MLC 9000
Profibus and DeviceNet Gateway
User Guide

Revision 2.02

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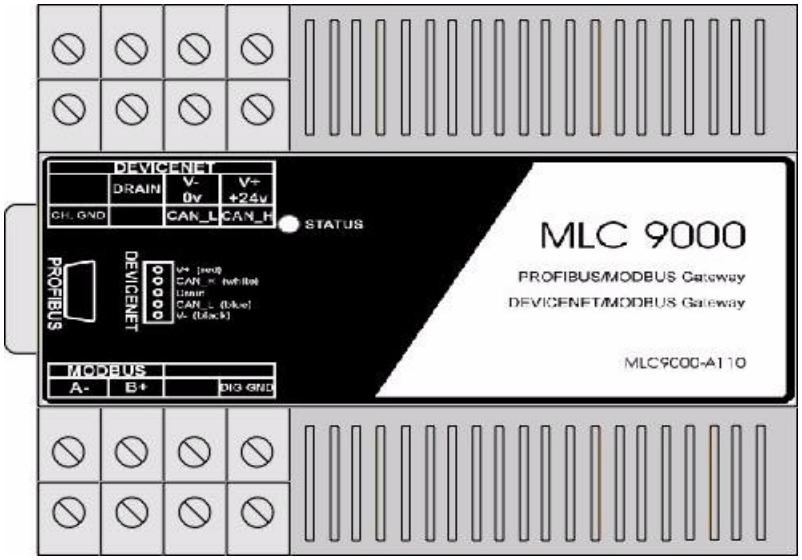
1. Technical Overview

The MLC 9000 Gateway is designed to be connected to either a Profibus DP compliant network or a DeviceNet compliant network. The unit automatically detects which type of network is connected and adapts the configuration. The Gateway supports either Profibus DP or DeviceNet but not both simultaneously.

The Profibus interface automatically detects the baud-rate within the range defined by the Profibus DP standard i.e. (12 MBaud, 6 MBaud, 3 MBaud, 1.5 MBaud, 500 KBaud, 187.5 KBaud, 93.75 KBaud, 19.2 KBaud and 9.6KBaud).
The DeviceNet interface supports the Bit rates defined by the DeviceNet specification i.e. 125KBits, 250KBits and 500KBits.

1.1 Connections



Profibus Connections	
Pin No	
1	
2	
3	Data B
4	
5	Data Ground
6	Termination +5V
7	
8	Data A
9	

1.2 Specifications

General	Size	H90 x W105 x D60mm
	Mounting	Direct onto 35mm DIN rail
	Fieldbus Interface	Profibus and DeviceNet
	Host Interface	Modbus RTU - RS485
	Operating Temperature	0-55 °C
	Operating Humidity	30-90% non-condensing
Power Requirements	Supply Voltage	11 - 30Volts dc
	Maximum Power	3 Watts

2. Operation

2.1 Power Requirements

The Gateway requires 11 to 30 Volts DC to be connected via the screw terminals independent of which Fieldbus is being used.

2.2 LED Operation

The LED is the Network status LED and has different meaning depending on which Fieldbus is active.

Profibus DP State	Colour
No Network Traffic (Baud Search / BUS Fault)	RED
Wait Param, Wait Config	FLASHING RED
Data Exchange	GREEN

DeviceNet State	Colour
No active devices or Network not connected	OFF
Bus Fault or Duplicate Mac ID Test failed	RED
No master has been allocated but network is active	FLASHING GREEN
Master has been allocated	GREEN

3. Installation

The Gateway is shipped with a default Profibus Address of 126 and a default DeviceNet Mac ID of 63. The default Devicenet data-rate is 125KBits/sec and for Profibus the rate is automatic. The gateway should be configured by use of a node-commissioning tool to set the network node address to the required value. With DeviceNet, the transmission bit-rate should also be set. This configuration information is stored in non-volatile memory on the gateway.

If a node configuration tool is not available, refer to section 3.1 *Manual configuration of Network Node address and bit- rate.*

The gateway needs to be connected to the Modbus port on the target system, this can be done using any standard shielded twisted pair cable. The Shield should be connected to the DIG_GND terminal on the MLC9000, connection A- should be connected to A and B+ to B.

Note
Node commissioning tools are normally shipped with the Fieldbus Master device. There are many different commissioning tools available depending on the Fieldbus and the manufacturer of the hardware and their description is beyond the scope of this manual.

3.1 Manual Configuration of Network Node Address and Bit-Rate

If a node commissioning tool is not available (eg Com-Profibus, RS-NetWorx etc) then the gateway's network node address (Profibus or Devicenet) and transmission bit-rate (DeviceNet only) can be set manually. The pushbutton located behind the Profibus connector is used in conjunction with the status LED as follows:

To check the gateway network address.

1) Hold the pushbutton on. After 4 seconds the gateway status LED acknowledges by illuminating yellow.

2) Release the button. The LED goes off and then flashes ***n*** times green and ***m*** times red. ***nm*** is then the decimal representation of the network address: ie (***n*** x 10) + ***m***.

3) After a short pause the LED will then light green for 5 seconds, then red for 5 seconds. After a further 5 seconds the led will revert to registering its normal function.

To set the gateway network address

1) Hold the pushbutton on. After 4 seconds the gateway status LED acknowledges by illuminating yellow.

2) Release the button. The LED goes off and then flashes ***n*** times green and ***m*** times red. ***nm*** is then the decimal representation of the current network address: ie (***n*** x 10) + ***m***.

3) After a short pause the LED will then light green. Whilst the LED is green (within 5 seconds) press the button ***n*** times for the fist digit of the decimal address. Visual feedback is provided by the LED going yellow during each button press.

4) After 2 seconds the LED will turn red. Whilst the LED is red (within 5 seconds) the user should push the button ***m*** times for the second digit (units). Once again visual feedback is provided by the led going yellow during each button press.

5) After 5 seconds the unit will re-initialise using the new network address, and the LED will revert to its normal function. The new network address is retained in non-volatile memory.

6) If confirmation is required that the address was entered correctly, the ***check-the-gateway-network-address*** procedure can be used without interrupting the normal operation of the unit.

Notes) If a zero is required in either the tens or units position, then don't press the button during the appropriate LED-green or LED-red phase. Address 00 (zero-zero) cannot be entered.

The gateway allows addresses beyond 99. The unit will accept up to 12 presses for the 10s digit. This allows Profibus addresses up to 126 to be used.

To check the DeviceNet Transmission bit-rate.

1) Hold the pushbutton on. After 8 seconds the gateway status LED acknowledges by changing from yellow to flashing-yellow.

2) Release the button. The LED goes off and then flashes ***n*** times red. *n* takes the value 1, 2 or 3 representing 125 kb/s, 250 kb/s or 500kb/s respectively.

3) After a short pause the LED will then light red for 5 seconds. After a further 5 seconds the led will revert to registering its normal function.

To set the DeviceNet Transmission bit-rate.

1) Hold the pushbutton on. After 8 seconds the gateway status LED acknowledges by changing from yellow to flashing-yellow.

2) Release the button. The LED goes off and then flashes ***n*** times red. *n* takes the value 1, 2 or 3 representing 125 kb/s, 250 kb/s or 500kb/s respectively.

3) After a short pause the LED will then light red. Whilst the LED is illuminated (within 5 seconds) press the pushbutton 1 , 2 or 3 times to select a bit-rate of 125kb/s 250 kb/s or 500 kb/s respectively. Visual feedback is provided by the LED going yellow during each button press.

5) After 5 seconds the unit will re-initialise using the new transmission rate, and the LED will revert to its normal function. The new transmission rate is retained in non-volatile memory.

6) If confirmation is required that the bit-rate was entered correctly, the ***check-the-DeviceNet Transmission bit-rate*** procedure can be used without interrupting the normal operation of the unit.

3.2 Profibus

The Profibus connector is located on the left hand side of the unit in the form of a 9-Pin D-sub female connector compliant with the Profibus specification.

3.3 DeviceNet

The DeviceNet connections are made directly to the Screw terminals on the top side of the Gateway. These are colour coded as follows :

Colour	Use
Black	V-, 0V.
Blue	CAN_L.
Shield	DRAIN.
White	CAN_H.
Red	V+, 24V.

4. Configuration

4.1 Profibus

The Modbus parameters which describe the speed and operation of the Modbus port must be downloaded at the start of each power-up sequence, normally the Profibus Master will do this automatically, once it has been configured.

The parameters are :

Modbus Address : The Address of the Modbus slave to communicate with.
Baud-Rate : The Baud-Rate of the Modbus communications.
Parity : The Parity option being used to communicate on Modbus.
Byte Order : The order in which the Modbus data is stored in the Profibus Packet.

The parameters are set by using the Electronic Device Data sheet into the Profibus commissioning tool. This Electronic Data Sheet often referred to as a “GSD File” will be provided with the Gateway, the method to set the parameters for a specific node will be described in the documentation provided with the Node Commissioning Tool (eg Com-Profibus).

4.2 DeviceNet

4.2.1 Class 0x64, Instance 0

The DeviceNet parameters are non-volatile and are stored on the Gateway, these Parameters are accessed through the explicit messaging connection.
The Class ID of the Modbus class is 0x64, Instance 0 “Class Object” contains the attributes being used on Modbus.

Attribute	Name	Size (bits)	Default	Rd/Wr	Volatile	Range
0x64	Address	8	96	Rd/Wr	No	1 to 0xF7
0x65	Parity	8	7	Rd/Wr	No	0 to 0xFF
0x66	(reserved)	8	1	Rd/Wr	No	1
0x67	Baud Rate	16	259	Rd/Wr	No	0 to 0xFFFF
0x68	Errors	16	NA	Rd	Yes	0 to 0xFFFF

Address
This denotes the address of the Modbus slave, with which the Gateway will communicate.

Parity
This defines the Parity option used. The default is 8 Data bits, 1 Stop bit and no parity. The available options are :

Desired Parity Option	Value
8 Data, 1 Stop and No Parity	0x07
8 Data, 1 Stop and Odd Parity	0x47
8 Data, 1 Stop and Even Parity	0x67
8 Data, 2 Stop and No Parity	0x87

Reserved
This parameter is reserved and should be left at the default value of 1, changing this value may result in incorrect gateway operation..

Baud Rate
The available Baud rates are shown below :

Desired Baud Rate	Value	
	Dec	Hex
2400	1041	0x411
4800	520	0x208
9600	259	0x103
19200	129	0x81

Errors
This attribute reflects a Modbus error state.
The errors from Modbus, the first byte is the number of errors accumulated, and the second byte denotes the last exception number.

4.2.7 Instance 1

Instance 1 of the class provides access directly to the Modbus network.

The only service supported is “Set Single Attribute”. The read or write functionality is embedded in the Modbus packet being transmitted.
The service will return a count of 1 with data 0 if the transaction fails. In this case the error attribute can be interrogated, otherwise the reply packet from Modbus excluding the CRC is returned.

Attributes are as follows :

Attribute	Name	Size (bytes)	Default	Rd/Wr
0	Modbus - Gateway	128	N/A	Wr

The format of the data written to this attribute must be as follows :

The first byte is the number of bytes in the packet.
The next “n” bytes are any valid Modbus packet excluding the CRC.

5. I/O Assignment

5.1 Profibus Cyclic Data

The maximum I/O requirements of the Profibus Gateway are 104 bytes in and 22 bytes out.

The frequently used variables are directly accessible I/O words, and the less-frequently required variables are available through a "paging" scheme. This scheme reduces the amount of Profibus I/O area required, but does require a little programming at the PLC end. For simplicity, "page number" and "loop number" are the same.

If an LCM is removed from the backplane, the variables in the corresponding non-paged area will each read as –1 (minus one).

5.1.2 Non-Paged Inputs

The input area with address (byte) offset 24 to 103 contains 5 variables (10- bytes) per loop as shown in table-2 and table-3 (Section 7). This area is not paged and is always available as standard Profibus-Cyclic inputs.

5.1.3 Reading Paged Inputs / Outputs

Writing to the first word of the output area (denoted "read-page" in the table-4 below) selects the page (loop) whose variables are placed in the first 24 bytes of the input data area. The PLC program should first check the first word in the input area (loop number), and wait for it to contain the requested loop (page) number. Following this, any of the values in the paged area (table-1, section 7) may be read directly.

5.1.4 Writing Paged Inputs / Outputs

In order to overwrite a variable in the paged area, referring to table-4 in section 7, proceed as follows: Write the required output value into the 3rd variable (bytes 4 & 5). The second output word variable (bytes 2 & 3) should be written with the write-loop number (high-byte) and the write-variable number (low-byte). Referring to table-1 in section 7, the write-variable number is the word-offset into this input page. For example: - Manual Power is 1, Control-bits is 2, bias is 10 etc. The PLC program should check that the correct value has been written, by reading the value back from the paged input area. NB. To ensure incorrect values are not accidentally written, restore the Write-Loop (write-page) or write-variable number to a non-valid value (eg zero). The Gateway will interpret this as "no-action".

The setpoints are not paged and are treated as standard Polled-I/O outputs.

5.2 Profibus Acyclic Data

The Profibus Acyclic functions can be used to communicate with any of the Modules fitted in the MLC 9000. The MLC 9000 Bus Controller Module and Loop Controllers provide a set of objects each containing specific parameters relating to the status of the Modules.
There are 15 Object types each with up to 8 instances of the 32 parameters as defined in section 6.

These parameters are mapped to Profibus using the following system.

MLC 9000	**Profibus Acyclic**
Read Word / Write Word	Acyclic Read / Acyclic Write
Modbus Bus Address 0 to 8	Slot number 1 to 9
Modbus Function	Index
Object Type 0 to 15	Data Offset 0 (bits 0 to 3)
Instance 0 to 7	Data Offset 1 (bits 7 to 5)
Parameter Number 0 to 31	Data Offset 1 (bits 4 to 0)
Parameter Value	Data Offset 2..n

5.2.1 Writing a parameter of the MLC 9000

To write a variable within the MLC 9000 using Profibus Acyclic functions, a Profibus Acyclic-write must first be performed followed by a Profibus Acyclic-read. The Acyclic Write operation initiates the write action within the MLC 9000 and the Acyclic Read operation returns the status of the write.

Example : To write the Proportional Band 1 of LCM 1 to 100

Profibus	**Value**	**Purpose**
Function type	Acyclic Write	N/A
Slot Number	2	LCM number 1
Index	6	Modbus Function 6
Length	4	4 Bytes of Data Follow
Data at Offset 0	3	Object Type 3 “Control Parameters”
Data at Offset 1	2	Instance 0, Parameter 2 “PB1”
Data at Offset 2	0	Upper 8-bits of the Value
Data at Offset 3	100	Lower 8-bits of the Value

Profibus	**Value**	**Purpose**
Function Type	Acyclic Read	N/A
Slot Number	2	LCM number 1
Index	0	Modbus Function 6
Length	4	4 Bytes

5.2.2 Reading a parameter of the MLC 9000

To read any variable from the MLC 9000 via Profibus Acyclic functions, a Profibus Acyclic-Write must first be performed followed by a Profibus Acyclic-Read. The Acyclic Write operation initiates the read within the MLC 9000 and the Acyclic Read operation returns the information.

Example : To read the Proportional Band 1 of LCM 1

Profibus	**Value**	**Purpose**
Function type	Acyclic Write	N/A
Slot Number	2	LCM number 1
Index	3	Modbus Function 3
Length	4	4 Bytes
Data at Offset 0	3	Object Type 3 “Control Parameters”
Data at Offset 1	2	Instance 0, Parameter 2 “PB1”
Data at Offset 2	0	Number of registers to read (Hi byte)
Data at Offset 3	1	Number of registers to read (Lo byte)

Profibus	**Value**	**Purpose**
Function Type	Acyclic Read	N/A
Slot Number	2	LCM number 1
Index	0	Modbus Function 6
Length	6	6 Bytes

5.3 DeviceNet Implicit Connection

With Version 2.xx software for the MLC9000 Gateway, the frequently used variables are directly accessible I/O words, and the less-frequently required variables are available through a "paging" scheme. This scheme reduces the amount of Devicenet I/O area required, but does require a little programming at the PLC end. For simplicity, "page number" and "loop number" are the same.

If an LCM is removed from the backplane, the variables in the corresponding non-paged area will each read as –1 (minus one).

5.3.1 Non-Paged Inputs

The input area with address (byte) offset 24 to 103 contains 5 variables (10- bytes) per loop as shown in table-2 and table-3 (section 7). This area is not paged and is always available as standard Polled-I/O inputs.

5.3.2 Reading Paged Inputs / Outputs

Writing to the first word of the output area (denoted "read-page" in table-4 in section 7) selects the page (loop) whose variables are placed in the first 24 bytes of the input data area. The PLC program should first check the first word in the input area (loop number), and wait for it to contain the requested loop (page) number. Following this, any of the values in the paged area (table-1, section 7) may be read directly.

5.3.4 Writing Paged Inputs / Outputs

In order to overwrite a variable in the paged area, referring to table-4 (section 7), proceed as follows: Write the required output value into the 3rd variable (bytes 4 & 5). The second output word variable (bytes 2 & 3) should be written with the write-loop number (high-byte) and the write-variable number (low-byte). Referring to the table-1 (section 7), the write-variable number is the word-offset into this input page. For example: - Manual Power is 1, Control-bits is 2, bias is 10 etc. The PLC program should check that the correct value has been written, by reading the value back from the paged input area. NB. To ensure incorrect values are not accidentally written, restore the Write-Loop (write-page) or write-variable number to a non-valid value (eg zero). The Gateway will interpret this as "no-action".

The setpoints are not paged and are treated as standard Polled-I/O outputs.

5.4 DeviceNet Explicit Connection

The explicit connection can be used to communicate with any of the Modules fitted in the MLC 9000. The MLC 9000 Bus Controller Module and Loop Controllers provide a set of objects each containing specific parameters relating to the status of the Modules. There are 15 Object types each with up to 8 instances of the 32 parameters; these are defined below in section 6.

These parameters are mapped to DeviceNet using the following system.

MLC	**DeviceNet**
Read Word / Write Word	Get / Set Attribute
Modbus Bus Address 0 to 8	Upper Nibble (4-bits) of the Instance Byte
Object Type 0 to 15	Class value 170 to 185
Instance 0 to 7	Lower Nibble (4-bits) of the Instance Byte
Parameter Number 0 to 31	Attribute 0 to 31

6. Parameter List

The Type column indicates access type allowed (R/O = Read Only, R/W = Read/Write, W/O = Write Only). Note that different module variants may not support all parameters listed here.
Parameter numbers are expressed as offset addresses from the base address of the instance. Bits within words are identified by the notation n.m, where n is the word offset and m is the bit number within the word. Bit-addressable parameters are also identified by their bit offset address from the base address of the instance.

6.1 Input Parameters (LCM Object Type 00)

Number		Name	Type
Word	Bit		
0.0	0	Mains (Line) Frequency	R/W
1		Input Type & Range	R/W
2		Units	R/W for T/C & RTD inputs; R/O for DC inputs
3		Scale Range Maximum	R/W
4		Scale Range Minimum	R/W
5		Process Variable Offset	R/W
6		Input Filter Time Constant	R/W
24		External Input Value	R/W
25		Process Variable	R/O
26.0	16	Over-range Flag	R/O
26.1	17	Under-range Flag	R/O
26.2	18	Sensor Break Flag	R/O

6.2 Output Parameters (LCM OBJECT TYPE 01)

Number		Name	Type
Word	Bit		
1		Output Type	R/W
2		Output Usage	R/W
3		Output Cycle Time	R/W
4		Linear Output Scale Max.	R/W
5		Linear Output Scale Min.	R/W
25		Bus Power	R/W

6.3 Setpoint Parameters (LCM OBJECT TYPE 02)

Number		Name	Type
Word	Bit		Type
1		Setpoint Ramp Rate	R/W
2		Setpoint Select	R/W
3		Setpoint 1	R/W
4		Setpoint 2	R/W
25		Actual Setpoint	R/O

6.4 Control Parameters (LCM Object Type 03)

Number		Name	Type
Word	Bit		
0.0	0	Manual Control Enable/Disable	R/W
0.1	1	Programmable Sensor Break	R/W
0.2	2	Select RaPID	R/W
0.3	3	Select Easy Tune	R/W
0.4	4	Control Output Action	R/W
0.5	5	Control Type	R/W
0.6	6	Loop Alarm Enable	R/W
1		Primary Output Power Limit	R/W
2		Proportional Band 1	R/W
3		Proportional Band 2	R/W
4		Reset/Loop Alarm Time	R/W
5		Rate	R/W
6		Overlap/Deadband	R/W
7		Bias (Manual Reset)	R/W
8		ON/OFF Differential	R/W
9		Manual Power	R/W
10		Preset Power Output	R/W
11		Soft Start Setpoint	R/W
12		Soft Start Time	R/W
13		Soft Start Primary Output Power Limit	R/W
24		HEAT Output Power	R/O
25		COOL Output Power	R/O
26.0	16	Loop Alarm Status	R/O

6.5 Alarm Parameters (LCM Object Type 04)

Number		Name	Type
Word	Bit		
0.0	0	Alarm Inhibit	R/W
1		Alarm Type	R/W
2		Alarm Value	R/W
3		Alarm Hysteresis	R/W
26.0	16	Alarm State	R/O

6.6 Heater Current Parameters (LCM Object 06)

Number		Name	Type
Word	Bit		
0.0	0	Short Circuit Heater Break Alarm Enable/Disable	R/W
1		Heater Current Input Range	R/W
2		Heater Current Scale Range Maximum	R/W
3		Low Heater Break Alarm value	R/W
4		High Heater Break Alarm value	R/W
24		Bus Input value	R/W
25		Heater Current value	R/O
26.0	16	Low Heater Break Alarm state	R/O
26.1	17	High Heater Break Alarm state	R/O
26.2	18	Short Circuit Heater Break Alarm state	R/O

6.7 Calibration Parameters (LCM Object 14)

Number		Name	Type
Word	Bit		
23		Calibration Value	R/O
24		Calibration Phase	R/W
25		Calibration Password	R/W

6.8 LCM Descriptor Parameters (LCM Object 15)

Number		Name	Type
Word	Bit		
123		LCM Serial Number	R/O
4		Product (Module Type) Identifier	R/O
5		Firmware ID	R/O
6		Database ID	R/O
21		COOL Output Power	R/O
22		HEAT Output Power	R/O
23		Actual Setpoint Value	R/O
24		Process Variable Value	R/O
25		Status Indicators	R/O

6.9 Communications Parameters (BCM Object 12)

Number		Name	Type
Word	Bit		
1		PC Port Poll Timeout	R/W
2		PC Port Minimum Poll Interval	R/W
3		MODBUS Address	R/W
4		MODBUS Data Transfer Rate	R/W
5		MODBUS Data Format	R/W

6.10 BCM Descriptor Parameters (BCM Object 15)

Number		Name	Type
Word	Bit		
1,2,3		BCM Serial Number	R/O
4		Product (Module Type) Identifier	R/O
5		Firmware ID	R/O
6		Database ID	R/O
8		Configurable Data Assembly Value - Data 1	R/W
9		Configurable Data Assembly Value - Data 2	R/W
10		Configurable Data Assembly Value - Data 3	R/W
11		Configurable Data Assembly Value - Data 4	R/W
12		Configurable Data Assembly Value - Data 5	R/W
13		Configurable Data Assembly Value - Data 6	R/W
14		Configurable Data Assembly Value - Data 7	R/W
15		Configurable Data Assembly Value - Data 8	R/W
16		Configurable Data Assembly Value - Data 9	R/W
17		Configurable Data Assembly Value - Data 10	R/W
18		Configurable Data Assembly Value - Data 11	R/W
19		Configurable Data Assembly Value - Data 12	R/W
20		Configurable Data Assembly Value - Data 13	R/W
21		Configurable Data Assembly Value - Data 14	R/W
22		Configurable Data Assembly Value - Data 15	R/W
23		Configurable Data Assembly Value - Data 16	R/W

7. Variable Location Tables

7.1 Tables

7.1.1 Table-1: Paged Inputs

Offset – Bytes	Write-Variable number	Input Variable
0	-	Loop Lo
1		Loop Hi
2	1	Manual Power Lo
3		Manual Power Hi
4	2	Control bits Lo
5		Control Bits Hi
6	3	PB1 Lo
7		PB1 Hi
8	4	Reset Lo
9		Reset Hi
10	5	Rate Lo
11		Rate Hi
12	6	Alarm 1 Lo
13		Alarm 1 Hi
14	7	Alarm 2 Lo
15		Alarm 2 Hi
16	8	PB2 Lo
17		PB2 Hi
18	9	Overlap Lo
19		Overlap Hi
20	10	Bias Lo
21		Bias Hi
22	11	On/Off Lo
23		On/Off Hi

7.1.2 Table 2: Non-paged Loop Inputs

Offset - Bytes	Variable Data
24-33	LCM 1
34-43	LCM 2
44-53	LCM 3
54-63	LCM 4
64-73	LCM 5
74-83	LCM 6
84-93	LCM 7
94-103	LCM 8

7.1.3 Table 3: Non-paged Loop Inputs detail per LCM

Offset	Description
0	Process Variable Lo
1	Process Variable Hi
2	Setpoint Lo
3	Setpoint Hi
4	Heat Output Power Lo
5	Heat Output Power Hi
6	Cool Output Power Lo
7	Cool Output Power Hi
8	Status Bits Lo
9	Status Bits Hi

7.1.4 Table 4: Outputs

Offset Byte	Description
0	Read Loop Lo
1	Read Loop Hi
2	Write Variable (1 to 11)
3	Write Loop (1 to 8)
4	Variable Lo
5	Variable Hi
6	LCM 1 Setpoint Lo
7	LCM 1 Setpoint Hi
8	LCM 2 Setpoint Lo
9	LCM 2 Setpoint Hi
10	LCM 3 Setpoint Lo
11	LCM 3 Setpoint Hi
12	LCM 4 Setpoint Lo
13	LCM 4 Setpoint Hi
14	LCM 5 Setpoint Lo
15	LCM 5 Setpoint Hi
16	LCM 6 Setpoint Lo
17	LCM 6 Setpoint Hi
18	LCM 7 Setpoint Lo
19	LCM 7 Setpoint Hi
20	LCM 8 Setpoint Lo
21	LCM 8 Setpoint Hi

Profibus GSD File

```
#Profibus_DP
#For SL2.00 upwards only
;
PrmText = 1
Text(0) = "No Parity"
Text(1) = "Even Parity"
Text(2) = "Odd Parity"
EndPrmText
;
PrmText = 2
Text(0) = "Hi Byte then Lo Byte"
Text(1) = "Lo Byte then Hi Byte"
EndPrmText

PrmText = 3
Text(0) = "2400 Baud"
Text(1) = "4800 Baud"
Text(2) = "9600 Baud"
Text(3) = "19200 Baud"
EndPrmText
;
ExtUserPrmData = 1 "Bus Controller Module Address"
Unsigned8 96 1-247
EndExtUserPrmData
;
;
ExtUserPrmData = 2 "Modbus Baud-Rate"
Unsigned8 2 0-3
Prm_Text_Ref = 3
EndExtUserPrmData
;
;
ExtUserPrmData = 3 "Modbus Parity Option"
Unsigned8 0 0-2
Prm_Text_Ref = 1
EndExtUserPrmData
;
;
ExtUserPrmData = 4 "Byte Ordering"
Unsigned8 0 0-1
Prm_Text_Ref = 2
EndExtUserPrmData
;
GSD_Revision        = 1
;
Vendor_Name         = "MLC 9000"
Model_Name          = "MLC 9000 Gateway"
Revision            = "1"
Ident_Number        = 0x73C
Protocol_Ident      = 0
Station_Type        = 0
FMS_supp            = 0
Hardware_Release    = "1"
Software_Release    = "1"
;
9.6_supp            = 1
19.2_supp           = 1
93.75_supp          = 1
187.5_supp          = 1
500_supp            = 1
1.5M_supp           = 1
3M_supp             = 1
6M_supp             = 1
12M_supp            = 1
;
MaxTsdr_9.6         = 60
MaxTsdr_19.2        = 60
MaxTsdr_93.75       = 60
MaxTsdr_187.5       = 60
MaxTsdr_500         = 100
```

```
MaxTsdr_1.5M        = 150
MaxTsdr_3M          = 250
MaxTsdr_6M          = 450
MaxTsdr_12M         = 800
;
Redundancy          = 0
Repeater_Ctrl_Sig   = 2
24V_Pins            = 2
Implementation_Type = "non-ASIC"

;
Freeze_Mode_supp    = 1
Sync_Mode_supp      = 1
Auto_Baud_supp      = 1
Set_Slave_Add_supp  = 1
Min_Slave_Intervall = 20
;
Modular_Station     = 1
Max_Module          = 9
Max_Input_Len       = 104
Max_Output_Len      = 22
Max_Data_Len        = 126
Modul_Offset        = 0
Max_User_Prm_Data_Len = 7
;
Fail_Safe           = 0
Slave_Family        = 9
Max_Diag_Data_Len   = 8
;
Ext_User_Prm_Data_Const(0) = 0xC0,0x00,0x00
Ext_User_Prm_Data_Ref(3) = 1
Ext_User_Prm_Data_Ref(4) = 2
Ext_User_Prm_Data_Ref(5) = 3
Ext_User_Prm_Data_Ref(6) = 4
;
Module = "Paged Area" 0xC0, 0x05, 0x17
1
EndModule

Module = "Single Loop LCM" 0xC0, 0x01, 0x09
2
EndModule

Module = "Empty Slot" 0xC0, 0x01, 0x09
3
EndModule

;
```

7.3 DeviceNet "EDS File"

```
$ Support for the MLC 9000 Gateway
$ Author: LB
$ Created       : 15-12-1999
$ Corrections   : 20-01-2000
$ SL2.00        : 24-08-2000
$ Removed Strobe Info Section   :   10-10-2000
$
$
$
$
$
$

[File]
    DescText    = "EDS File for MLC 9000 Gateway";  $ File description text
    CreateDate  = 12-15-99;                                  $ Date Created
    CreateTime  = 13:00:00;                         $ Time Created
    Revision    = 2.0;                              $ EDS Revision

[Device]
    VendCode    =   456;                                    $ Vendor Code
    VendName    =   "MLC 9000";                             $ Vendor Name
    ProdType    =   0;                              $ Product Type
    ProdTypeStr =   "Generic";                              $ Product Type String
    ProdCode    =   817;                                    $ Product Code
    MajRev      =   1;                              $ Major Revision
    MinRev      =   1;                              $ Minor Revision
    ProdName    =   "MLC 9000 Gateway";                     $ Product Name


[IO_Info]
    Default     =   0x0001;                         $ Default is poll connection
    PollInfo    =   0x0003, 1, 1;                           $ Default In is 1 default out
is 1

    Input1      =   104,                                    $ Produce 104 bytes maximum
                    8,                              $ 8 bits valid
                    0x0003,                                 $ Poll and Bit strobe
                    "I/O Data",                             $ Name String
                    104,                                    $ Path Size
                    "20 04 24 01 30 03",                    $ Path Descriptor
                    "24 Paged + 10 Bytes Per LCM";          $ Help String

    Output1     =   22,                                     $ Consume 22 bytes maximum
                    8,                              $ 8 bits valid
                    0x0001,                                 $ Only Poll
                    "I/O Data",                             $ Name String
                    22,                                     $ Path Size
                    "20 04 24 01 30 03",                    $ Path Descriptor
                    "6 Paged + 2 Bytes Per LCM";            $ Help String
```