

Dynacontrol v6 EtherCAT Module

(Part No. 118753)

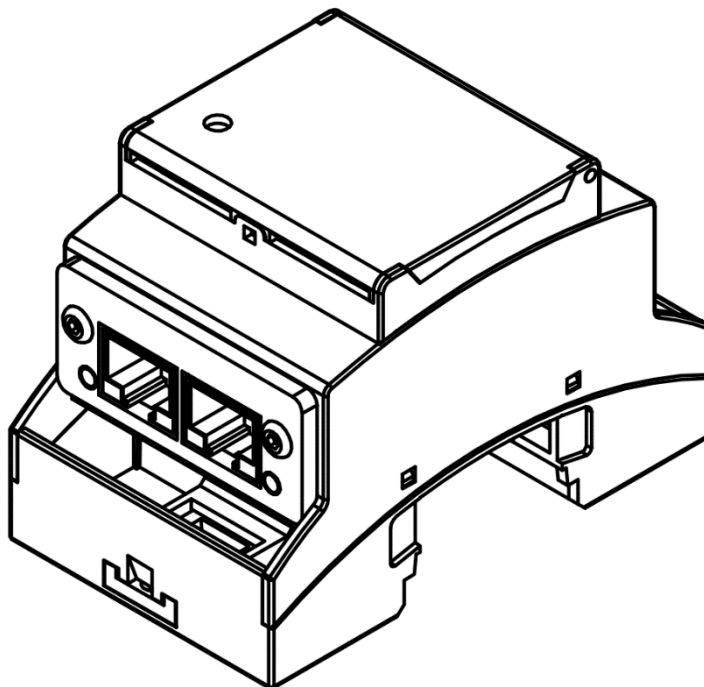


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System Description

The Dynacontrol v6 EtherCAT Module allows all Dynacontrol v6 based melt units to be integrated into bigger systems by remote control of the melt unit. The module is an EtherCAT compatible and certified module used in combination with EtherCAT master devices (e.g. Beckhoff Automation Systems)

Hardware Installation

The Dynacontrol v6 EtherCAT Module is attached to the Dynacontrol v6 Series modular system. No special module order is required and no hardware settings can be set on the module itself. The module has two standard RJ45 connectors to attach to the PLC fieldbus network (IN/OUT).

Software Installation

Please use the settings in the Dynacontrol Menu to select the EtherCAT address (if needed).

Please wait 1 minute after entering the new address and recycle main power for the new address to be accepted.

Refer to your Dynacontrol manual for further information where to find the menu entry as this is dependent on the equipped HMI.

Setting up Communication

EtherCAT Configuration

To use the Dynacontrol v6 EtherCAT module in your project, please import the XML file **DYCO6.XML** that comes with the EtherCAT kit into your EtherCAT PLC configuration (e.g. Beckhoff EtherCAT Configurator ET9000).

This procedure is depending on the PLC being used. See your PLC documentation for further information.

The EtherCAT implementation does not include any EtherCAT specific features. The system transfers 61 words (122 bytes) in both directions (Input/Output) as cyclic I/O parameters. This was done to reduce the fieldbus specific overhead to a minimum and allow the same full functionality – no matter which fieldbus interface being used (Profibus, Ethernet/IP, Modbus/TCP, EtherCAT).

Addresses are given in bytes offset from the beginning of the data block. This has the following implications:

- Word at address 4 means the 3rd word in the block (offset 0, 2, 4)
- Bit 5.0 means BIT0 on in Byte 5 (which is also BIT0 in word #3)

PLC Functionality

Received Data Block

The received data (from the Dynacontrol v6) has a length of 61 words (122 bytes). Inside the data block not all values might be used depending on the current system configuration. If – for example – the level sensor is not equipped, the content of the level sensor status has to be ignored.

Address	Name	Type	Initial value	Actual value	Comment
0.0	DATA_IN.RES0	WORD	W#16#0	W#16#0	Reserved
2.0	DATA_IN.RES1	WORD	W#16#0	W#16#0	Reserved
4.0	DATA_IN.RUN2	BOOL	FALSE	FALSE	Pump 2 Running
4.1	DATA_IN.RUN3	BOOL	FALSE	FALSE	Pump 3 Running
4.2	DATA_IN.RUN4	BOOL	FALSE	FALSE	Pump 4 Running
4.3	DATA_IN.RUN5	BOOL	FALSE	FALSE	Pump 5 Running
4.4	DATA_IN.RUN6	BOOL	FALSE	FALSE	Pump 6 Running
4.5	DATA_IN.RUN7	BOOL	FALSE	FALSE	Pump 7 Running
4.6	DATA_IN.RUN8	BOOL	FALSE	FALSE	Pump 8 Running
4.7	DATA_IN.RUN9	BOOL	FALSE	FALSE	Pump 9 Running
5.0	DATA_IN.W_DOG	BOOL	FALSE	FALSE	Watchdog
5.1	DATA_IN.RDY	BOOL	FALSE	FALSE	System in Ready Condition
5.2	DATA_IN.FAULT	BOOL	FALSE	FALSE	System in Fault Condition
5.3	DATA_IN.ALM	BOOL	FALSE	FALSE	System in Alarm Condition
5.4	DATA_IN.SYS_ON	BOOL	FALSE	FALSE	System in On Condition
5.5	DATA_IN.STDEY	BOOL	FALSE	FALSE	System in Standby Condition
5.6	DATA_IN.LOW	BOOL	FALSE	FALSE	Adhesive Low
5.7	DATA_IN.RUN1	BOOL	FALSE	FALSE	Pump 1 Running

The first two words are reserved and should not be used.

They are reserved for other fieldbus protocols and exist for compatibility reasons.

Pump Activity Bits

Bits 4.0-4.7 and 5.7 give the current pump status.

“TRUE” means that the pump is running, “FALSE” means it is not running.

Watchdog

Bit 5.0 is toggled from the Dynacontrol v6 every 0.5s. This can be evaluated in the PLC to guarantee a working field bus link. The same signal has also to be transferred back to the Dynacontrol v6 to allow monitoring of the other field bus direction (see page 25).

Status Bits

Bits 5.1-5.6 show certain status from the Dynacontrol v6. The meaning of the different status is given in the comment line and self-explaining. A logical 1 of the ready signal means that all zones of the system are heated up according to the set points and alarm windows and the system is ready to run.

8.0	DATA_IN.LINESPEED	INT	0	0	Global System Linespeed (0..1000 = 0..100%)
10.0	DATA_IN.PRESS_ACT1	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
12.0	DATA_IN.PRESS_ACT2	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
14.0	DATA_IN.PRESS_ACT3	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
16.0	DATA_IN.PRESS_ACT4	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
18.0	DATA_IN.PRESS_ACT5	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
20.0	DATA_IN.PRESS_ACT6	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
22.0	DATA_IN.PRESS_ACT7	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
24.0	DATA_IN.PRESS_ACT8	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
26.0	DATA_IN.PRESS_ACT9	INT	0	0	Actual Pressure (0..1000 = 0..100,0 bar/0..1000 psi), BIT15=FAULT
28.0	DATA_IN.RES28	WORD	W#16#0	W#16#0	Reserved
30.0	DATA_IN.MOTOR_ACT1	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
32.0	DATA_IN.MOTOR_ACT2	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
34.0	DATA_IN.MOTOR_ACT3	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
36.0	DATA_IN.MOTOR_ACT4	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
38.0	DATA_IN.MOTOR_ACT5	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
40.0	DATA_IN.MOTOR_ACT6	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
42.0	DATA_IN.MOTOR_ACT7	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
44.0	DATA_IN.MOTOR_ACT8	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)
46.0	DATA_IN.MOTOR_ACT9	INT	0	0	Motor Actual Speed (0..1000 = 0..100rpm)

Line Speed

The word at address 8 holds the current global line speed value. This value is given in %x10 meaning that a maximum value of 1000 equals to 100.0% of main machine line speed. Please remember, that global line speed might be ignored for certain pumps if attached to a local analog input or remotely controlled via field bus.

Actual Pressure (Primary Pressure Ports)

Every pump has a primary pressure port. The words at address 10..26 hold the actual values of these pressure ports. The unit can be either bar (x10) or psi depending on the unit setting inside the transmitted data block. If the unit is set to bar, the value is 10x the actual value (1000 = 100.0 bar). If the highest bit in the word is set (BIT15), the sensor is not responding (the sensor is 4-20mA, a value of <2mA triggers the FAULT bit).

Pump Speed

The pump speed of every motor can be read by getting the values in words at address 30-46. The value has a factor of 10, so 1000 means 100.0 rpm.

Last Successful Received Parameter Block

50.0	DATA_IN.LAST_REC_UID	INT	0	0	Last Successful Received Parameter Block
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The word at address 50 holds the ID of the last successful received parameter block. See page 28 for further details about custom write blocks.

Exchangeable Read Data Frame

56.0	DATA_IN.READ_BLK_TYPE1	INT	0	0	Read Parameter Block Type
58.0	DATA_IN.READ_BLK_UID	INT	0	0	Read Parameter UID
60.0	DATA_IN.READ_DATA_1	INT	0	0	Read Data
62.0	DATA_IN.READ_DATA_2	INT	0	0	Read Data
64.0	DATA_IN.READ_DATA_3	INT	0	0	Read Data
66.0	DATA_IN.READ_DATA_4	INT	0	0	Read Data
68.0	DATA_IN.READ_DATA_5	INT	0	0	Read Data
70.0	DATA_IN.READ_DATA_6	INT	0	0	Read Data
72.0	DATA_IN.READ_DATA_7	INT	0	0	Read Data
74.0	DATA_IN.READ_DATA_8	INT	0	0	Read Data
76.0	DATA_IN.READ_DATA_9	INT	0	0	Read Data
78.0	DATA_IN.READ_DATA_10	INT	0	0	Read Data
80.0	DATA_IN.READ_DATA_11	INT	0	0	Read Data
82.0	DATA_IN.READ_DATA_12	INT	0	0	Read Data
84.0	DATA_IN.READ_DATA_13	INT	0	0	Read Data
86.0	DATA_IN.READ_DATA_14	INT	0	0	Read Data
88.0	DATA_IN.READ_DATA_15	INT	0	0	Read Data
90.0	DATA_IN.READ_DATA_16	INT	0	0	Read Data
92.0	DATA_IN.READ_BLK_TYPE2	INT	0	0	Read Parameter Block Type (copy of 32.0)

To support multiple information blocks inside the limited field bus size, an exchangeable data frame is transmitted. The data to be received is periodically exchanged (default) or defined by the PLC software.

If the words at address 56 and 92 are equal, the value of these words defines the content of the 16 words from address 60 to 90. Inside the PLC program the values have to be copied to the proper destination depending on the content - if needed.

Exchangeable Read Block Types

The following exchangeable read blocks are defined:

BLK Type	2
Read Parameter # 1	System Status ²
Read Parameter # 2	Global Error Word
Read Parameter # 3	Ready Progress (0..1000 = 0..100,0%)
Read Parameter # 4	Hour Counter LO-Word
Read Parameter # 5	Hour Counter HI-Word
Read Parameter # 6	Piston Pump 1 Stroke Counter LO-Word
Read Parameter # 7	Piston Pump 1 Stroke Counter HI-Word
Read Parameter # 8	Status Digital Inputs/Outputs ³
Read Parameter # 9	Level Sensor Fill Level (0..1000=0..100,0%)
Read Parameter # 10	Extended System Status ⁴
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

² System Status in Binary Encoded:

BIT0: System On
 BIT1: System Standby
 BIT2: System Sleep
 BIT3: System Alarm
 BIT4: System Fault
 BIT5: System Ready
 BIT6: System Warning
 BIT7: System Overtemperature
 BIT8: Hopper Empty
 BIT9: Global Error Message Present
 BIT13: System in Remote Mode (Fieldbus)
 BIT15: System waiting for Alarm Acknowledge

³ Status Digital In/Out

<- BIT0: IN1
 <- BIT1: IN2
 <- BIT2: IN3
 <- BIT3: IN4
 <- BIT4: IN5
 <- BIT5: IN6
 <- BIT6: MOTFAIL
 <- BIT7: OVERTEMP
 -> BIT8: RELAIS1
 -> BIT9: RELAIS2
 -> BIT10: RELAIS3
 -> BIT11: POWER CONTACTOR
 -> BIT12: MOTOR START

⁴ Extended System Status

BIT0: Reserved
 BIT1: E-Stop active
 BIT2: Heat Soak Time running
 BIT15: Reserved

BLK Type	11
Read Parameter # 1	Actual Temperature (°C/°F) Zone 1
Read Parameter # 2	Actual Temperature (°C/°F) Zone 2
Read Parameter # 3	Actual Temperature (°C/°F) Zone 3
Read Parameter # 4	Actual Temperature (°C/°F) Zone 4
Read Parameter # 5	Actual Temperature (°C/°F) Zone 5
Read Parameter # 6	Actual Temperature (°C/°F) Zone 6
Read Parameter # 7	Actual Temperature (°C/°F) Zone 7
Read Parameter # 8	Actual Temperature (°C/°F) Zone 8
Read Parameter # 9	Actual Temperature (°C/°F) Zone 9
Read Parameter # 10	Actual Temperature (°C/°F) Zone 10
Read Parameter # 11	Actual Temperature (°C/°F) Zone 11
Read Parameter # 12	Actual Temperature (°C/°F) Zone 12
Read Parameter # 13	Actual Temperature (°C/°F) Zone 13
Read Parameter # 14	Actual Temperature (°C/°F) Zone 14
Read Parameter # 15	Actual Temperature (°C/°F) Zone 15
Read Parameter # 16	Actual Temperature (°C/°F) Zone 16

BLK Type	12
Read Parameter # 1	Actual Temperature (°C/°F) Zone 17
Read Parameter # 2	Actual Temperature (°C/°F) Zone 18
Read Parameter # 3	Actual Temperature (°C/°F) Zone 19
Read Parameter # 4	Actual Temperature (°C/°F) Zone 20
Read Parameter # 5	Actual Temperature (°C/°F) Zone 21
Read Parameter # 6	Actual Temperature (°C/°F) Zone 22
Read Parameter # 7	Actual Temperature (°C/°F) Zone 23
Read Parameter # 8	Actual Temperature (°C/°F) Zone 24
Read Parameter # 9	Actual Temperature (°C/°F) Zone 25
Read Parameter # 10	Actual Temperature (°C/°F) Zone 26
Read Parameter # 11	Actual Temperature (°C/°F) Zone 27
Read Parameter # 12	Actual Temperature (°C/°F) Zone 28
Read Parameter # 13	Actual Temperature (°C/°F) Zone 29
Read Parameter # 14	Actual Temperature (°C/°F) Zone 30
Read Parameter # 15	Actual Temperature (°C/°F) Zone 31
Read Parameter # 16	Actual Temperature (°C/°F) Zone 32

BLK Type	13
Read Parameter # 1	Actual Temperature (°C/°F) Zone 33
Read Parameter # 2	Actual Temperature (°C/°F) Zone 34
Read Parameter # 3	Actual Temperature (°C/°F) Zone 35
Read Parameter # 4	Actual Temperature (°C/°F) Zone 36
Read Parameter # 5	Actual Temperature (°C/°F) Zone 37
Read Parameter # 6	Actual Temperature (°C/°F) Zone 38
Read Parameter # 7	Actual Temperature (°C/°F) Zone 39
Read Parameter # 8	Actual Temperature (°C/°F) Zone 40
Read Parameter # 9	Actual Temperature (°C/°F) Zone 41
Read Parameter # 10	Actual Temperature (°C/°F) Zone 42
Read Parameter # 11	Actual Temperature (°C/°F) Zone 43
Read Parameter # 12	Actual Temperature (°C/°F) Zone 44
Read Parameter # 13	Actual Temperature (°C/°F) Zone 45
Read Parameter # 14	Actual Temperature (°C/°F) Zone 46
Read Parameter # 15	Actual Temperature (°C/°F) Zone 47
Read Parameter # 16	Actual Temperature (°C/°F) Zone 48

BLK Type	14
Read Parameter # 1	Actual Temperature (°C/°F) Zone 49
Read Parameter # 2	Actual Temperature (°C/°F) Zone 50
Read Parameter # 3	Actual Temperature (°C/°F) Zone 51
Read Parameter # 4	Actual Temperature (°C/°F) Zone 52
Read Parameter # 5	Actual Temperature (°C/°F) Zone 53
Read Parameter # 6	Actual Temperature (°C/°F) Zone 54
Read Parameter # 7	Actual Temperature (°C/°F) Zone 55
Read Parameter # 8	Actual Temperature (°C/°F) Zone 56
Read Parameter # 9	Actual Temperature (°C/°F) Zone 57
Read Parameter # 10	Actual Temperature (°C/°F) Zone 58
Read Parameter # 11	Actual Temperature (°C/°F) Zone 59
Read Parameter # 12	Actual Temperature (°C/°F) Zone 60
Read Parameter # 13	Actual Temperature (°C/°F) Zone 61
Read Parameter # 14	Actual Temperature (°C/°F) Zone 62
Read Parameter # 15	Actual Temperature (°C/°F) Zone 63
Read Parameter # 16	Actual Temperature (°C/°F) Zone 64

BLK Type	21
Read Parameter # 1	Current Temperature Set Point (°C/°F) Zone 1
Read Parameter # 2	Current Temperature Set Point (°C/°F) Zone 2
Read Parameter # 3	Current Temperature Set Point (°C/°F) Zone 3
Read Parameter # 4	Current Temperature Set Point (°C/°F) Zone 4
Read Parameter # 5	Current Temperature Set Point (°C/°F) Zone 5
Read Parameter # 6	Current Temperature Set Point (°C/°F) Zone 6
Read Parameter # 7	Current Temperature Set Point (°C/°F) Zone 7
Read Parameter # 8	Current Temperature Set Point (°C/°F) Zone 8
Read Parameter # 9	Current Temperature Set Point (°C/°F) Zone 9
Read Parameter # 10	Current Temperature Set Point (°C/°F) Zone 10
Read Parameter # 11	Current Temperature Set Point (°C/°F) Zone 11
Read Parameter # 12	Current Temperature Set Point (°C/°F) Zone 12
Read Parameter # 13	Current Temperature Set Point (°C/°F) Zone 13
Read Parameter # 14	Current Temperature Set Point (°C/°F) Zone 14
Read Parameter # 15	Current Temperature Set Point (°C/°F) Zone 15
Read Parameter # 16	Current Temperature Set Point (°C/°F) Zone 16

BLK Type	22
Read Parameter # 1	Current Temperature Set Point (°C/°F) Zone 17
Read Parameter # 2	Current Temperature Set Point (°C/°F) Zone 18
Read Parameter # 3	Current Temperature Set Point (°C/°F) Zone 19
Read Parameter # 4	Current Temperature Set Point (°C/°F) Zone 20
Read Parameter # 5	Current Temperature Set Point (°C/°F) Zone 21
Read Parameter # 6	Current Temperature Set Point (°C/°F) Zone 22
Read Parameter # 7	Current Temperature Set Point (°C/°F) Zone 23
Read Parameter # 8	Current Temperature Set Point (°C/°F) Zone 24
Read Parameter # 9	Current Temperature Set Point (°C/°F) Zone 25
Read Parameter # 10	Current Temperature Set Point (°C/°F) Zone 26
Read Parameter # 11	Current Temperature Set Point (°C/°F) Zone 27
Read Parameter # 12	Current Temperature Set Point (°C/°F) Zone 28
Read Parameter # 13	Current Temperature Set Point (°C/°F) Zone 29
Read Parameter # 14	Current Temperature Set Point (°C/°F) Zone 30
Read Parameter # 15	Current Temperature Set Point (°C/°F) Zone 31
Read Parameter # 16	Current Temperature Set Point (°C/°F) Zone 32

BLK Type	23
Read Parameter # 1	Current Temperature Set Point (°C/°F) Zone 33
Read Parameter # 2	Current Temperature Set Point (°C/°F) Zone 34
Read Parameter # 3	Current Temperature Set Point (°C/°F) Zone 35
Read Parameter # 4	Current Temperature Set Point (°C/°F) Zone 36
Read Parameter # 5	Current Temperature Set Point (°C/°F) Zone 37
Read Parameter # 6	Current Temperature Set Point (°C/°F) Zone 38
Read Parameter # 7	Current Temperature Set Point (°C/°F) Zone 39
Read Parameter # 8	Current Temperature Set Point (°C/°F) Zone 40
Read Parameter # 9	Current Temperature Set Point (°C/°F) Zone 41
Read Parameter # 10	Current Temperature Set Point (°C/°F) Zone 42
Read Parameter # 11	Current Temperature Set Point (°C/°F) Zone 43
Read Parameter # 12	Current Temperature Set Point (°C/°F) Zone 44
Read Parameter # 13	Current Temperature Set Point (°C/°F) Zone 45
Read Parameter # 14	Current Temperature Set Point (°C/°F) Zone 46
Read Parameter # 15	Current Temperature Set Point (°C/°F) Zone 47
Read Parameter # 16	Current Temperature Set Point (°C/°F) Zone 48

BLK Type	24
Read Parameter # 1	Current Temperature Set Point (°C/°F) Zone 49
Read Parameter # 2	Current Temperature Set Point (°C/°F) Zone 50
Read Parameter # 3	Current Temperature Set Point (°C/°F) Zone 51
Read Parameter # 4	Current Temperature Set Point (°C/°F) Zone 52
Read Parameter # 5	Current Temperature Set Point (°C/°F) Zone 53
Read Parameter # 6	Current Temperature Set Point (°C/°F) Zone 54
Read Parameter # 7	Current Temperature Set Point (°C/°F) Zone 55
Read Parameter # 8	Current Temperature Set Point (°C/°F) Zone 56
Read Parameter # 9	Current Temperature Set Point (°C/°F) Zone 57
Read Parameter # 10	Current Temperature Set Point (°C/°F) Zone 58
Read Parameter # 11	Current Temperature Set Point (°C/°F) Zone 59
Read Parameter # 12	Current Temperature Set Point (°C/°F) Zone 60
Read Parameter # 13	Current Temperature Set Point (°C/°F) Zone 61
Read Parameter # 14	Current Temperature Set Point (°C/°F) Zone 62
Read Parameter # 15	Current Temperature Set Point (°C/°F) Zone 63
Read Parameter # 16	Current Temperature Set Point (°C/°F) Zone 64

BLK Type	31
Read Parameter # 1	Current Temp Status ¹ Zone 1
Read Parameter # 2	Current Temp Status ¹ Zone 2
Read Parameter # 3	Current Temp Status ¹ Zone 3
Read Parameter # 4	Current Temp Status ¹ Zone 4
Read Parameter # 5	Current Temp Status ¹ Zone 5
Read Parameter # 6	Current Temp Status ¹ Zone 6
Read Parameter # 7	Current Temp Status ¹ Zone 7
Read Parameter # 8	Current Temp Status ¹ Zone 8
Read Parameter # 9	Current Temp Status ¹ Zone 9
Read Parameter # 10	Current Temp Status ¹ Zone 10
Read Parameter # 11	Current Temp Status ¹ Zone 11
Read Parameter # 12	Current Temp Status ¹ Zone 12
Read Parameter # 13	Current Temp Status ¹ Zone 13
Read Parameter # 14	Current Temp Status ¹ Zone 14
Read Parameter # 15	Current Temp Status ¹ Zone 15
Read Parameter # 16	Current Temp Status ¹ Zone 16

¹ Temp Status is Binary Encoded:

BIT0: Zone Ready

BIT1: Zone Heating

BIT2: Zone Waiting (Sequencing)

BIT3: Zone in Alarm Status

BIT4: <reserved>

BIT5: Zone RTD Fault

BLK Type	32
Read Parameter # 1	Current Temp Status ¹ Zone 17
Read Parameter # 2	Current Temp Status ¹ Zone 18
Read Parameter # 3	Current Temp Status ¹ Zone 19
Read Parameter # 4	Current Temp Status ¹ Zone 20
Read Parameter # 5	Current Temp Status ¹ Zone 21
Read Parameter # 6	Current Temp Status ¹ Zone 22
Read Parameter # 7	Current Temp Status ¹ Zone 23
Read Parameter # 8	Current Temp Status ¹ Zone 24
Read Parameter # 9	Current Temp Status ¹ Zone 25
Read Parameter # 10	Current Temp Status ¹ Zone 26
Read Parameter # 11	Current Temp Status ¹ Zone 27
Read Parameter # 12	Current Temp Status ¹ Zone 28
Read Parameter # 13	Current Temp Status ¹ Zone 29
Read Parameter # 14	Current Temp Status ¹ Zone 30
Read Parameter # 15	Current Temp Status ¹ Zone 31
Read Parameter # 16	Current Temp Status ¹ Zone 32

BLK Type	33
Read Parameter # 1	Current Temp Status ¹ Zone 33
Read Parameter # 2	Current Temp Status ¹ Zone 34
Read Parameter # 3	Current Temp Status ¹ Zone 35
Read Parameter # 4	Current Temp Status ¹ Zone 36
Read Parameter # 5	Current Temp Status ¹ Zone 37
Read Parameter # 6	Current Temp Status ¹ Zone 38
Read Parameter # 7	Current Temp Status ¹ Zone 39
Read Parameter # 8	Current Temp Status ¹ Zone 40
Read Parameter # 9	Current Temp Status ¹ Zone 41
Read Parameter # 10	Current Temp Status ¹ Zone 42
Read Parameter # 11	Current Temp Status ¹ Zone 43
Read Parameter # 12	Current Temp Status ¹ Zone 44
Read Parameter # 13	Current Temp Status ¹ Zone 45
Read Parameter # 14	Current Temp Status ¹ Zone 46
Read Parameter # 15	Current Temp Status ¹ Zone 47
Read Parameter # 16	Current Temp Status ¹ Zone 48

¹ Temp Status is Binary Encoded:

BIT0: Zone Ready

BIT1: Zone Heating

BIT2: Zone Waiting (Sequencing)

BIT3: Zone in Alarm Status

BIT4: <reserved>

BIT5: Zone RTD Fault

BLK Type	34
Read Parameter # 1	Current Temp Status ¹ Zone 49
Read Parameter # 2	Current Temp Status ¹ Zone 50
Read Parameter # 3	Current Temp Status ¹ Zone 51
Read Parameter # 4	Current Temp Status ¹ Zone 52
Read Parameter # 5	Current Temp Status ¹ Zone 53
Read Parameter # 6	Current Temp Status ¹ Zone 54
Read Parameter # 7	Current Temp Status ¹ Zone 55
Read Parameter # 8	Current Temp Status ¹ Zone 56
Read Parameter # 9	Current Temp Status ¹ Zone 57
Read Parameter # 10	Current Temp Status ¹ Zone 58
Read Parameter # 11	Current Temp Status ¹ Zone 59
Read Parameter # 12	Current Temp Status ¹ Zone 60
Read Parameter # 13	Current Temp Status ¹ Zone 61
Read Parameter # 14	Current Temp Status ¹ Zone 62
Read Parameter # 15	Current Temp Status ¹ Zone 63
Read Parameter # 16	Current Temp Status ¹ Zone 64

BLK Type	41
Read Parameter # 1	Secondary Pressure (psi or /10 bar) Pump 1
Read Parameter # 2	Secondary Pressure (psi or /10 bar) Pump 2
Read Parameter # 3	Secondary Pressure (psi or /10 bar) Pump 3
Read Parameter # 4	Secondary Pressure (psi or /10 bar) Pump 4
Read Parameter # 5	Secondary Pressure (psi or /10 bar) Pump 5
Read Parameter # 6	Secondary Pressure (psi or /10 bar) Pump 6
Read Parameter # 7	Secondary Pressure (psi or /10 bar) Pump 7
Read Parameter # 8	Secondary Pressure (psi or /10 bar) Pump 8
Read Parameter # 9	Secondary Pressure (psi or /10 bar) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

The Heat-Up-Sequence setting of each zone defines whether a zone is activated (sequence > 0) or deactivated (sequence = 0). All zones that have a sequence > 0 are heated up in order (first = sequence 1, second = sequence 2, etc.):

BLK Type	51
Read Parameter # 1	Current Temp Sequence Setting Zone 1
Read Parameter # 2	Current Temp Sequence Setting Zone 2
Read Parameter # 3	Current Temp Sequence Setting Zone 3
Read Parameter # 4	Current Temp Sequence Setting Zone 4
Read Parameter # 5	Current Temp Sequence Setting Zone 5
Read Parameter # 6	Current Temp Sequence Setting Zone 6
Read Parameter # 7	Current Temp Sequence Setting Zone 7
Read Parameter # 8	Current Temp Sequence Setting Zone 8
Read Parameter # 9	Current Temp Sequence Setting Zone 9
Read Parameter # 10	Current Temp Sequence Setting Zone 10
Read Parameter # 11	Current Temp Sequence Setting Zone 11
Read Parameter # 12	Current Temp Sequence Setting Zone 12
Read Parameter # 13	Current Temp Sequence Setting Zone 13
Read Parameter # 14	Current Temp Sequence Setting Zone 14
Read Parameter # 15	Current Temp Sequence Setting Zone 15
Read Parameter # 16	Current Temp Sequence Setting Zone 16

BLK Type	52
Read Parameter # 1	Current Temp Sequence Setting Zone 17
Read Parameter # 2	Current Temp Sequence Setting Zone 18
Read Parameter # 3	Current Temp Sequence Setting Zone 19
Read Parameter # 4	Current Temp Sequence Setting Zone 20
Read Parameter # 5	Current Temp Sequence Setting Zone 21
Read Parameter # 6	Current Temp Sequence Setting Zone 22
Read Parameter # 7	Current Temp Sequence Setting Zone 23
Read Parameter # 8	Current Temp Sequence Setting Zone 24
Read Parameter # 9	Current Temp Sequence Setting Zone 25
Read Parameter # 10	Current Temp Sequence Setting Zone 26
Read Parameter # 11	Current Temp Sequence Setting Zone 27
Read Parameter # 12	Current Temp Sequence Setting Zone 28
Read Parameter # 13	Current Temp Sequence Setting Zone 29
Read Parameter # 14	Current Temp Sequence Setting Zone 30
Read Parameter # 15	Current Temp Sequence Setting Zone 31
Read Parameter # 16	Current Temp Sequence Setting Zone 32

BLK Type	53
Read Parameter # 1	Current Temp Sequence Setting Zone 33
Read Parameter # 2	Current Temp Sequence Setting Zone 34
Read Parameter # 3	Current Temp Sequence Setting Zone 35
Read Parameter # 4	Current Temp Sequence Setting Zone 36
Read Parameter # 5	Current Temp Sequence Setting Zone 37
Read Parameter # 6	Current Temp Sequence Setting Zone 38
Read Parameter # 7	Current Temp Sequence Setting Zone 39
Read Parameter # 8	Current Temp Sequence Setting Zone 40
Read Parameter # 9	Current Temp Sequence Setting Zone 41
Read Parameter # 10	Current Temp Sequence Setting Zone 42
Read Parameter # 11	Current Temp Sequence Setting Zone 43
Read Parameter # 12	Current Temp Sequence Setting Zone 44
Read Parameter # 13	Current Temp Sequence Setting Zone 45
Read Parameter # 14	Current Temp Sequence Setting Zone 46
Read Parameter # 15	Current Temp Sequence Setting Zone 47
Read Parameter # 16	Current Temp Sequence Setting Zone 48

BLK Type	54
Read Parameter # 1	Current Temp Sequence Setting Zone 49
Read Parameter # 2	Current Temp Sequence Setting Zone 50
Read Parameter # 3	Current Temp Sequence Setting Zone 51
Read Parameter # 4	Current Temp Sequence Setting Zone 52
Read Parameter # 5	Current Temp Sequence Setting Zone 53
Read Parameter # 6	Current Temp Sequence Setting Zone 54
Read Parameter # 7	Current Temp Sequence Setting Zone 55
Read Parameter # 8	Current Temp Sequence Setting Zone 56
Read Parameter # 9	Current Temp Sequence Setting Zone 57
Read Parameter # 10	Current Temp Sequence Setting Zone 58
Read Parameter # 11	Current Temp Sequence Setting Zone 59
Read Parameter # 12	Current Temp Sequence Setting Zone 60
Read Parameter # 13	Current Temp Sequence Setting Zone 61
Read Parameter # 14	Current Temp Sequence Setting Zone 62
Read Parameter # 15	Current Temp Sequence Setting Zone 63
Read Parameter # 16	Current Temp Sequence Setting Zone 64

BLK Type	101
Read Parameter # 1	Manual Set Point (0..1000=0..100,0%) Pump 1
Read Parameter # 2	Manual Set Point (0..1000=0..100,0%) Pump 2
Read Parameter # 3	Manual Set Point (0..1000=0..100,0%) Pump 3
Read Parameter # 4	Manual Set Point (0..1000=0..100,0%) Pump 4
Read Parameter # 5	Manual Set Point (0..1000=0..100,0%) Pump 5
Read Parameter # 6	Manual Set Point (0..1000=0..100,0%) Pump 6
Read Parameter # 7	Manual Set Point (0..1000=0..100,0%) Pump 7
Read Parameter # 8	Manual Set Point (0..1000=0..100,0%) Pump 8
Read Parameter # 9	Manual Set Point (0..1000=0..100,0%) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

BLK Type	102
Read Parameter # 1	Min Auto Value (0..1000=0..100,0%) Pump 1
Read Parameter # 2	Min Auto Value (0..1000=0..100,0%) Pump 2
Read Parameter # 3	Min Auto Value (0..1000=0..100,0%) Pump 3
Read Parameter # 4	Min Auto Value (0..1000=0..100,0%) Pump 4
Read Parameter # 5	Min Auto Value (0..1000=0..100,0%) Pump 5
Read Parameter # 6	Min Auto Value (0..1000=0..100,0%) Pump 6
Read Parameter # 7	Min Auto Value (0..1000=0..100,0%) Pump 7
Read Parameter # 8	Min Auto Value (0..1000=0..100,0%) Pump 8
Read Parameter # 9	Min Auto Value (0..1000=0..100,0%) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

BLK Type	103
Read Parameter # 1	Max Auto Value (0..1000=0..100,0%) Pump 1
Read Parameter # 2	Max Auto Value (0..1000=0..100,0%) Pump 2
Read Parameter # 3	Max Auto Value (0..1000=0..100,0%) Pump 3
Read Parameter # 4	Max Auto Value (0..1000=0..100,0%) Pump 4
Read Parameter # 5	Max Auto Value (0..1000=0..100,0%) Pump 5
Read Parameter # 6	Max Auto Value (0..1000=0..100,0%) Pump 6
Read Parameter # 7	Max Auto Value (0..1000=0..100,0%) Pump 7
Read Parameter # 8	Max Auto Value (0..1000=0..100,0%) Pump 8
Read Parameter # 9	Max Auto Value (0..1000=0..100,0%) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

BLK Type	104
Read Parameter # 1	Line Speed SwP (0..1000=0..100%) Pump 1
Read Parameter # 2	Line Speed SwP (0..1000=0..100%) Pump 2
Read Parameter # 3	Line Speed SwP (0..1000=0..100%) Pump 3
Read Parameter # 4	Line Speed SwP (0..1000=0..100%) Pump 4
Read Parameter # 5	Line Speed SwP (0..1000=0..100%) Pump 5
Read Parameter # 6	Line Speed SwP (0..1000=0..100%) Pump 6
Read Parameter # 7	Line Speed SwP (0..1000=0..100%) Pump 7
Read Parameter # 8	Line Speed SwP (0..1000=0..100%) Pump 8
Read Parameter # 9	Line Speed SwP (0..1000=0..100%) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

BLK Type	105
Read Parameter # 1	Pressure SP (psi or /10 bar) Pump 1
Read Parameter # 2	Pressure SP (psi or /10 bar) Pump 2
Read Parameter # 3	Pressure SP (psi or /10 bar) Pump 3
Read Parameter # 4	Pressure SP (psi or /10 bar) Pump 4
Read Parameter # 5	Pressure SP (psi or /10 bar) Pump 5
Read Parameter # 6	Pressure SP (psi or /10 bar) Pump 6
Read Parameter # 7	Pressure SP (psi or /10 bar) Pump 7
Read Parameter # 8	Pressure SP (psi or /10 bar) Pump 8
Read Parameter # 9	Pressure SP (psi or /10 bar) Pump 9
Read Parameter # 10	
Read Parameter # 11	
Read Parameter # 12	
Read Parameter # 13	
Read Parameter # 14	
Read Parameter # 15	
Read Parameter # 16	

This list of Exchangeable Data Blocks can be extended in future.

Transmitted Data Block

The data to be transmitted to the Dynacontrol v6 is also implemented as cyclic I/O. It consists of 61 words (122 bytes). Not all of the values might be used depending on the current system configuration.

Address	Name	Type	Comment
0.0		STRUCT	
+0.0	RES0	WORD	Reserved
+2.0	RES1	WORD	Reserved
+4.0	RUN2	BOOL	Pump 2 On
+4.1	RUN3	BOOL	Pump 3 On
+4.2	RUN4	BOOL	Pump 4 On
+4.3	RUN5	BOOL	Pump 5 On
+4.4	RUN6	BOOL	Pump 6 On
+4.5	RUN7	BOOL	Pump 7 On
+4.6	RUN8	BOOL	Pump 8 On
+4.7	RUN9	BOOL	Pump 9 On
+5.0	SYS_ON	BOOL	System On
+5.1	STDBY	BOOL	System Standby
+5.2	RES5_2	BOOL	Reserved
+5.3	ACK	BOOL	Acknowledge Alarms
+5.4	RES5_4	BOOL	Reserved
+5.5	WDOG	BOOL	Watchdog (toggle 0/1)
+5.6	RES_5_6	BOOL	Reserved
+5.7	RUN1	BOOL	Pump 1 On
+6.0	IMPERIAL_UNITS	BOOL	Fieldbus uses Imperial Units ('F/psi) instead of SI ('C/bar)

The first two words at (address 0/2) should not be used and exist for compatibility reasons with other field bus protocols.

Pumps On/Off

Use bits 4.0 .. 4.7 and bit 5.7 to switch the pumps on and off. Please be aware that bit 7.0 (Bus takes control of System Status) has to be set and watchdog toggling must be active for pumps to work.

System On/Off

Use bit 5.0 to switch Dynacontrol v6 on (TRUE) or off (FALSE). Please be aware that 7.0 (Bus takes control of System Status) has to be set.

System Stand-By

Use bit 5.1 to switch Dynacontrol v6 to Stand-By mode. Please be aware that 7.0 (Bus takes control of System Status) has to be set.

Acknowledge Alarms

A trigger on bit 5.3 will acknowledge alarms in the Dynacontrol v6 System. It has the same functionality as acknowledging alarms on the system HMI.

Watchdog

Please supply a toggling signal towards bit 5.5 to signal a working PLC towards Dynacontrol v6. The signal can be self-generated (at ~1Hz) or be transferred from the input data block (bit 5.0), which is recommended. A timeout on the watchdog bit will cause the pumps to stop.

Imperial Units

Supplying a logic 1 to bit 6.0 will cause the system to switch to imperial units. All temperatures (set points and actual values) will be in °F, all pressures will be in psi (instead of °C/bar).

+7.0	BCTRL	BOOL	Bus takes Control of System Status
+7.1	LCTRL	BOOL	Bus takes Control of Global Linespeed
+7.2	RES7_2	BOOL	Reserved
+7.3	RES7_3	BOOL	Reserved
+7.4	RES7_4	BOOL	Reserved
+7.5	RES7_5	BOOL	Reserved
+7.6	RES7_6	BOOL	Reserved
+7.7	RES7_7	BOOL	Reserved
+8.0	LINESPEED	INT	Global Linespeed (0..1000 = 0..100%)
+10.0	MOTOR_SET1	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+12.0	MOTOR_SET2	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+14.0	MOTOR_SET3	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+16.0	MOTOR_SET4	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+18.0	MOTOR_SET5	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+20.0	MOTOR_SET6	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+22.0	MOTOR_SET7	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+24.0	MOTOR_SET8	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO
+26.0	MOTOR_SET9	INT	Motor Setpoint (0..1000 = 0..100%), BIT15=AUTO

BCTRL

Bus takes control of System Status (bit 7.0) has to be set to operate system status and pump functionality (e.g. System on/off, Stand-By, Pumps on/off).

LCTRL + LINE SPEED

If LCTRL (bit 7.1) is set, the PLC has to supply the global main machine line speed directly via field bus. The word at address 8 has to be supplied accordingly with the main machine speed in percent (0-1000 = 0-100.0%). This speed is given to the motors running in automatic line speed control mode automatically.

Motor Speed Set Points

The words at address 10 to 26 can be set to the desired pump speed (in %x10, 0-1000 = 0-100.0%). The pump will then spin with this set point, if all conditions are met (system is ready) and the according “pump on bit” is set (see page 24).

+28.0	RD_BLK_TYPE	INT	Read Parameter Block Type
+30.0	RD_BLK_UID	INT	Read Parameter Block UID

Read Parameter Block Type

The Read Parameter Block Type and the UID define which exchangeable block is transferred on the read side. A value of 0 on RD_BLK_TYPE will cause the Dynacontrol v6 to cycle through all known exchangeable parameters blocks. By supplying any value to RD_BLK_UID the very same value is reflected on the read block to make sure the request got through.

Exchangeable Transmit Data Frame

+36.0	WR_BLK_TYPE1	INT	Write Parameter Block Type
+38.0	WR_BLK_UID	INT	Write Parameter Block UID
+40.0	RES40	INT	Constant 0
+42.0	RES42	INT	Constant 0
+44.0	WRITE_DATA_1	INT	Write Data
+46.0	WRITE_DATA_2	INT	Write Data
+48.0	WRITE_DATA_3	INT	Write Data
+50.0	WRITE_DATA_4	INT	Write Data
+52.0	WRITE_DATA_5	INT	Write Data
+54.0	WRITE_DATA_6	INT	Write Data
+56.0	WRITE_DATA_7	INT	Write Data
+58.0	WRITE_DATA_8	INT	Write Data
+60.0	WRITE_DATA_9	INT	Write Data
+62.0	WRITE_DATA_10	INT	Write Data
+64.0	WRITE_DATA_11	INT	Write Data
+66.0	WRITE_DATA_12	INT	Write Data
+68.0	WRITE_DATA_13	INT	Write Data
+70.0	WRITE_DATA_14	INT	Write Data
+72.0	WRITE_DATA_15	INT	Write Data
+74.0	WRITE_DATA_16	INT	Write Data
+76.0	WR_BLK_TYPE2	INT	Write Parameter Block Type (copy from 36.0)

To support multiple information blocks inside the limited field bus size, an exchangeable data frame is transmitted. The data to be send has to be defined by the PLC software.

If the words at address 36 and 76 are equal, the value of these words define the content of the words between addresses 44 and 74 (16 words).

To transmit custom values in exchangeable data blocks to Dynacontrol v6, follow these steps in sequence:

1. Write a logical 0 into words at address 36 and 76
2. Fill in DATA1 to DATA16 depending on the data block type to be sent
3. Write a unique value into word at address 38 (WR_BLK_UID)
4. Write the desired data block type into words at address 36 and also 76
5. Wait until the unique ID has appeared in the read data block at address 50 (LAST_REC_UID)
6. Write a logical 0 into words at address 36 and 76

Exchangeable Write Block Types

The following exchangeable transmit blocks are defined:

BLK Type	11
Write Parameter # 1	Set Point Temperature (°C/°F) Zone 1
Write Parameter # 2	Set Point Temperature (°C/°F) Zone 2
Write Parameter # 3	Set Point Temperature (°C/°F) Zone 3
Write Parameter # 4	Set Point Temperature (°C/°F) Zone 4
Write Parameter # 5	Set Point Temperature (°C/°F) Zone 5
Write Parameter # 6	Set Point Temperature (°C/°F) Zone 6
Write Parameter # 7	Set Point Temperature (°C/°F) Zone 7
Write Parameter # 8	Set Point Temperature (°C/°F) Zone 8
Write Parameter # 9	Set Point Temperature (°C/°F) Zone 9
Write Parameter # 10	Set Point Temperature (°C/°F) Zone 10
Write Parameter # 11	Set Point Temperature (°C/°F) Zone 11
Write Parameter # 12	Set Point Temperature (°C/°F) Zone 12
Write Parameter # 13	Set Point Temperature (°C/°F) Zone 13
Write Parameter # 14	Set Point Temperature (°C/°F) Zone 14
Write Parameter # 15	Set Point Temperature (°C/°F) Zone 15
Write Parameter # 16	Set Point Temperature (°C/°F) Zone 16

BLK Type	12
Write Parameter # 1	Set Point Temperature (°C/°F) Zone 17
Write Parameter # 2	Set Point Temperature (°C/°F) Zone 18
Write Parameter # 3	Set Point Temperature (°C/°F) Zone 19
Write Parameter # 4	Set Point Temperature (°C/°F) Zone 20
Write Parameter # 5	Set Point Temperature (°C/°F) Zone 21
Write Parameter # 6	Set Point Temperature (°C/°F) Zone 22
Write Parameter # 7	Set Point Temperature (°C/°F) Zone 23
Write Parameter # 8	Set Point Temperature (°C/°F) Zone 24
Write Parameter # 9	Set Point Temperature (°C/°F) Zone 25
Write Parameter # 10	Set Point Temperature (°C/°F) Zone 26
Write Parameter # 11	Set Point Temperature (°C/°F) Zone 27
Write Parameter # 12	Set Point Temperature (°C/°F) Zone 28
Write Parameter # 13	Set Point Temperature (°C/°F) Zone 29
Write Parameter # 14	Set Point Temperature (°C/°F) Zone 30
Write Parameter # 15	Set Point Temperature (°C/°F) Zone 31
Write Parameter # 16	Set Point Temperature (°C/°F) Zone 32

BLK Type	13
Write Parameter # 1	Set Point Temperature (°C/°F) Zone 33
Write Parameter # 2	Set Point Temperature (°C/°F) Zone 34
Write Parameter # 3	Set Point Temperature (°C/°F) Zone 35
Write Parameter # 4	Set Point Temperature (°C/°F) Zone 36
Write Parameter # 5	Set Point Temperature (°C/°F) Zone 37
Write Parameter # 6	Set Point Temperature (°C/°F) Zone 38
Write Parameter # 7	Set Point Temperature (°C/°F) Zone 39
Write Parameter # 8	Set Point Temperature (°C/°F) Zone 40
Write Parameter # 9	Set Point Temperature (°C/°F) Zone 41
Write Parameter # 10	Set Point Temperature (°C/°F) Zone 42
Write Parameter # 11	Set Point Temperature (°C/°F) Zone 43
Write Parameter # 12	Set Point Temperature (°C/°F) Zone 44
Write Parameter # 13	Set Point Temperature (°C/°F) Zone 45
Write Parameter # 14	Set Point Temperature (°C/°F) Zone 46
Write Parameter # 15	Set Point Temperature (°C/°F) Zone 47
Write Parameter # 16	Set Point Temperature (°C/°F) Zone 48

BLK Type	14
Write Parameter # 1	Set Point Temperature (°C/°F) Zone 49
Write Parameter # 2	Set Point Temperature (°C/°F) Zone 50
Write Parameter # 3	Set Point Temperature (°C/°F) Zone 51
Write Parameter # 4	Set Point Temperature (°C/°F) Zone 52
Write Parameter # 5	Set Point Temperature (°C/°F) Zone 53
Write Parameter # 6	Set Point Temperature (°C/°F) Zone 54
Write Parameter # 7	Set Point Temperature (°C/°F) Zone 55
Write Parameter # 8	Set Point Temperature (°C/°F) Zone 56
Write Parameter # 9	Set Point Temperature (°C/°F) Zone 57
Write Parameter # 10	Set Point Temperature (°C/°F) Zone 58
Write Parameter # 11	Set Point Temperature (°C/°F) Zone 59
Write Parameter # 12	Set Point Temperature (°C/°F) Zone 60
Write Parameter # 13	Set Point Temperature (°C/°F) Zone 61
Write Parameter # 14	Set Point Temperature (°C/°F) Zone 62
Write Parameter # 15	Set Point Temperature (°C/°F) Zone 63
Write Parameter # 16	Set Point Temperature (°C/°F) Zone 64

The Heat-Up-Sequence Setting of each zone defines whether a zone is activated (sequence > 0) or deactivated (sequence = 0). All zones that have a sequence > 0 are heated up in order (first = sequence 1, second = sequence 2, etc.):

BLK Type	51
Write Parameter # 1	Heat-Up Sequence Setting (0=Off) Zone 1
Write Parameter # 2	Heat-Up Sequence Setting (0=Off) Zone 2
Write Parameter # 3	Heat-Up Sequence Setting (0=Off) Zone 3
Write Parameter # 4	Heat-Up Sequence Setting (0=Off) Zone 4
Write Parameter # 5	Heat-Up Sequence Setting (0=Off) Zone 5
Write Parameter # 6	Heat-Up Sequence Setting (0=Off) Zone 6
Write Parameter # 7	Heat-Up Sequence Setting (0=Off) Zone 7
Write Parameter # 8	Heat-Up Sequence Setting (0=Off) Zone 8
Write Parameter # 9	Heat-Up Sequence Setting (0=Off) Zone 9
Write Parameter # 10	Heat-Up Sequence Setting (0=Off) Zone 10
Write Parameter # 11	Heat-Up Sequence Setting (0=Off) Zone 11
Write Parameter # 12	Heat-Up Sequence Setting (0=Off) Zone 12
Write Parameter # 13	Heat-Up Sequence Setting (0=Off) Zone 13
Write Parameter # 14	Heat-Up Sequence Setting (0=Off) Zone 14
Write Parameter # 15	Heat-Up Sequence Setting (0=Off) Zone 15
Write Parameter # 16	Heat-Up Sequence Setting (0=Off) Zone 16

BLK Type	52
Write Parameter # 1	Heat-Up Sequence Setting (0=Off) Zone 17
Write Parameter # 2	Heat-Up Sequence Setting (0=Off) Zone 18
Write Parameter # 3	Heat-Up Sequence Setting (0=Off) Zone 19
Write Parameter # 4	Heat-Up Sequence Setting (0=Off) Zone 20
Write Parameter # 5	Heat-Up Sequence Setting (0=Off) Zone 21
Write Parameter # 6	Heat-Up Sequence Setting (0=Off) Zone 22
Write Parameter # 7	Heat-Up Sequence Setting (0=Off) Zone 23
Write Parameter # 8	Heat-Up Sequence Setting (0=Off) Zone 24
Write Parameter # 9	Heat-Up Sequence Setting (0=Off) Zone 25
Write Parameter # 10	Heat-Up Sequence Setting (0=Off) Zone 26
Write Parameter # 11	Heat-Up Sequence Setting (0=Off) Zone 27
Write Parameter # 12	Heat-Up Sequence Setting (0=Off) Zone 28
Write Parameter # 13	Heat-Up Sequence Setting (0=Off) Zone 29
Write Parameter # 14	Heat-Up Sequence Setting (0=Off) Zone 30
Write Parameter # 15	Heat-Up Sequence Setting (0=Off) Zone 31
Write Parameter # 16	Heat-Up Sequence Setting (0=Off) Zone 32

BLK Type	53
Write Parameter # 1	Heat-Up Sequence Setting (0=Off) Zone 33
Write Parameter # 2	Heat-Up Sequence Setting (0=Off) Zone 34
Write Parameter # 3	Heat-Up Sequence Setting (0=Off) Zone 35
Write Parameter # 4	Heat-Up Sequence Setting (0=Off) Zone 36
Write Parameter # 5	Heat-Up Sequence Setting (0=Off) Zone 37
Write Parameter # 6	Heat-Up Sequence Setting (0=Off) Zone 38
Write Parameter # 7	Heat-Up Sequence Setting (0=Off) Zone 39
Write Parameter # 8	Heat-Up Sequence Setting (0=Off) Zone 40
Write Parameter # 9	Heat-Up Sequence Setting (0=Off) Zone 41
Write Parameter # 10	Heat-Up Sequence Setting (0=Off) Zone 42
Write Parameter # 11	Heat-Up Sequence Setting (0=Off) Zone 43
Write Parameter # 12	Heat-Up Sequence Setting (0=Off) Zone 44
Write Parameter # 13	Heat-Up Sequence Setting (0=Off) Zone 45
Write Parameter # 14	Heat-Up Sequence Setting (0=Off) Zone 46
Write Parameter # 15	Heat-Up Sequence Setting (0=Off) Zone 47
Write Parameter # 16	Heat-Up Sequence Setting (0=Off) Zone 48

BLK Type	54
Write Parameter # 1	Heat-Up Sequence Setting (0=Off) Zone 49
Write Parameter # 2	Heat-Up Sequence Setting (0=Off) Zone 50
Write Parameter # 3	Heat-Up Sequence Setting (0=Off) Zone 51
Write Parameter # 4	Heat-Up Sequence Setting (0=Off) Zone 52
Write Parameter # 5	Heat-Up Sequence Setting (0=Off) Zone 53
Write Parameter # 6	Heat-Up Sequence Setting (0=Off) Zone 54
Write Parameter # 7	Heat-Up Sequence Setting (0=Off) Zone 55
Write Parameter # 8	Heat-Up Sequence Setting (0=Off) Zone 56
Write Parameter # 9	Heat-Up Sequence Setting (0=Off) Zone 57
Write Parameter # 10	Heat-Up Sequence Setting (0=Off) Zone 58
Write Parameter # 11	Heat-Up Sequence Setting (0=Off) Zone 59
Write Parameter # 12	Heat-Up Sequence Setting (0=Off) Zone 60
Write Parameter # 13	Heat-Up Sequence Setting (0=Off) Zone 61
Write Parameter # 14	Heat-Up Sequence Setting (0=Off) Zone 62
Write Parameter # 15	Heat-Up Sequence Setting (0=Off) Zone 63
Write Parameter # 16	Heat-Up Sequence Setting (0=Off) Zone 64

BLK Type	102
Write Parameter # 1	Min Auto Value (0..1000=0..100,0%) Pump 1
Write Parameter # 2	Min Auto Value (0..1000=0..100,0%) Pump 2
Write Parameter # 3	Min Auto Value (0..1000=0..100,0%) Pump 3
Write Parameter # 4	Min Auto Value (0..1000=0..100,0%) Pump 4
Write Parameter # 5	Min Auto Value (0..1000=0..100,0%) Pump 5
Write Parameter # 6	Min Auto Value (0..1000=0..100,0%) Pump 6
Write Parameter # 7	Min Auto Value (0..1000=0..100,0%) Pump 7
Write Parameter # 8	Min Auto Value (0..1000=0..100,0%) Pump 8
Write Parameter # 9	Min Auto Value (0..1000=0..100,0%) Pump 9
Write Parameter # 10	
Write Parameter # 11	
Write Parameter # 12	
Write Parameter # 13	
Write Parameter # 14	
Write Parameter # 15	
Write Parameter # 16	

BLK Type	103
Write Parameter # 1	Max Auto Value (0..1000=0..100,0%) Pump 1
Write Parameter # 2	Max Auto Value (0..1000=0..100,0%) Pump 2
Write Parameter # 3	Max Auto Value (0..1000=0..100,0%) Pump 3
Write Parameter # 4	Max Auto Value (0..1000=0..100,0%) Pump 4
Write Parameter # 5	Max Auto Value (0..1000=0..100,0%) Pump 5
Write Parameter # 6	Max Auto Value (0..1000=0..100,0%) Pump 6
Write Parameter # 7	Max Auto Value (0..1000=0..100,0%) Pump 7
Write Parameter # 8	Max Auto Value (0..1000=0..100,0%) Pump 8
Write Parameter # 9	Max Auto Value (0..1000=0..100,0%) Pump 9
Write Parameter # 10	
Write Parameter # 11	
Write Parameter # 12	
Write Parameter # 13	
Write Parameter # 14	
Write Parameter # 15	
Write Parameter # 16	

“Min and Max Auto Values” define the limits of pump volumetric mode. The actual pump speed will be set between these limits according to the current line speed.

BLK Type	104
Write Parameter # 1	Line Speed SwP (0..1000=0..100%) Pump 1
Write Parameter # 2	Line Speed SwP (0..1000=0..100%) Pump 2
Write Parameter # 3	Line Speed SwP (0..1000=0..100%) Pump 3
Write Parameter # 4	Line Speed SwP (0..1000=0..100%) Pump 4
Write Parameter # 5	Line Speed SwP (0..1000=0..100%) Pump 5
Write Parameter # 6	Line Speed SwP (0..1000=0..100%) Pump 6
Write Parameter # 7	Line Speed SwP (0..1000=0..100%) Pump 7
Write Parameter # 8	Line Speed SwP (0..1000=0..100%) Pump 8
Write Parameter # 9	Line Speed SwP (0..1000=0..100%) Pump 9
Write Parameter # 10	
Write Parameter # 11	
Write Parameter # 12	
Write Parameter # 13	
Write Parameter # 14	
Write Parameter # 15	
Write Parameter # 16	

The Line Speed SwP (Switch Point) defines the limit of the line speed, above which the system falls into volumetric mode. Below this limit the system tries to maintain the pressure set point. This is only valid if the pump operation mode is set to pressure control mode.

BLK Type	105
Write Parameter # 1	Pressure SP (psi or /10 bar) Pump 1
Write Parameter # 2	Pressure SP (psi or /10 bar) Pump 2
Write Parameter # 3	Pressure SP (psi or /10 bar) Pump 3
Write Parameter # 4	Pressure SP (psi or /10 bar) Pump 4
Write Parameter # 5	Pressure SP (psi or /10 bar) Pump 5
Write Parameter # 6	Pressure SP (psi or /10 bar) Pump 6
Write Parameter # 7	Pressure SP (psi or /10 bar) Pump 7
Write Parameter # 8	Pressure SP (psi or /10 bar) Pump 8
Write Parameter # 9	Pressure SP (psi or /10 bar) Pump 9
Write Parameter # 10	
Write Parameter # 11	
Write Parameter # 12	
Write Parameter # 13	
Write Parameter # 14	
Write Parameter # 15	
Write Parameter # 16	

This list of Exchangeable Data Blocks can be extended in future.

Addendum

Standard System Zone Tables

Dynamelt SR05/10 New Generation

Zone 1	Pre-Melt Grid
Zone 2	Hopper
Zone 3	Filter
Zone 4	Hose 1
Zone 5	Head 1
Zone 6	Hose 2
Zone 7	Head 2
Zone 8	Hose 3
Zone 9	Head 3
Zone 10	Hose 4
Zone 11	Head 4
Zone 12	Hose 5
Zone 13	Head 5
Zone 14	Hose 6
Zone 15	Head 6
Zone 16	Aux 1

Dynamelt D25/D45

Zone 1	Pre-Melt Grid 1
Zone 2	Hopper
Zone 3	Pre-Melt Grid 2
Zone 4	Hose 1
Zone 5	Head 1
Zone 6	Hose 2
Zone 7	Head 2
Zone 8	Hose 3
Zone 9	Head 3
Zone 10	Hose 4
Zone 11	Head 4
Zone 12	Aux 1
Zone 13	Aux 2
Zone 14	Aux 3
Zone 15	Aux 4
Zone 16	<unused>

Dynamelt D50 / D90

Zone 1	Pre-Melt Grid 1
Zone 2	Hopper 1
Zone 3	Pre-Melt Grid 2
Zone 4	Hose 1
Zone 5	Head 1
Zone 6	Hose 2
Zone 7	Head 2
Zone 8	Hose 3
Zone 9	Head 3
Zone 10	Hose 4
Zone 11	Head 4
Zone 12	Aux 1
Zone 13	Aux 2
Zone 14	Aux 3
Zone 15	Aux 4
Zone 16	<unused>
Zone 17	Pre-Melt Grid 3
Zone 18	Hopper 2
Zone 19	Pre-melt Grid 4
Zone 20	Hose 5
Zone 21	Head 5
Zone 22	Hose 6
Zone 23	Head 6
Zone 24	Hose 7
Zone 25	Head 7
Zone 26	Hose 8
Zone 27	Head 8
Zone 28	Aux 5
Zone 29	Aux 6
Zone 30	Aux 7
Zone 31	Aux 8
Zone 32	<unused>

Dynamelt PUR20

Zone 1	Aux 5
Zone 2	Hopper Aux
Zone 3	Platen
Zone 4	Hose 1
Zone 5	Head 1
Zone 6	Aux 1
Zone 7	Aux 2
Zone 8	Hose 2
Zone 9	Head 2
Zone 10	Aux 3
Zone 11	Aux 4
Zone 12	Hose 3
Zone 13	Head 3
Zone 14	Hose 4
Zone 15	Head 4
Zone 16	Hopper