. Most parameters must be configured depending of refiner and process.

The user can either use the display and buttons on the unit or use the external GMS Panel-PC. The Panel-PC gives the user more information and descriptions of the parameters during edit.

A parameter list is used to document the settings of the unit. Be sure to keep this up to date in case the module must be replaced.

4.2.1 Configuration with the Panel-PC

Check the manual for the Panel-PC for the parameters in use.

4.2.2 Configuration with the built-in display and buttons

To select the function – press MENU first and scroll with PREV and NEXT until the chosen function is shown. The basic information of the function is displayed, and this can be a parameter value or a measured value.

Press PLUS to select one of the parameters associated with the selected function. Use PLUS and MINUS to scroll among the parameters.

Use MENU if you select to go back to the function level.

Press MENU for more than 1 second to return to the basic display indication.

Use of the buttons:

For the base level:

- MENU (short) Returns to the base level of the chosen function.
- MENU (>1s) Returns to the basic display indication.
- NEXT Step to the next function.
- PREV Step to the previous function.
- PLUS Starts the parameter-level for the chosen function or steps to the next level.
- PREV Step to the previous parameter level.
- ENT No function.

For the parameter-level:

- MENU (short) Returns to the base level of the chosen function.
- MENU (>1s) Returns to the basic display indication.
- NEXT Step to the next digit during edit.
- PREV Step to the previous digit during edit.
- PLUS Increase the digit one step.
- MINUS Decrease the digit one step.
- ENT (short) Toggle between select mode (sel.) and edit mode (edit) for the chosen parameter.
- ENT (>1s) Saves the parameter to the EERPOM-memory.

The list below shows the functions and parameters.

Use buttons NEXT and PREV to step between the functions (bold text).

Then select a parameter for the chosen function with the PLUS and MINUS buttons.

4.2.3 Menu structure BRM-DM1

Function 1-4

	POM Work mode		
BRM Date	POM Span calibr.		TVD Pro.adj.sen.
BRM Test func.	POM Zero calibr.		TVD Al.lim.4 Lg1
BRM DCS clock	POM Al.Lim. 3L		TVD Al.lim.3 Lg2
BRM HW. Rev.no.	POM Al.Lim. 2H		TVD Al.lim.2 Hg1
BRM Serial no.	POM Al.Lim. 1HH		TVD Al.lim.1 Hg2
BRM Ind.bus type	POM Ratio	VIM Al.Lim. 2H	TVD Sens. Prod.
BRM Can Node no.	POM Direction	VIM Al.Lim. 1HH	TVD Sens. Idle
BRM GMS System	POM Off/On/On+Al	VIM Off/On/On+Al	TVD Off/On/On+Al
GMS/BRM-DM1	Rotor position	Ref. vibration	Touch vibration

Function 5-8

CMD Run current			
CMD Min hold cu.			
CMD Hold curr.			
CMD Drive curr.	HPA Span calibr.	HPB Span calibr.	
CMD Direction	HPA Zero calibr.	HPB Zero calibr.	OT1 Span calibr.
CMD High speed	HPA Range	HPB Range	OT2 Zero calibr.
CMD Low speed	HPA Al.lim.2 H	HPB Al.lim. 2H	OT1 Al.lim. 2H
CMD Screw pitch	HPA Al.lim.1 HH	HPB Al.lim. 1HH	OT1 Al.lim. 1HH
CMD Off/On/On+Al	HPA Off/On/On+Al	HPB Off/On/On+Al	OT1 Off/On/On+Al
Control motor	Hydr.pressure. A	Hydr. pressure B	Temp fr. bearing

Function 9-12

	MPM Span calibr.		
	MPM Zero calibr.		FG Chk. max pos.
	MPM Type	AIN Span calibr.	FG CMD speed
	MPM Range	AIN Zero calibr.	FG Pist. delay
OT2 Span calibr.	MPM Al.lim. filt.	AIN Range	FG Timeout
OT2 Zero calibr.	MPM Al.lim. float	AIN Type	FG Safe dist.
OT2 Al.lim. 2H	MPM Al.lim. 2L	AIN Al.lim.2 H	FG Pist.length
OT2 Al.lim. 1HH	MPM Al.lim. 1LL	AIN Al.lim.1 HH	FG Type
OT2 Off/On/On+Al	MPM Off/On/On+Al	AIN Off/On/On+Al	FG Result
Temp to bearing	Main motor power	Analog input	FeedGuard func.

Function 13-16

RMC Max prod.pos			AOM Mod2 Chan4
RMC Min prod.pos	RMA Status		AOM Mod2 Chan3
RMC Time limit	RMA Wear offset		AOM Mod2 Chan2
RMC Power limit	RMA Wear setting		AOM Mod2 Chan1
RMC Set Prod.pos	RMA Touchp. pos.		AOM Mod1 Chan4
RMC Start offset	RMA Touchp. time	DIO Out Config.	AOM Mod1 Chan3
RMC Prod. pos.	RMA Touchp.level	DIO In Config.	AOM Mod1 Chan2
RMC Function	RMA Touchp.func.	DIO Out Status	AOM Mod1 Chan1
Rotor Move Ctrl.	Rotor Move Adj.	Digital in/out	Analog Out Mod.

4.2.4 Menu-structure BRM-DM2

Function 1-4

		POM Work mode	
		POM Span calibr.	
BRM Test func.		POM Zero calibr.	
BRM DCS clock		POM Al.Lim. 3L	
BRM HW. Rev.no.		POM Al.Lim. 2H	VIM Span calibr.
BRM Serial no.		POM Al.Lim. 1HH	VIM Zero calibr.
BRM Ind.bus type	CEC IP Mask	POM Ratio	VIM Al.Lim. 2H
BRM Can Node no.	CEC IP Address	POM Direction	VIM Al.Lim. 1HH
BRM GMS System	CEC Off/On/On+Al	POM Off/On/On+Al	VIM Off/On/On+Al
GMS/BRM-DM1	CAN-Eth.-Conv.	Rotor position	Ref. vibration

Function 5-8

	CMD Run current		
	CMD Status		
TVD Span calibr.	CMD Hold curr.		
TVD Zero calibr.	CMD Drive curr.	HPA Span calibr.	HPB Span calibr.
TVD Al.lim.4 Lg1	CMD Direction	HPA Zero calibr.	HPB Zero calibr.
TVD Al.lim.3 Lg2	CMD High speed	HPA Range	HPB Range
TVD Al.lim.2 Hg1	CMD Low speed	HPA Al.lim.2 H	HPB Al.lim. 2H
TVD Al.lim.1 Hg2	CMD Screw pitch	HPA Al.lim.1 HH	HPB Al.lim. 1HH
TVD Off/On/On+Al	CMD Off/On/On+Al	HPA Off/On/On+Al	HPB Off/On/On+Al
Touch vibration	Control motor	Hydr.pressure. A	Hydr. pressure B

Function 9-12

		MPM Span calibr.	
		MPM Zero calibr.	
		MPM Type	AIN Span calibr.
		MPM Range	AIN Zero calibr.
OT1 Span calibr.	OT2 Span calibr.	MPM Al.lim. filt.	AIN Range
OT2 Zero calibr.	OT2 Zero calibr.	MPM Al.lim. float	AIN Type
OT1 Al.lim. 2H	OT2 Al.lim. 2H	MPM Al.lim. 2L	AIN Al.lim.2 H
OT1 Al.lim. 1HH	OT2 Al.lim. 1HH	MPM Al.lim. 1LL	AIN Al.lim.1 HH
OT1 Off/On/On+Al	OT2 Off/On/On+Al	MPM Off/On/On+Al	AIN Off/On/On+Al
Temp fr. bearing	Temp to bearing	Main motor power	Analog input

Function 13-16

	GCR Controlspeed		
	GCR Und.al.limit		
FG Chk. max pos.	GCR Ov.al.speed		
FG Pist. delay	GCR Ov.al.limit	GCR Und.al.limit	
FG Timeout	GCR Filter	GCR Ov.al.speed	
FG Safe dist.	GCR Gain	GCR Ov.al.limit	GGD Gain stator
FG Pist.length	GCR Deadband	GCR Filter	GGD Limit stator.
FG Type	GCR Interval	GCR Gain	GGD Gain rotor.
FG Result	GCR Work mode	GCR Deadband	GGD Limit rotor
FeedGuard func.	Gap Control Rot.	Gap Control Sta.	Gap Guard

Function 17-20

			AOM Mod2 Chan4
			AOM Mod2 Chan3
			AOM Mod2 Chan2
		SSM Index/rev.	AOM Mod2 Chan1
		SSM Diff.pulse	AOM Mod1 Chan4
DIO Out Config.		SSM Rotor speed.	AOM Mod1 Chan3
DIO In Config.		SSM Pulses	AOM Mod1 Chan2
DIO Out Status	AGS Off/TDC/AGS	SSM Off/On/On+Al	AOM Mod1 Chan1
Digital in/out	AGS Interface	Safeset Monitor	Analog Out Mod.

5 Parameter description

5.1 GMS/BRM-DM1/2

BRM GMS System	GMS measure system: 1:GMS-V1T01, 2:GMS-V1A01, 3:GMS-V1A02, 4:GMS-V2A01, 5:GMS-V2T01, 6:GMS-V1X01, 7:GMS-V1X02.
BRM Can Node no.	Node number, normal 1, use 2 for flats side in a CD-refiner. (GMS-V2A01 and GMS-V2T01).
BRM Ind.bus type	0=no bus, 1= Profinet, 2=Profibus, 3=Ethernet IP.
BRM Serial no.	The unit serial number.
BRM HW. Rev.no.	Actual hardware revision.
BRM DCS clock	Synch value from DCS/PLC over the industrial bus. 0 means no contact, 1-255 is a value that increases continuously.
BRM Test func.	Test function (not used).
BRM Date	Date and time.

5.2 CAN-Eth.-Conv.

The function is only valid and shown in a BRM-DM2.

CEC Off/ON/On-Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
CEC IP Address	IP-address
CEC IP Mask	IP-mask.

5.3 Rotor position

POM Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
POM Direction	Direction, set to 0 or 1 depending of the type and thread of the control rod.
POM Ratio	Ratio, set 1.00 for a flat refiner and like 0.20 for a conical.
POM Al.Lim. 1HH	Alarm limit 1, high-high.
POM Al.Lim. 2H	Alarm limit 2, high.
POM Al.Lim. 3L	Alarm limit 1, low.
POM Zero calibr.	Zero calibration, see the calibration manual for actual measure system.
POM Span calibr.	Span calibration, see the calibration manual for actual measure system.
POM Work mode	Shows alternately distance, and speed for the latest rotor travel.

5.4 Ref. vibration

VIM Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
VIM Al.Lim. 1HH	Alarm limit 1, high-high.
VIM Al.Lim. 2H	Alarm limit 2, high.

5.5 Touch vibration

TVD Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
TVD Sens. Idle	Sensitivity at idle.
TVD Sens. Prod.	Sensitivity at production.
TVD Al.lim.1 Hg2	Alarm limit 1, idle, high-high.
TVD Al.lim.2 Hg1	Alarm limit 2, idle, high.
TVD Al.lim.3 Lg2	Alarm limit 3, production, high-high.
TVD Al.lim.4 Lg1	Alarm limit 4, production, high.
TVD Pro.adj.sen.	Adjusted sensitivity at production. The value can also be controlled from an external source, like an industrial bus.

5.6 Control motor

CMD Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
CMD Screw pitch	Thread, set thread pitch in mm for the control rod (mm).
CMD Low speed	Rotor travel speed at low speed (mm/s).
CMD High speed	Rotor travel speed at high speed (mm/s)
CMD Direction	Direction, set 0 or 1.
CMD Drive curr.	Drive current (A).
CMD Hold curr.	Hold current (A).
CMD Min hold cu.	Min limit for the current consumption in hold mode (A).
CMD Run current	Actual current consumption (A).

5.7 Hydr.pressure. A

The parameters are valid for the hydraulic pressure measurement for control apart.

HPA Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
HPA Al.lim.1 HH	Alarm limit 1, high-high (ton).
HPA Al.lim.2 H	Alarm limit 2, high (ton).
HPA Range	Range (ton).
HPA Zero calibr.	Zero calibration, se calibration manual for actual measure system.
HPA Span calibr.	Span calibration, se calibration manual for actual measure system.

5.8 Hydr.pressure. B

The parameters are valid for the hydraulic pressure measurement for control together.

Same as above but "HPA" is replaced by "HPB".

5.9 Temp fr. Bearing

The parameters are valid for the temperature measurement on the oil from the bearing.

OT1 Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
OT1 Al.lim. 1HH	Alarm limit 1, high-high (°C).
OT1 Al.lim. 2H	Alarm limit 2, high (°C).
OT1 Zero calibr.	Zero calibration, se calibration manual for actual measure system.
OT1 Span calibr.	Span calibration, se calibration manual for actual measure system.

5.10 Temp to Bearing

The parameters are valid for the temperature measurement on the oil to the bearing.

Same as above but "OT1" is replaced by "OT2".

5.11 Main motor power

MPM Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
MPM Al.lim. 1LL	Alarm limit 1, low-low (MW).
MPM Al.lim. 2L	Alarm limit 2, low (MW).
MPM Al.lim. float	Alarm limit, floating, level (MW).
MPM Al.lim. filt.	Alarm limit, floating, filter time (s).
MPM Range	Range (MW).
MPM Type	Type, set 1.
MPM Zero calibr.	Zero calibration, se calibration manual for actual measure system.
MPM Span calibr.	Span calibration, se calibration manual for actual measure system.

5.12 Analog input

The function is used for current signal, 4-20mA, for future definition.

AIN Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function
AIN Al.lim.1 HH	Alarm limit 1, high-high.
AIN Al.lim.2 H	Alarm limit 2, high.
AIN Type	Measure function. Set 0.
AIN Range	Range.
AIN Zero calibr.	Zero calibration, se calibration manual for actual measure system.
AIN Span calibr.	Span calibration, se calibration manual for actual measure system.

5.13 FeedGuard func.

FG Result	Rotor travel distance at the latest FeedGuard release.
FG Type	Type, 0 = disconnect, 1 = connected and PLC controls rotor, 2 = connected and BRM controls the rotor, 3 – not used.
FG Pist.length	Ventil-length (mm).
FG Safe dist.	Safe distance (mm).
FG Timeout	Time, the amount of time before the evaluation is done (s).
FG Pist. Delay	Delay time for the piston (s).
FG CMD speed	Rotor travel speed(mm/s).
FG Chk. max pos.	Maximum control limit. No check is done at a POM-value above this limit.

5.14 Rotor Move Ctrl.

The function is only valid and shown in a BRM-DM1.

RMC Function	Function, “Off” = disconnected. “Static op.” = static mode, the production position is not changed in operation. ”Dynamic op.” = dynamic mode, the production position is decreased automatic in operation when the gap is lowered (and enough motor power under a minimum of time).
RMC Prod. pos.	Actual production position (mm).
RMC Start offset	Offset between the start position and the production position (mm).
RMC Set Prod.pos	Set a permanent production position. Set to a desired production position in static mode or to 0.00 in dynamic mode (mm).
RMC Power limit	Minimum power to be able to decrease the production position in dynamic mode (MW).
RMC Time limit	Minimum time to be able to decrease the production position in dynamic mode (min)
RMC Min prod.pos	Minimum allowed production position (mm).
RMC Max prod.pos	Maximal allowed production position (mm).

5.15 Rotor Move Adj.

The function is only valid and shown in a BRM-DM1.

RMA Touchp.func.	Function. “Static” = static calibration med standstill refiner. ”Manual ” = manual calibration med rotating discs and the operator maneuvers the plates completely. ”Automatic” = automatic calibration with rotating discs and the operator maneuvers the plates to the touch point and BRM then maneuvers the plates apart. ”PLC ctrl.” = The function is controlled by the DCS/PLC via the industrial bus.
RMA Touchp.level	Minimum touch value (TVD) to determine the contact position (%).
RMA Touchp. Time	Minimum time as the TVD value has be over the limit to detect the contact position (s).
RMA Touchp. pos.	Contact position (mm)
RMA Wear setting	Setting for measurement of the plate wear. 0 = disconnected, 1 = automatic measurement, 2 = reset measurement relative the actual rotor position. Note - after a reset (2), the previous value is restored.
RMA Wear offset	Rotor position value for the measurement of the plate wear (mm).
RMA Status	Status value for RMC/RMA-the function (described in a separate document).

5.16 Gap Control Rot.

The function is only valid and shown in a BRM-DM2.

GCR Work mode	Work mode, 0 = disconnected, 1 = for Valmet single disc, 2 = for Valmet CD-refiner.
GCR Interval	Interval between each gap control (s).
GCR Deadband	Value for dead-band, plus and minus relative the set limit.
GCR Gain	Span (%).
GCR Filter	Filter time (s). Maximized to half of the set interval.
GCR Ov.al.limit	Over alarm limit (mm). Over alarm checks the balance of gap controls together and apart. In case of unbalance and the together movement is considerably higher than apart movement, an alarm occurs to prevent a segment clash. The parameter sets the limit of this unbalance distance.
GCR Ov.al.speed	Count down speed for over alarm (mm/min).
GCR Und.al.limit	Under alarm limit. Under alarm means that the dead band is not passed or reached in a set number of gap controls. This means that the rotor travel does not match the step motor activations due to an error.
GCR Controlspeed	Rotor movement speed (mm/s). Set normally to 0.05 for a Valmet SD-refiner. For a CD-refiner the parameter must match movement speed of the stator, typically 0.03 mm/s.

5.17 Gap Control Sta.

The function is only valid and shown in a BRM-DM2. These parameters are not used in a Valmet SD-refiner.

GCS Deadband	Value for dead-band, plus and minus relative the set limit.
GCS Gain	Span (%).
GCS Filter	Filter time (s). Maximized to half of the set interval.
GCS Ov.al.limit	Same as the <i>GCR Ov.al.limit</i> above.
GCS Ov.al.speed	Same as the <i>GCR Ov.al.speed</i> above.
GCS Und.al.limit	Same as the <i>GCR Und.al.limit</i> above.

5.18 Gap Guard

The function is only valid and shown in a BRM-DM2.

GGD Limit rotor	The limit is the allowed gap value below the set point before a GapGuard is released.
GGD Gain rotor.	Sets the gain of the GapGuard movement. The movement can be over-compensated (> 100%) or under compensated (<100%).
GGD Limit stator.	As <i>GGD Limit rotor</i> but for the stator in a CD-refiner.
GGD Gain stator	As <i>GGD Gain rotor</i> but for the stator in a CD-refiner.

5.19 Digital in/out

DIO Input=	Status for the digital inputs, hexadecimal indication: 01 = input 1 active, 02 = input 2 active, 03 = input 1 and 2 active, and so on, 80 = input 8 active.
DIO Out Status	Status for digital outputs, hexadecimal indication: 01 = output 1 active, 02 = output 2 active, 03 = output 1 and 2 active, and so on, 80 = output 8 active.
DIO In Config.	Set configuration for the digital inputs.
DIO Out Config.	Set configuration for the digital outputs.

5.20 AGS Interface

The function is only valid and shown in a BRM-DM2.

AGS Off/TDC/AGS	0 = no gap sensor, 1 = TDC-sensor, 2 = AGS-sensor.
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5.21 Safeset Monitor

The function is only valid and shown in a BRM-DM2.

SSM Off/On/On+Al	Off=disconnected, On=connected, On+Alarm=connected to the sum alarm function.
SSM Pulses	Number of allowed fault pulses.
SSM Rotor speed.	Measured rotor speed in rpm.
SSM Diff.pulse	Number of measured fault pulses.
SSM Index/rev.	Number of measure indexes per turn.

5.22 Analog Out Mod.

AOM Mod1 Chan1	Set measure function for channel 1 on AOM-module nr 1.
AOM Mod1 Chan2	Set measure function for channel 2 on AOM-module nr 1.
AOM Mod1 Chan3	Set measure function for channel 3 on AOM-module nr 1.
AOM Mod1 Chan4	Set measure function for channel 4 on AOM-module nr 1.
AOM Mod2 Chan1	Set measure function for channel 1 on AOM-module nr 2.
AOM Mod2 Chan2	Set measure function for channel 2 on AOM-module nr 2.
AOM Mod2 Chan3	Set measure function for channel 3 on AOM-module nr 2.
AOM Mod2 Chan4	Set measure function for channel 4 on AOM-module nr 2.

6 Contact

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