

制造番号 Mfg. No.		设计文书番号 Doc. No.				
		GES7639				
名称 Designation	数量 Q' ty	机器番号 UNIT No.		机器名 Master Unit		
	1					
Controller MODBUS Communication Specification						
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初版	20. 12. 20	制 定	谢彬衡	--	--	洪国军
Rev.	年 月 日	修订理由/内容	担当	检图	审查	承认

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1、FOREWORD

1.1 APPLICATION RANGE

This specification is applicable to the communication specification between MTC, dryer and injection, MES system.

1.2 PRECAUTIONS BEFORE USE

Please read the specifications carefully for correct use. Before communication connection, please cut off the power supply of the machine at both ends of communication and connect according to the wiring mode in this specification.

2、COMMUNICATION SPECIFICATION SUMMARIZE

The controller acts as a communication slave station, when RS422/RS485 port is used, the controller supports Modbus-RTU communication. When RJ45 Ethernet port is used, the controller supports MODBUS TCP communication.

2.1 MODBUS-RTU COMMUNICATION SPECIFICATION

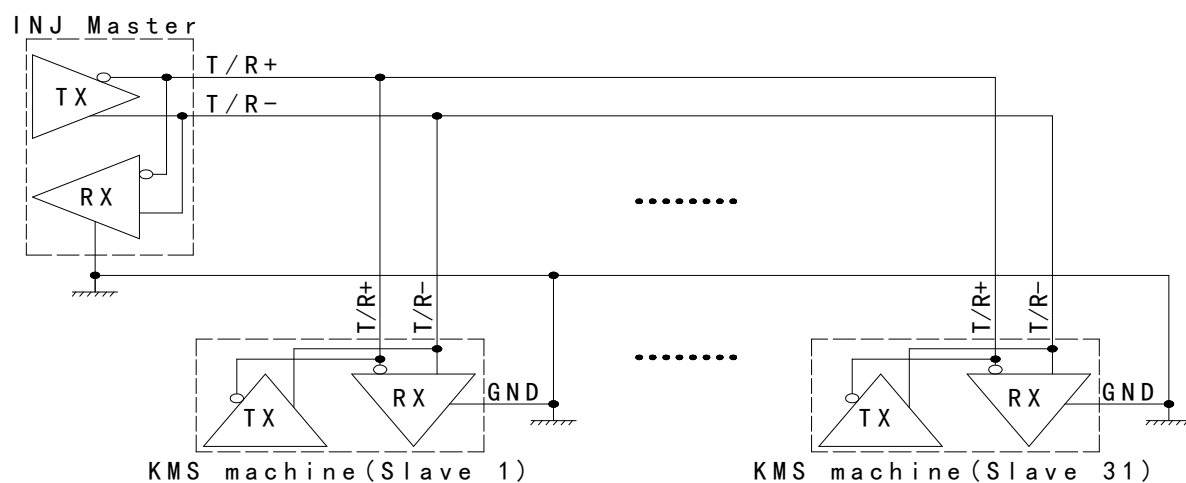
Item	Specification	
Communication interface	RS-422/485 interface (Controller CN6 terminal)	
Communication protocol	MODBUS-RTU protocol	
Communication method	2-wire half duplex / 4-wire full duplex	
Communication link station's quantity	Slave station MAX:32 stations	
Communication baud rate	9600/19200/38400/57600 bps	
Data bits	6 bits/7 bits /8 bits	
Stop bits	1 bit/2 bits	
Parity bits	No parity /Odd parity /Even parity	
Terminal resistance	Built-in 120Ω resistance, switchover by SW1 toggle switch	
	Terminal resistance of sending side	SW1-1(Terminal resistance effective when ON)
	Terminal resistance of receiving side	SW1-2(Terminal resistance effective when ON)

2.2 MODBUS-TCP COMMUNICATION SPECIFICATION

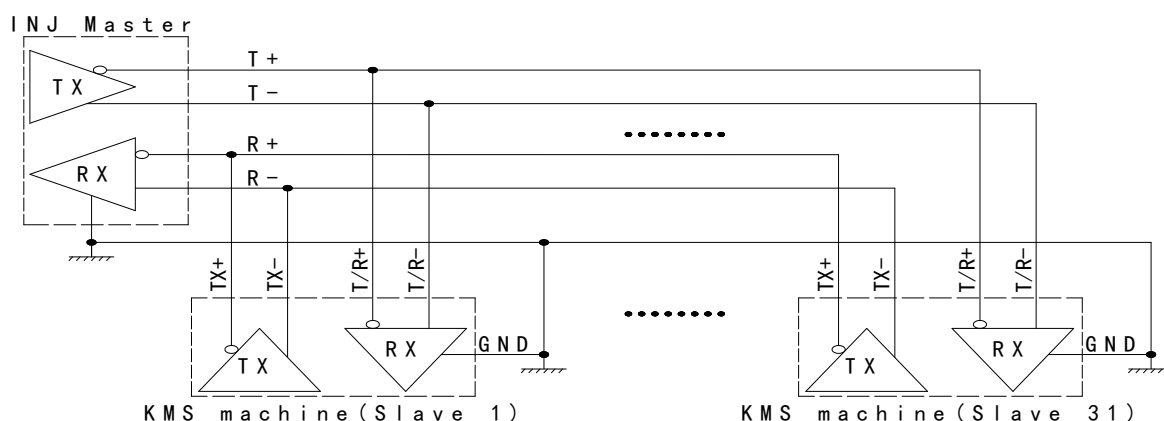
Item	Specification
Communication interface	RJ45 Ethernet interface
Communication protocol	MODBUS-TCP protocol
Communication network speed	10M/100M self-adaption

3. CONTROLLER COMMUNICATION CONNECTION

3.1 CONTROLLER RS485 COMMUNICATION CONNECTION (2-WIRE HALF DUPLEX)



3.2 CONTROLLER RS422 COMMUNICATION CONNECTION (4-WIRE FULL DUPLEX)



3.3 CONTROLLER RJ45 ETHERNET COMMUNICATION CONNECTION



4、CONTROLLER COMMUNICATION SETTING

This section describes how to set communication on the touch panel's communication setting screen during controller MODBUS communication.

4.1 CONTROLLER RS422/RS485 COMMUNICATION SETTING (MODBUS-RTU)

Communication function ④ ☒

Communication protocol ① Modbus-RTU ▼

Serial port setting ② >

Ethernet setting >

Modbus Communication matching maker ③ Standard ▼

< Back Communication

【Set up】→【Communication】

- ① Select communication protocol “Modbus-RTU” .
- ② Click to enter serial port communication parameter setting.
- ③ Select the matching mailing address.
- ④ Enable communication function.

Baud rate (bps) 9600 19200 38400 57600

Wiring 4 wire 2 wire

Data bits 6 Bits 7 Bits 8 Bits

Stop bit 1 Bits 2 Bits

Parity bit None Odd Even

Device station No. 01

< Return Serial port setting

【Set up】→【Communication】→【Serial port setting】

Set the corresponding parameters according to the serial port communication parameters of the host station.

4.2 CONTROLLER RJ45 ETHERNET COMMUNICATION SETTING (MODBUS-TCP)

Communication function ④ 

Communication protocol ① Modbus-TCP ▼

Serial port setting >

Ethernet setting ② >

Modbus Communication matching maker Standard ▼ ③

< Back Communication 

【Set up】→【Communication】

- ① Select communication protocol “Modbus-TCP” .
- ② Click to enter Ethernet communication parameter setting.
- ③ Select the matching mailing address.
- ④ Enable communication function.

IP address 192.168.000.200

Netmask 255.255.255.000

Gateway 192.168.000.001

DNS1 server 000.000.000.000

DNS2 server 000.000.000.000

Device station No. : 01 Comm. port: 502

< Return Ethernet setting 

【Set up】→【Communication】→【Ethernet setting】

Set the corresponding parameters according to the Ethernet communication parameters of the host station.

5、Modbus communication addresses for controller

5.1 Communication addresses for mold temp.controller (Standard style)

No.	Content	Address (HEX)	R/W	Unit	Remark
1	Control temp. SP.	07D0	Read/Write	0.1℃	
2	Positive tolerance of temp.SP.	07D1	Read/Write	0.1℃	
3	Negative tolerance of temp.SP.	07D2	Read/Write	0.1℃	
4	Control temp. PV.	07D3	Read	0.1℃	※1
5	Outlet water temp. PV.	07D4	Read	0.1℃	
6	Return water temp. PV.	07D5	Read	0.1℃	
7	Mould temp. PV.	07D6	Read	0.1℃	
8	Outlet flow speed PV.	07D7	Read	0.1L/m	
9	Return flow speed PV.	07D8	Read	0.1L/m	
10	Outlet pressure PV.	07D9	Read	0.1Bar	
11	Return pressure PV.	07DA	Read	0.1Bar	
12	Spare	07DB	Read		
13	Spare	07DC	Read		
14	Spare	07DD	Read		
15	Spare	07DE	Read		
16	Spare	07DF	Read		
17	Spare	07E0	Read		
18	Spare	07E1	Read		
19	Spare	--	Read		
20	Spare	07DA	Read		
21	Spare	07DB	Read		
22	Heating output %	07DC	Read		
23	Cooling output %	07ED	Read		
24	Automatic operation	07EE	bit0	Read	
25	Cooling shutdown		bit1	Read	
26	Drainage operation		bit2	Read	
27	In alarm		bit3	Read	
28	Timed operation		bit4	Read	
29	Spare		bit5	Read	
30	Program function running		bit6	Read	
31	Spare		bit7	Read	
32	Spare		bit8	Read	
33	Spare		bit9	Read	
34	Spare		bit10	Read	
35	Spare		bit11	Read	
36	Spare		bit12	Read	
37	Machine ready		bit13	Read	
38	Heating		bit14	Read	
39	Cooling		bit15	Read	
43	Spare	07EF		Read	
44	Spare	07F0		Read	
45	Spare	07F1		Read	

46	Spare	07F2		Read		
47	Power reverse phase	07F3	bit0	Read		
48	Medium pump overload		bit1	Read		
49	Booster pump overload		bit2	Read		
50	Medium shortage		bit3	Read		
51	Medium temp. high		bit4	Read		
52	Medium temp. low		bit5	Read		
53	Booster pump pressure low		bit6	Read		
54	Heating abnormality		bit7	Read		
55	Cooling abnormality		bit8	Read		
56	Medium flow high		bit9	Read		
57	Medium flow low		bit10	Read		
58	Medium pressure high		bit11	Read		
59	Medium pressure low		bit12	Read		
60	Outlet temp. sensor wire-break		bit13	Read		
61	Return temp. sensor wire-break		bit14	Read		
62	Mould temp. sensor wire-break		bit15	Read		
63	Outlet medium over temp.	07F4	bit0	Read		
64	Return & Outlet ΔT abnormality		bit1	Read		
65	Return medium over temp.		bit2	Read		
66	Mould over temp.		bit3	Read		
67	Cooling down time-out		bit4	Read		
68	Outlet & Return ΔP abnormality		bit5	Read		
69	Spare		bit6	Read		
70	Spare		--	Read		
71	Spare		Bit15	Read		
72	Spare	07F5		Read		
73	Spare	07F6		Read		
74	Spare	07F7		Read		
75	Spare	07F8		Read		
76	Spare	07F9		Read		
77	Spare	--		Read		
78	Spare	07FF		Read		
79	Spare	0800		Read		
80	Spare	0801		Read		
81	Remote: ON/OFF	0802		Write	Hold signal	0:OFF 1:ON
82	Remote: Buzzer stop	0803		Write	JOG signal	0:OFF 1:ON
83	Remote: Reset	0804		Write	JOG signal	0:OFF 1:ON
84	Remote: Drainage ON/OFF	0805		Write	Hold signal	0:OFF 1:ON
85	Spare	0806		Write	Hold signal	0:OFF 1:ON
86	Spare	0807		Write		
87	Spare	0808		Write		
88	Spare	0809		Write		
89	Spare	080A		Write		
90	Spare	080B		Write		

※1 The temperature of outlet or return can be selected for temperature control.

5.2 Communication addresses for mold temp.controller (ENGEL or other style)

No.	Content	Address (HEX)	R/W	Unit	Remark
1	Outlet water temperature PV.	0190	Read	0.1℃	
2	Outlet water temperature SP.	0191	Read	0.1℃	
3	Return water temperature PV.	0192	Read	0.1℃	
4	Return water temperature SP.	0193	Read	0.1℃	
5	Outlet flow speed PV.	0194	Read	0.1L/min	
6	Outlet pressure PV.	0195	Read	0.1Bar	
7	Electric quantity	0196	Read	0.1kWh	
8	Spare	0197	Read		
9	Spare	0198	Read		
10	Spare	0199	Read		
11	Spare	~	Read		
12	Spare	019E	Read		
13	Spare	019F	Read		
14	Reverse phase	01A0	bit0	Read	
15	Abnormal heating		bit1	Read	
16	Deficient medium		bit2	Read	
17	Positive tolerance of temp.		bit3	Read	
18	Negative tolerance of temp.		bit4	Read	
19	Pump overload		bit5	Read	
20	Temp. sensor breakdown		bit6	Read	
21	Abnormal pressure		bit7	Read	
22	Abnormal flow speed		bit8	Read	
23	Spare		bit9	Read	
24	Spare		bit10	Read	
25	Spare		~	Read	
26	Spare		bit15	Read	
27	local/remote	01A1	bit0	Read	
28	Signal of automatic operation		bit1	Read	
29	Signal of heating		bit2	Read	
30	Operation signal of pump		bit3	Read	
31	Spare		bit4	Read	
32	Spare		bit5	Read	
33	Spare		bit6	Read	
34	Spare		bit7	Read	
35	Spare		~	Read	
36	Spare		bit15	Read	
37	Spare	01A2	Read		
38	Spare	01A3	Read		
39	Spare	01A4	Read		
43	Spare	~	Read		
44	Spare	01AE	Read		
45	Spare	01AF	Read		

46	Spare	01B0	Write		
47	Pouring water temperature SP.	01B1	Write	0.1°C	
48	Returning water temperature SP.	01B2	Write	0.1°C	
49	Compulsory stop temperature SP.	01B3	Write	0.1°C	
50	Positive tolerance of temp. SP.	01B4	Write	0.1°C	
51	Negative tolerance of temp. SP.	01B5	Write	0.1°C	
52	Max. flow speed SP.	01B6	Write	0.1L/min	
53	Min. flow speed SP.	01B7	Write	0.1L/min	
54	Upper control limit of pressure SP.	01B8	Write	0.1Bar	
55	Lower control limit of pressure SP.	01B9	Write	0.1Bar	
56	Spare	01BA	Write		
57	Spare	01BB	Write		
58	Spare	01BC	Write		
59	Spare	01BD	Write		
60	Spare	01BE	Write		
61	Spare	01BF	Write		
62	Spare	01C0	Write		
63	Spare	01C1	Write		
64	Spare	01C2	Write		
65	Spare	01C3	Write		
66	Spare	01C4	Write		
67	Spare	01C5	Write		
68	Spare	01C6	Write		
69	Spare	01C7	Write		
70	Spare	01C8	Write		
71	Spare	01C9	Write		
72	Spare	~	Write		
73	Spare	01CE	Write		
74	Spare	01CF	Write		
75	Spare	01D0	Write		
76	Spare	01D1	Write		
77	Spare	01D2	Write		
78	Spare	01D3	Write		
79	Spare	01D4	Write		
80	Local/Remote	01D5	Write	Hold signal	0:Local 1:Remote
81	Remote: ON/OFF	01D6	Write	Hold signal	0: OFF 1: ON
82	Remote: Buzzer stop	01D7	Write	JOG signal	0: OFF 1: ON
83	Remote: Reset	01D8	Write	JOG signal	0: OFF 1: ON
84	Spare	01D9	Write		
85	Spare	01DA	Write		
86	Spare	01DB	Write		
87	Spare	01DC	Write		
88	Spare	01DD	Write		
89	Spare	01DE	Write		
90	Spare	01DF	Write		

5.3 Communication addresses for mold temp.controller (SUMITOMO or other style)

No.	Content	Address (HEX)	R/W	Unit	Remark
1	Control temperature SP.	0001	Read/Write	0.1℃	
2	Positive tolerance of temp. SP.	0025	Read/Write	0.1℃	
3	Negative tolerance of temp. SP.	0026	Read/Write	0.1℃	
4	Control temperature PV.	0000	Read	0.1℃	※1
5	Machine ready	005B	bit0	Read	
6	Reverse Phase		bit1	Read	
7	Medium shortage		bit2	Read	
8	Overload		bit3	Read	
9	Medium temp. high		bit4	Read	
10	Medium temp. low		bit5	Read	
11	Spare		bit6	Read	
12	Spare		bit7	Read	
13	Spare		bit8	Read	
14	Spare		bit9	Read	
15	Spare		bit10	Read	
16	Spare		bit11	Read	
17	Spare		bit12	Read	
18	Spare		bit13	Read	
19	Spare		bit14	Read	
20	Spare		bit15	Read	
21	Spare	023E	bit0	Write	
22	Remote: ON/OFF		bit1	Write	JOG signal 0: OFF 1: ON
23	Spare		bit2	Write	
24	Spare		bit3	Write	
25	Remote: Buzzer stop		bit4	Write	JOG signal 0: OFF 1: ON
26	Remote: Reset		bit5	Write	JOG signal 0: OFF 1: ON
27	Spare		bit6	Write	
28	Spare		bit7	Write	
29	Spare		bit8	Write	
30	Spare		bit9	Write	
31	Spare		bit10	Write	
32	Spare		bit11	Write	
33	Spare		bit12	Write	
34	Spare		bit13	Write	
35	Spare		bit14	Write	
36	Spare		bit15	Write	

※1 The temperature of outlet or return can be selected for temperature control.

5.4 Communication addresses for dryer (Standard style)

No.	Content	Address (HEX)	R/W	Unit	Remark
1	Drying temperature SP.	07D0	Read/Write	°C	
2	Positive tolerance of temp. SP.	07D1	Read/Write	°C	
3	Negative tolerance of temp. SP.	07D2	Read/Write	°C	
4	Drying temperature PV.	07D3	Read	°C	
5	Material temperature PV.	07D4	Read	°C	
6	Regeneration temperature PV.	07D5	Read	°C	
7	Return air temperature PV.	07D6	Read	°C	
8	Dew point PV.	07D7	Read	°C	
9	Air volume PV.	07D8	Read	m ³ /h	
10	differential pressure PV.	07D9	Read	Kpa	
11	Spare	07DA	Read		
12	Spare	07DB	Read		
13	Spare	07DC	Read		
14	Spare	07DD	Read		
15	Spare	07DE	Read		
16	Spare	07DF	Read		
17	Spare	07E0	Read		
18	Spare	07E1	Read		
19	Spare	07E2	Read		
20	Spare	07E3	Read		
21	Spare	--	Read		
22	Spare	07EB	Read		
23	Spare	07EC	Read		
24	Spare	07ED	Read		
25	Drying operation	07EE	bit0	Read	
26	Cooling shutdown		bit1	Read	
27	In alarm		bit2	Read	
28	Timed operation		bit3	Read	
29	Dryer warm keeping		bit4	Read	
30	Dryer conveying operation		bit5	Read	
31	INJ1 conveying operation		bit6	Read	
32	INJ2 conveying operation		bit7	Read	
33	INJ3 conveying operation		bit8	Read	
34	INJ4 conveying operation		bit9	Read	
35	Spare		bit10	Read	
36	Spare		bit11	Read	
37	Spare		bit12	Read	
38	Spare		bit13	Read	
39	Spare		bit14	Read	
40	Spare		bit15	Read	
41	Spare	07EF	Read		
42	Spare	07F0	Read		
43	Spare	07F1	Read		

44	Spare	07F2	Read		
45	Drying blower overload	07F3	bit0	Read	
46	Conveying blower overload		bit1	Read	
47	Power reverse phase		bit2	Read	
48	Heating NFB trip		bit3	Read	
49	Start drying temp. abnormal		bit4	Read	
50	Start regen. temp. abnormal		bit5	Read	
51	Drying over temperature		bit6	Read	
52	Regeneration over temp.		bit7	Read	
53	Drying low temperature		bit8	Read	
54	Regeneration low temp.		bit9	Read	
55	Dryer conveying abnormal		bit10	Read	
56	INJ1 conveying abnormal		bit11	Read	
57	INJ2 conveying abnormal		bit12	Read	
58	INJ3 conveying abnormal		bit13	Read	
59	Desiccant chamber abnormal		bit14	Read	
60	Drying sensor wire-break		bit15	Read	
61	Regen. sensor wire-break	07F4	bit0	Read	
62	Material sensor wire-break		bit1	Read	
63	Return air sensor wire-break		bit2	Read	
64	Material over temp.		bit3	Read	
65	Material low temp.		bit4	Read	
66	Drying hopper empty		bit5	Read	
67	Drying heating abnormal		bit6	Read	
68	Regen. heating abnormal		Bit7	Read	
69	Dew point abnormal		Bit8	Read	
70	Air volume abnormal		Bit9	Read	
71	Differential pressure abnormal		Bit10	Read	
72	INJ4 conveying abnormal		Bit11	Read	
73	Material over drying		Bit12	Read	
74	Spare		--	Read	
75	Spare		Bit15	Read	
76	Spare	07F5	Read		
77	Spare	--	Read		
78	Spare	07FF	Read		
79	Spare	0800	Read		
80	Spare	0801	Read		
81	Remote: ON/OFF	0802	Write	Hold signal	0:OFF 1:ON
82	Remote: Buzzer stop	0803	Write	JOG signal	0:OFF 1:ON
83	Remote: Reset	0804	Write	JOG signal	0:OFF 1:ON
84	Spare	0805	Write		
85	Spare	0806	Write		
86	Spare	0807	Write		
87	Spare	0808	Write		
88	Spare	0809	Write		
89	Spare	080A	Write		
90	Spare	080B	Write		

5.5 Communication addresses for dryer (ENGEL or other style)

No.	Content	Address (HEX)	R/W	Unit	Remark
1	Spare	0190	Read		
2	Spare	0191	Read		
3	Spare	0192	Read		
4	Drying temperature PV.	0193	Read	°C	
5	Drying temperature SP.	0194	Read	°C	
6	Regeneration temperature PV.	0195	Read	°C	
7	Regeneration temperature SP.	0196	Read	°C	
8	Dew point PV.	0197	Read	°C	
9	Electric quantity	0198	Read	kWh	
10	Spare	0199	Read		
11	Spare	~	Read		
12	Spare	019E	Read		
13	Spare	019F	Read		
14	Overheat alarm	01A0	bit0	Read	
15	Abnormal drying temp.		bit1	Read	
16	Abnormal regen. temp.		bit2	Read	
17	Drying blower overload		bit3	Read	
18	Abnormal pressure		bit4	Read	
19	Dryer conveying abnormal		bit5	Read	
20	INJ1 conveying abnormal		bit6	Read	
21	INJ2 conveying abnormal		bit7	Read	
22	Filter Anomaly		bit8	Read	
23	Reverse Phase		bit9	Read	
24	Conveying blower overload		bit10	Read	
25	Spare		~	Read	
26	Spare		bit15	Read	
27	Local/ Remote	01A1	bit0	Read	
28	Signal of drying		bit1	Read	
29	Signal of heating		bit2	Read	
30	Signal of regeneration		bit3	Read	
31	Operation signal		bit4	Read	
32	Operation signal of dryer convey		bit5	Read	
33	Operation signal of INJ1 convey		bit6	Read	
34	Operation signal of INJ2 convey		bit7	Read	
35	Spare		~	Read	
36	Spare		bit15	Read	
37	Spare	01A2	Read		
38	Spare	01A3	Read		
39	Spare	01A4	Read		
43	Spare	~	Read		
44	Spare	01AF	Read		

45	Spare	01B0	Write		
46	Drying temperature SP.	01B1	Write	°C	
47	Spare	01B2	Write		
48	Spare	01B3	Write		
49	Positive tolerance of temp. SP.	01B4	Write	°C	
50	Negative tolerance of temp. SP.	01B5	Write	°C	
51	Spare	01B6	Write		
52	Spare	01B7	Write		
53	Spare	01B8	Write		
54	Spare	01B9	Write		
55	Spare	01BA	Write		
56	Spare	01BB	Write		
57	Spare	01BC	Write		
58	Spare	01BD	Write		
59	Spare	01BE	Write		
60	Spare	01BF	Write		
61	Spare	01C0	Write		
62	Spare	01C1	Write		
63	Spare	01C2	Write		
64	Spare	01C3	Write		
65	Spare	01C4	Write		
66	Spare	01C5	Write		
67	Spare	01C6	Write		
68	Spare	01C7	Write		
69	Spare	01C8	Write		
70	Spare	01C9	Write		
71	Spare	~	Write		
72	Spare	01CE	Write		
73	Spare	01CF	Write		
74	Spare	01D0	Write		
75	Spare	01D1	Write		
76	Spare	01D2	Write		
77	Spare	01D3	Write		
78	Spare	01D4	Write		
79	Local/Remote	01D5	Write	Hold signal	0:Local 1:Remote
80	Remote: Drying ON/OFF	01D6	Write	Hold signal	0: OFF 1: ON
81	Remote: Buzzer stop	01D7	Write	JOG signal	0: OFF 1: ON
82	Remote: Reset	01D8	Write	JOG signal	0: OFF 1: ON
83	remote: Dryer conveying ON/OFF	01D9	Write	Hold signal	0: OFF 1: ON
84	remote: INJ1 conveying ON/OFF	01DA	Write	Hold signal	0: OFF 1: ON
85	remote: INJ2 conveying ON/OFF	01DB	Write	Hold signal	0: OFF 1: ON
86	Spare	01DC	Write		
87	Spare	01DD	Write		
88	Spare	01DE	Write		
89	Spare	01DF	Write		