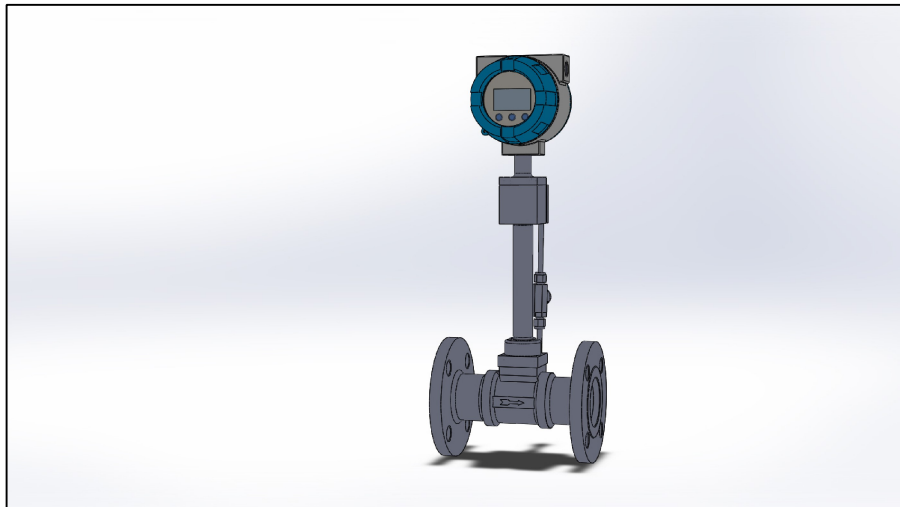


국제공인교정기관
(액체,기체 유량분야)

Instruction Manual

Vortex Flow Meters

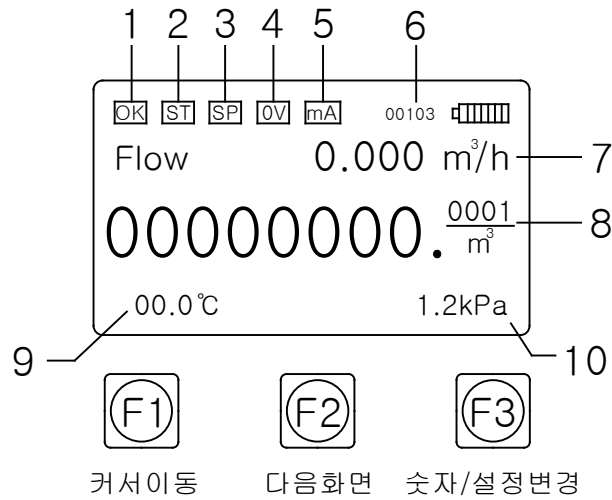


KTVP, KTV Series

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*. 시스템 알람소개



- | | |
|---|--|
| 1. 시스템 정상 ("OK"), 에러("ERR") | 6. RS485 설정치(00103 / 00) |
| 2. 절대온도("ST"), 온도센서 감지시 사라짐 | 7. 순간유량(총8자리 표시/ 순간유량 단위) |
| 3. 절대압력("SP"), 압력센서 감지시 사라짐 | 8. 누적유량(소수점,4자리 표시/누적단위)
(정수,8자리 표시) |
| 4. 유량계 설정치(Hz) 이상으로 운전시("OV")
정상운전시 사라짐 | 9. 온도 "ST" 감지시 (절대온도)
"ST" 사라짐 (게이지온도) |
| 5. 유량계 설정치(DC4~20mA) 이상으로 운전시("mA")
정상운전시(사라짐) | 10. 압력 "SP" 감지시 (절대압력)
"SP" 사라짐 (게이지압력) |

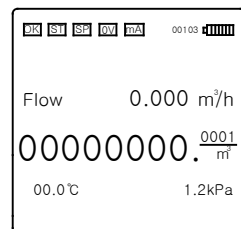
메뉴소개

-- Main menu --

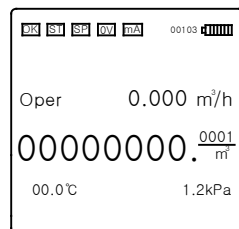
1. Self-test
2. Display unit
3. Total reset
4. Setup
5. Calibration
6. Password

1. 시스템 점검
2. 순간유량/누적유량 단위설정
3. 누적유량 초기화
4. 파라메타 설정
5. 온도/압력/전류출력/보정계수 설정
6. 각 메뉴 패스워드 설정

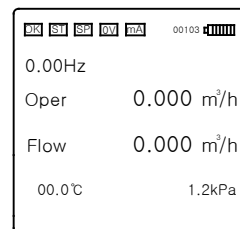
유량화면 소개



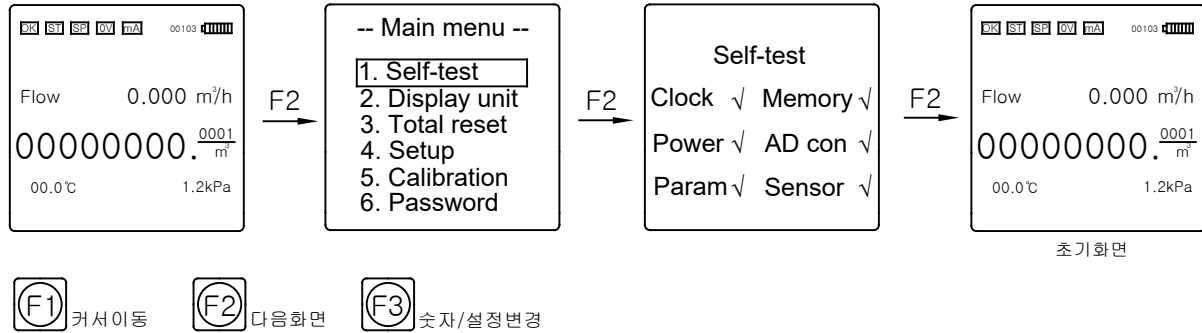
F3



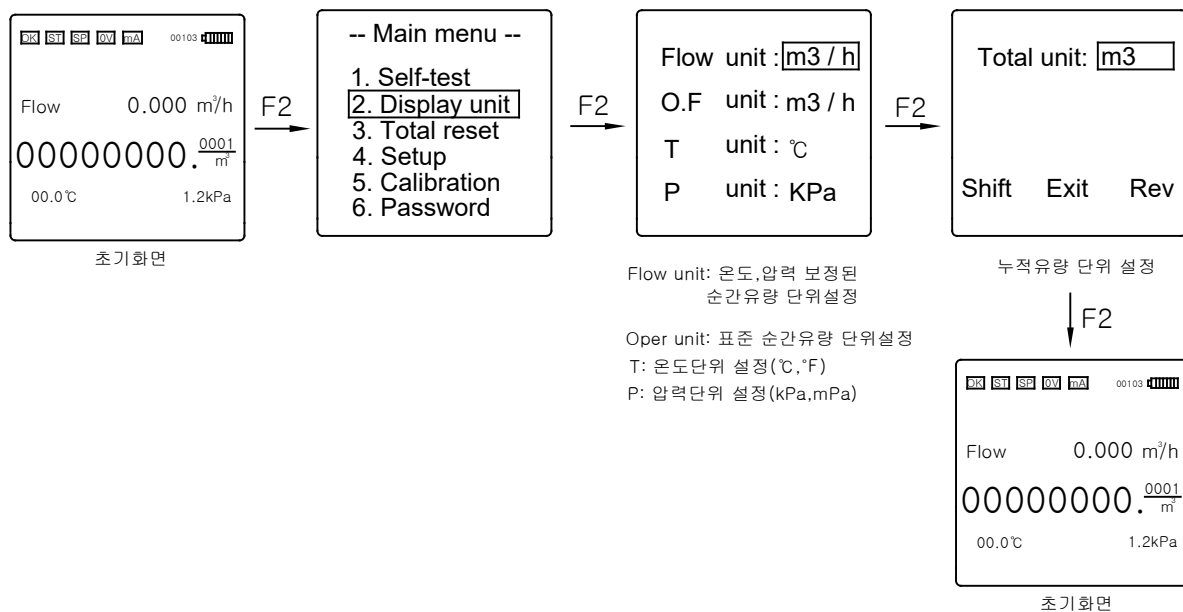
F3



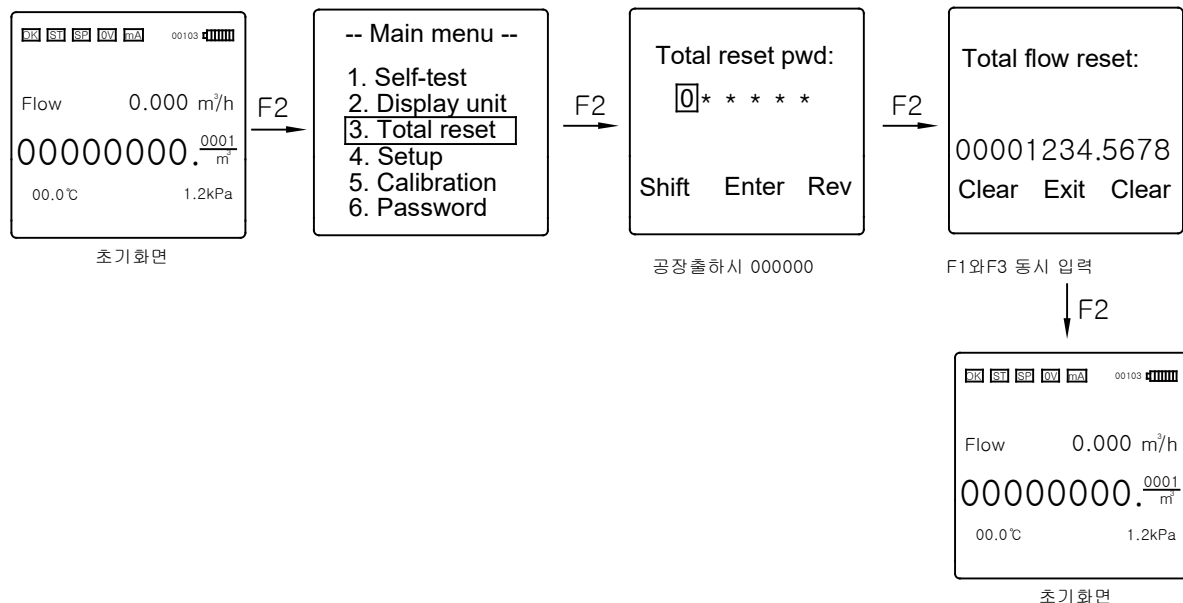
1. 시스템 점검



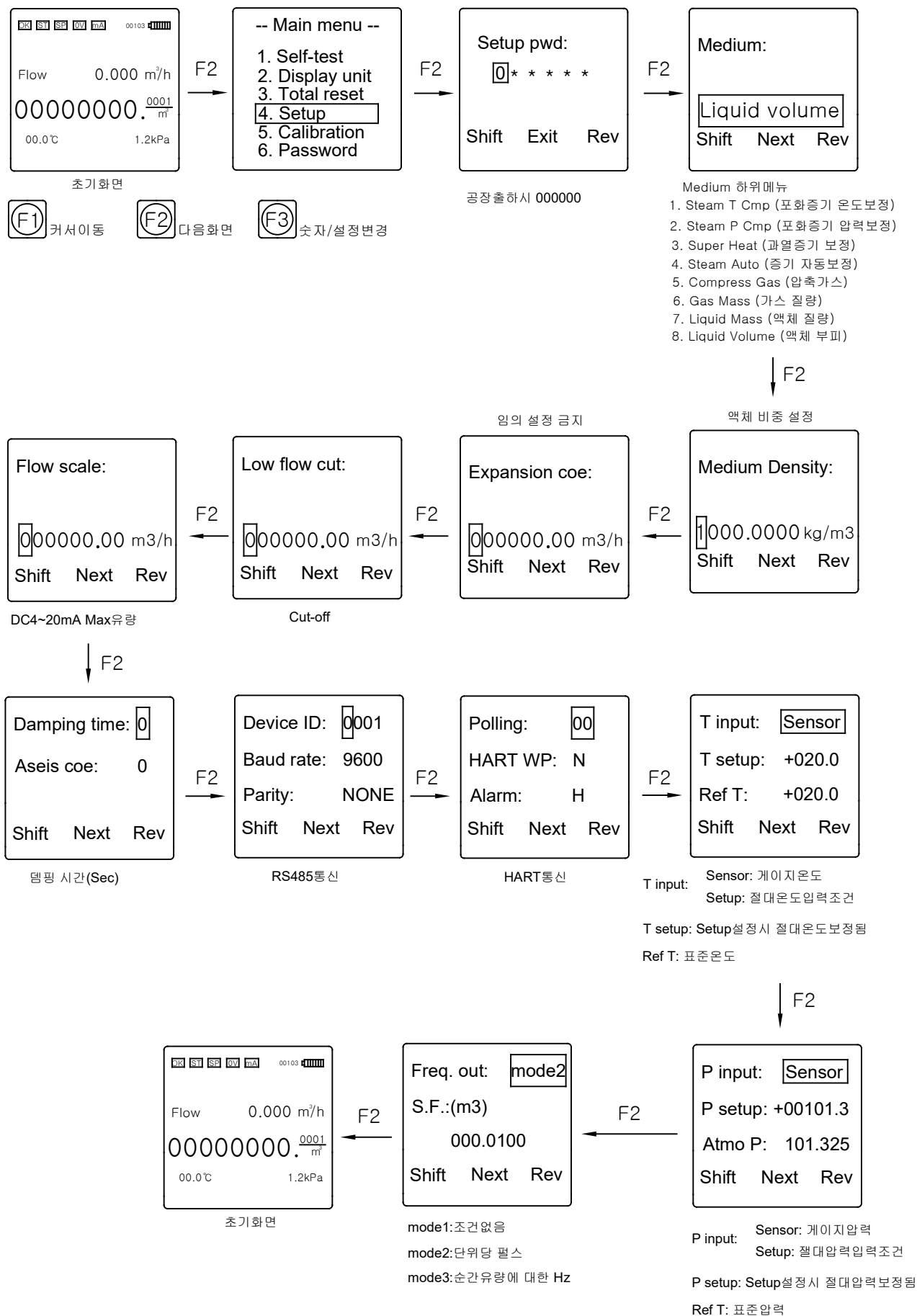
2. 순간유량/누적유량 단위설정



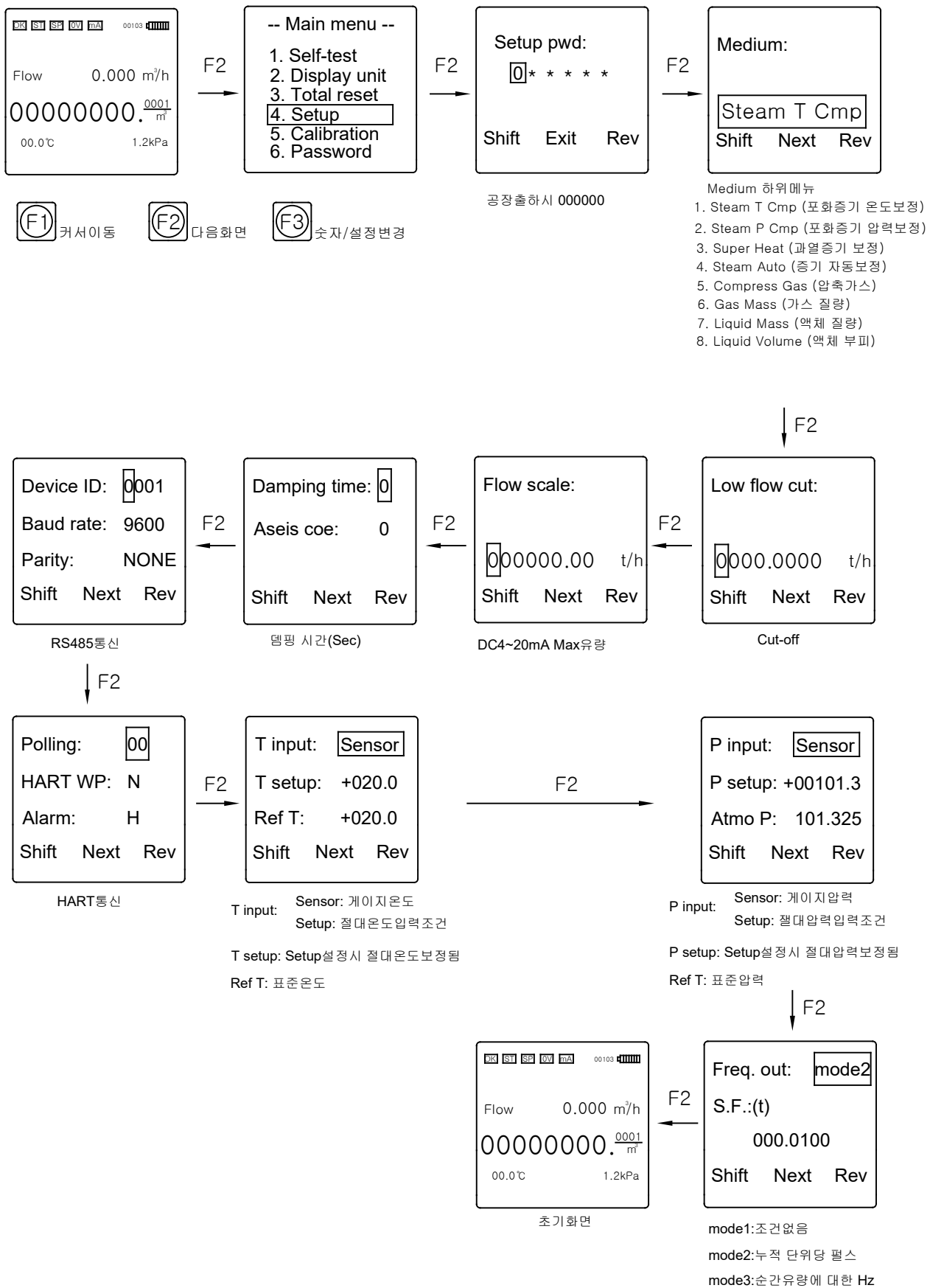
3. 누적유량 초기화



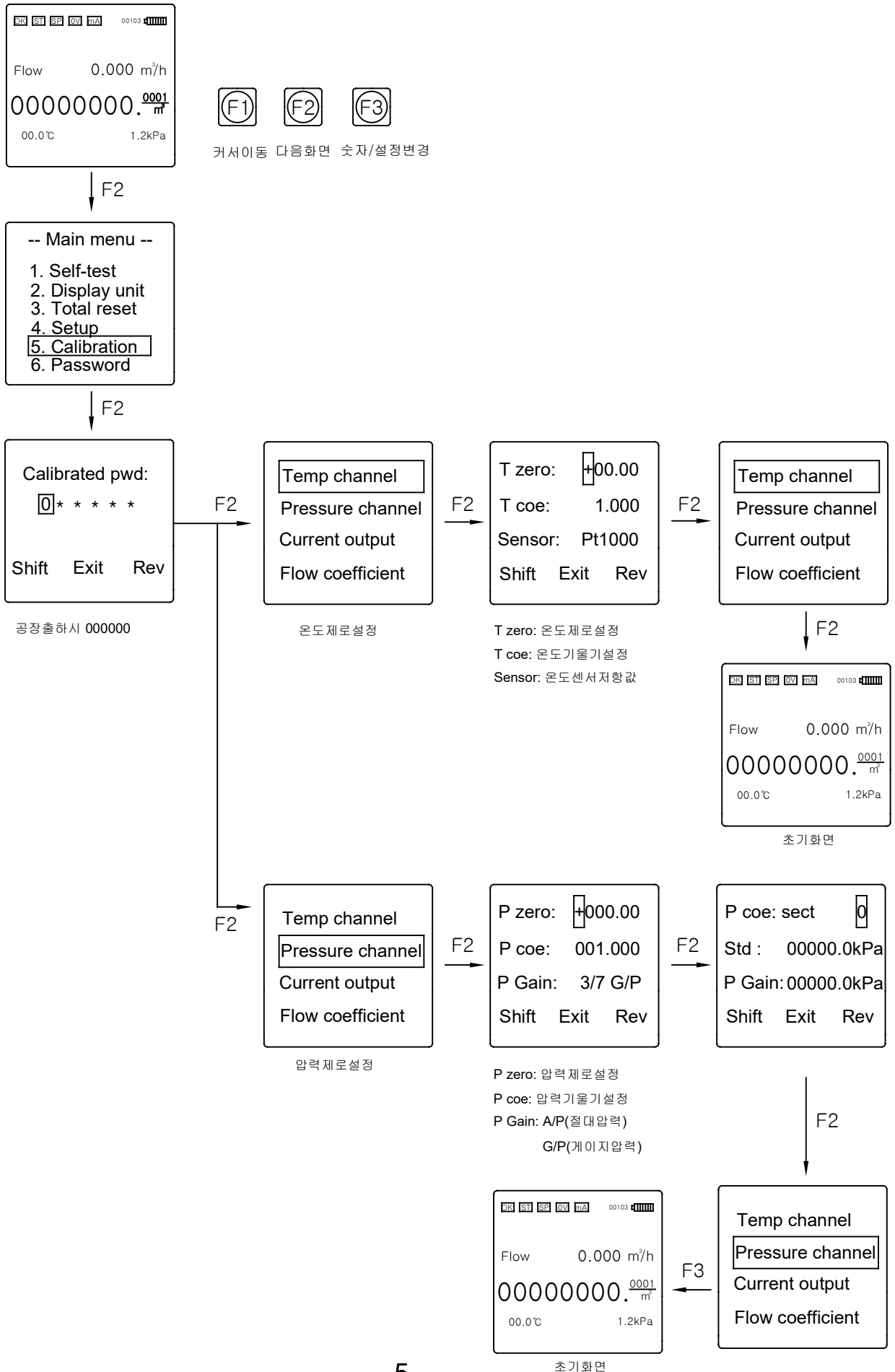
4.1 Setup (Water)



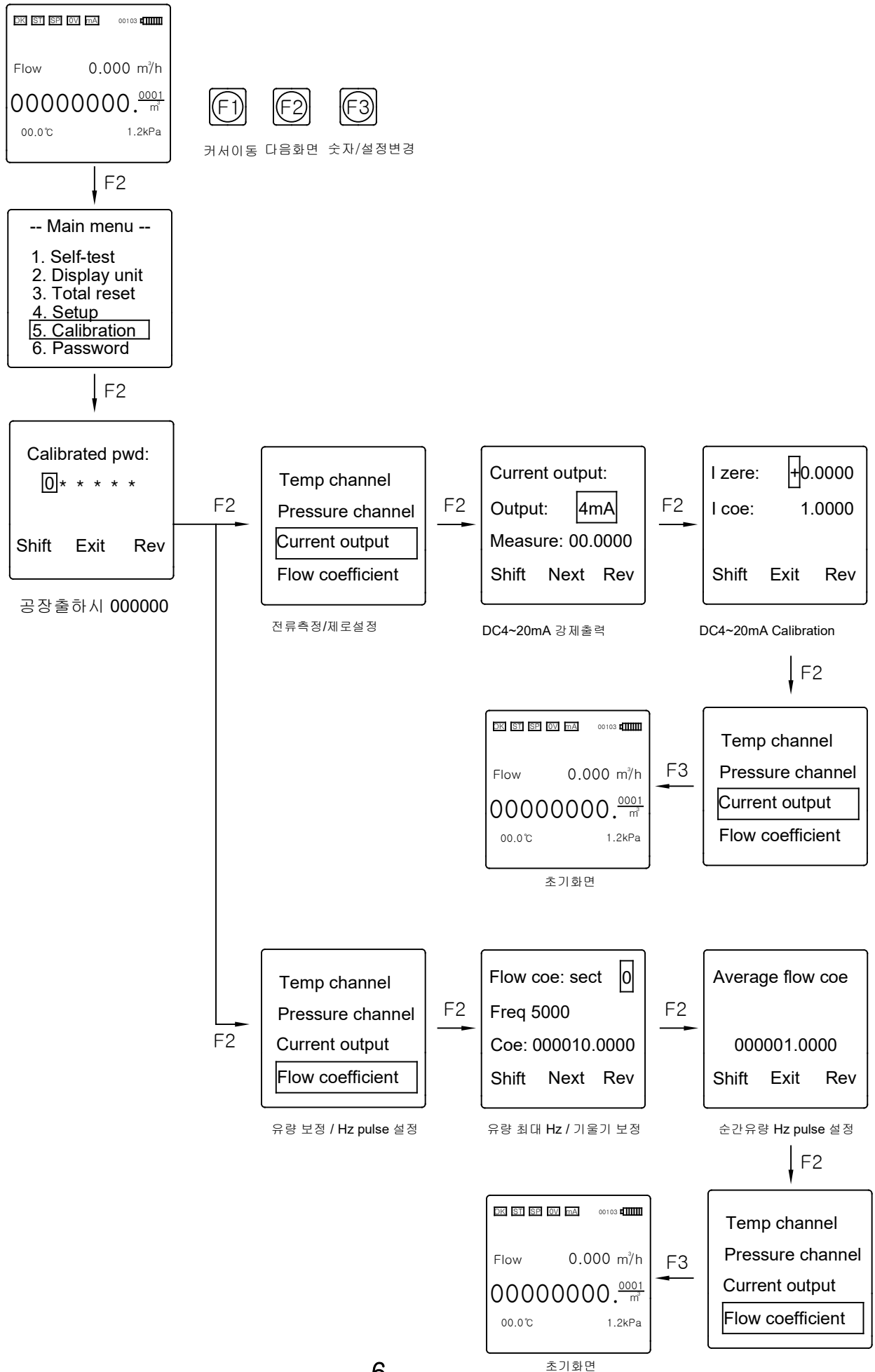
4.2 Setup (Steam)



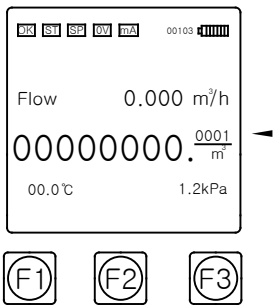
5.1 Calinbration (온도, 압력, 제로)설정



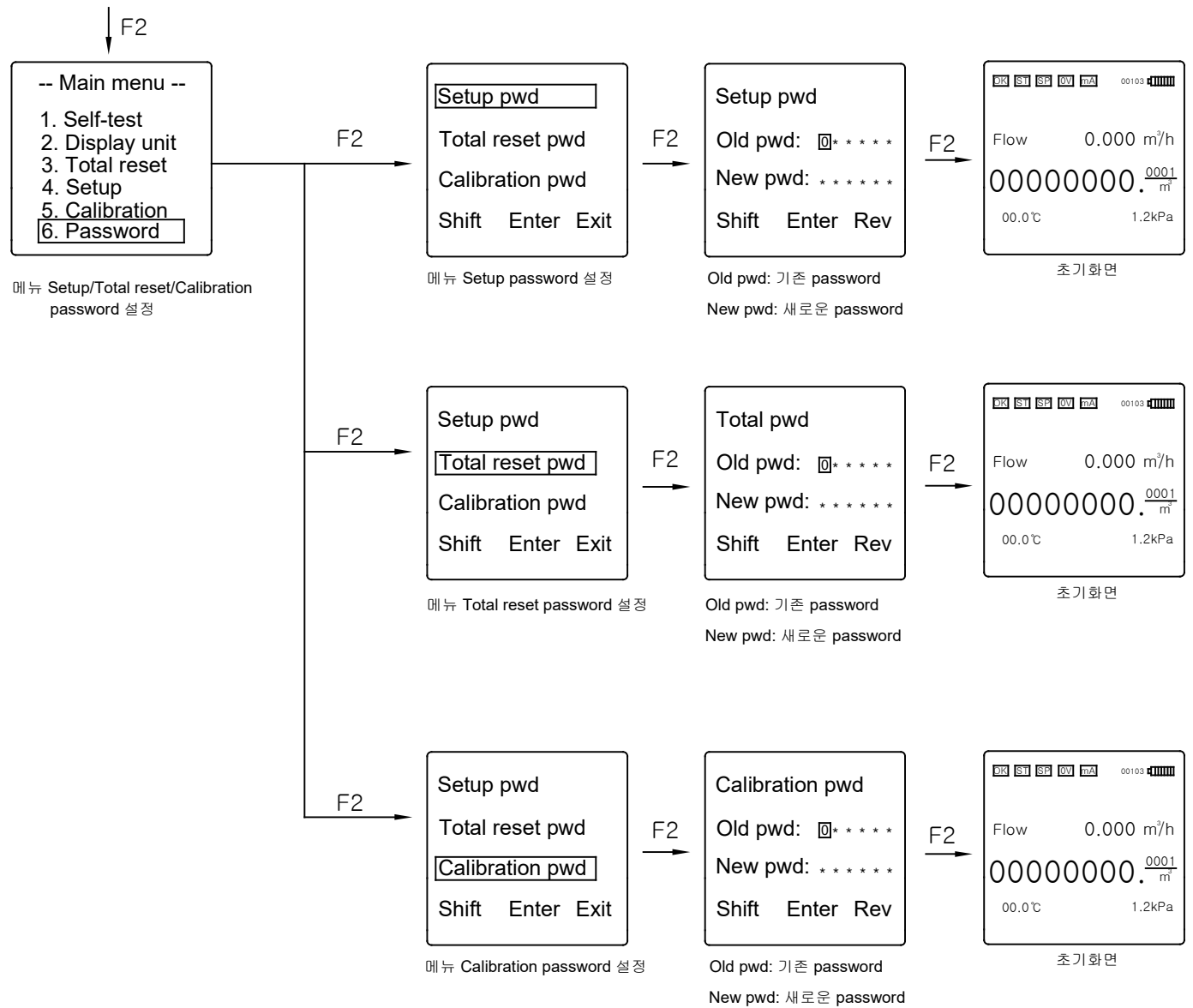
5.2 Calinbration (전류출력,보정계수)설정



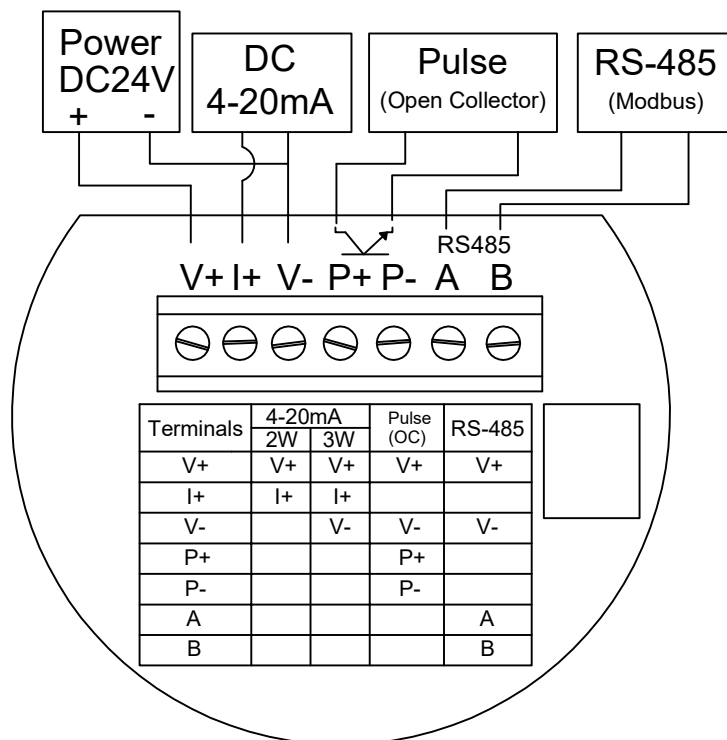
6. Password



커서이동 다음화면 숫자/설정변경

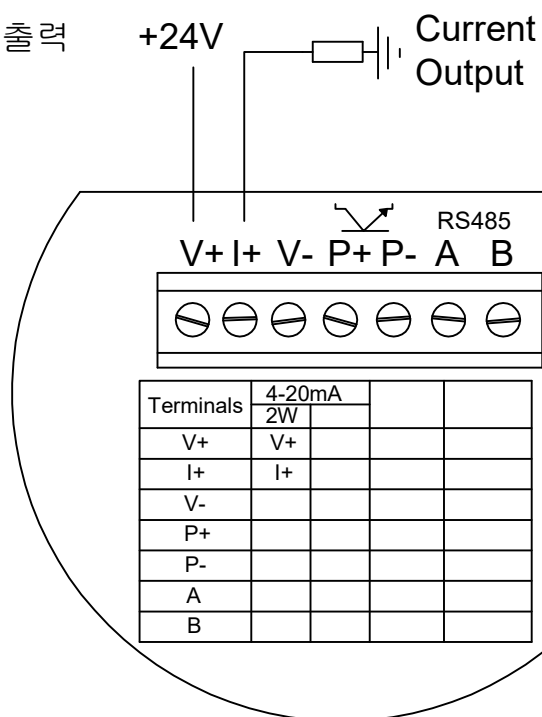


7. 결선



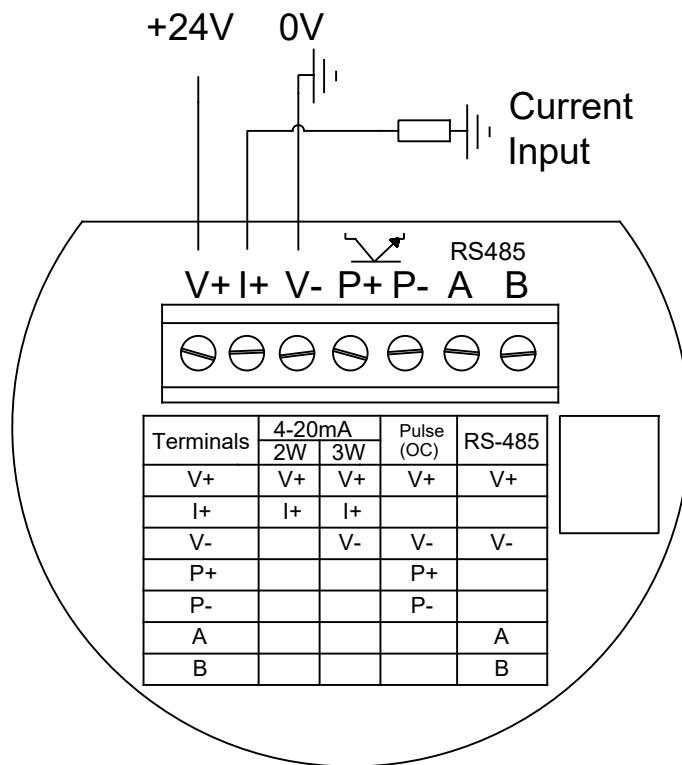
단자대

7.1 전류출력



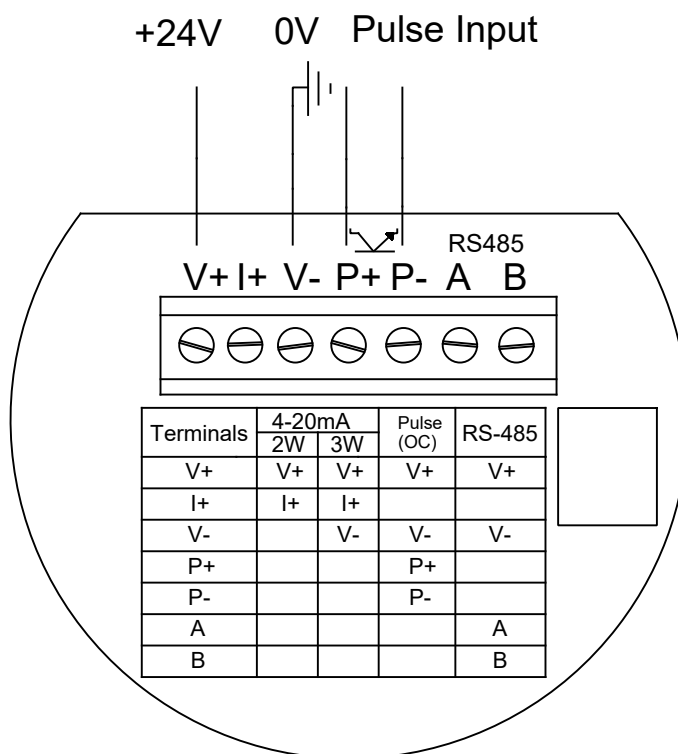
2-Wire 전류 출력 결선시

*Only 2-Wire 출력만 사용가능
(Pulse, RS-485는 출력 사용불가)



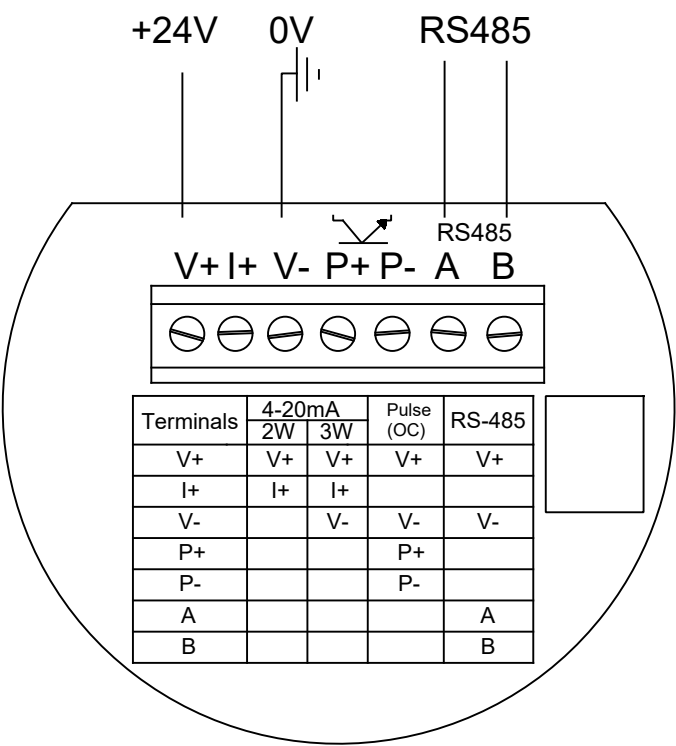
3-Wire 전류 출력 결선

7.2 펄스



4선식 펄스 출력 결선

7.3 RS-485



RS485 출력의 결선

KTVP-750 communication protocol (RTU)

1. Protocol overview

1.1 Communication protocol

This flowmeter uses MODBUS RTU protocol (Slave).

Electrical Interface: RS485 2W

Serial communication of parameters: (baudrate=1200 /2400/4800/9600 bps
start bits=1、 databits =8、 parity= no、 stopbits =1)

1.2 Frame format

Address	Function code	Data	CRC	End
8 bit	8 bit	n*8 bit	16 bit	T1-T2-T3-T4

Two frames are separated by a silent interval of at least 4 character times(T1-T2-T3-T4).

1.3 Address

Address range: "1-255".

2. Command

2.1 This flowmeter supply command:

Function code 0x03	Read single or multiple hold registers
Function code 0x06	Write a single register
Function code 0x10	Write multiple register

2.2 Data frame:

Register type	length of the data	Register number	description
BYTE	8bit	-	(0x0-0xFF)
WORD	16bit	1	Unsigned integer(0x0-0xFFFF)
DWORD	32 bit	2	Unsigned integer(0x0-0xFFFFFFFF)
FLOAT	32 bit	2	32 bit floating point Numbers(IEEE754format)

Data format: Integer/Float:

32 Float of format is IEEE754, Single precision(4 bytes), order of sequence is 3-4-1-2。 After conversion to 1-2-3-4 order, From high to low were 31, 30, 29, 0, etc...。

31	30-23	22-0
Sign	Exponent	Fraction

Laid out as bits, floating point numbers look like this:

Single: SEEEEEEE EMMMMMMM MMMMMMMM MMMMMMMM

The sign bit 0 denotes a positive number, and 1 denotes a negative number.

Function code 03 (Read single or multiple hold registers) :
MODBUS Request

Address	1 BYTE	01-255
Function code	1 BYTE	03
Starting Address	2 BYTE	0x-0xFFFF
Quantity of Registers	2 BYTE	1-20
CRC Low-Order Byte	1 BYTE	
CRC High-Order Byte	1 BYTE	

MODBUS Reponse

Address	1 BYTE	01-255
Function code	1 BYTE	03
Byte count	1 BYTE	2*N(N = Quantity of Registers)
CRC Low-Order Byte	1 BYTE	
CRC High-Order Byte	1 BYTE	

For example

Request		Reponse	
Domain name	Data (HEX)	Domain name	Data (HEX)
	01	Address	01
Function code	03	Function code	03
Starting Address (High)	00	Byte count	08
Starting Address (Low)	00	Registers high (0001)	0C
Quantity of Registers(High)	00	Registers low (0001)	E8
Quantity of Registers(Low)	04	Registers high (0002)	C2
		Registers low (0002)	FB
		Registers high (0003)	C9
		Registers low (0003)	26
		Registers high (0004)	C3
		Registers low (0004)	7B
CRC Checking		CRC Checking	

2.3 Read only Data item define

R/W	Registers address	Data length	Data type	Description
R	40001 - 2	2	FLOAT	Medium temperature (°C)
R	40003 - 4	2	FLOAT	Medium pressure (kPa)
R	40005 - 6	2	FLOAT	Frequency (Hz)
R	40007 - 8	2	FLOAT	Flow rate (Nm3/h)
R	40009 - 10	2	FLOAT	Total of more than one hundred (1234)
R	40011 - 12	2	FLOAT	Total of less than one hundred (87.89)
R	40013 - 14	2	DWORD	Up Limit alarm 0000 : No alarm 0001 : operator flow 0004 : flow rate 0010 : pressure 0040 : temperature
R	40015 - 16	2	DWORD	Down Limit alarm 0000 : No alarm 0001 : operator flow 0004 : flow rate 0010 : pressure 0040 : temperature
R	40017 - 18	2	FLOAT	4-20 mA current output
R	40019	1		Reserve
R	40020	1		Reserve

*Cumulative

40009 - 40010 : $1234 \times 100 = 123\ 400$ (Total of more than one hundred)

40011 - 40012 : 87.89 (Total of less than one hundred)

Total : $123\ 400 + 87.89 = 123\ 487.89$

2.4 MODSCAN32 Communication interface(0x03 command read and write)

ModScan32 - [ModScan]

File Connection Setup View Window Help

Address: 0001 Device Id: 1 Number of Polls: 179
Length: 20 MODBUS Point Type Valid Slave Responses: 179
03: HOLDING REGISTER Reset Ctrs

40001:	20.0000	Medium temperature: 20°C;
40002:		
40003:	10.0000	Medium pressure: 10KPa;
40004:		
40005:	1000.0000	Frequency: 1000Hz;
40006:		
40007:	0.1099	flow: 0.1099Nm³/s;
40008:		
40009:	154.0000	Total of more than one hundred: 154;
40010:		
40011:	93.5824	Total of less than one hundred: 93.5824;
40012:		
40013:	0.0000	No alarm;
40014:		
40015:	0.0000	No alarm;
40016:		
40017:	16.6569	Current output: 16.6569mA;
40018:		
40019:	0.0000	
40020:		

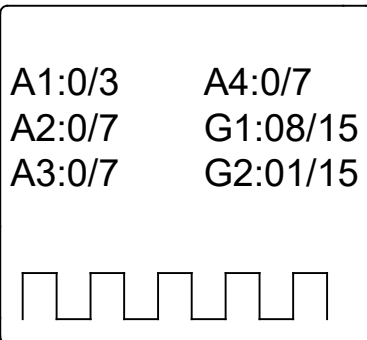
For Help, press F1 Polls: 179 Resps: 179

부록

KTVP, KTV Series 유량 신호 증폭기 보정

Main menu > Calibration > Calibrated password : 000001 입력

> Meter diameter > 하위 화면 표시

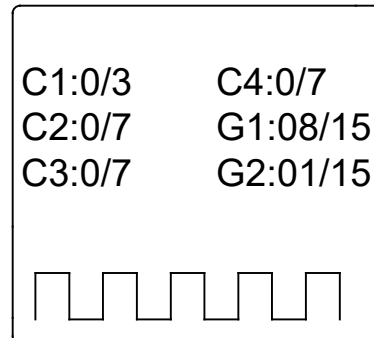
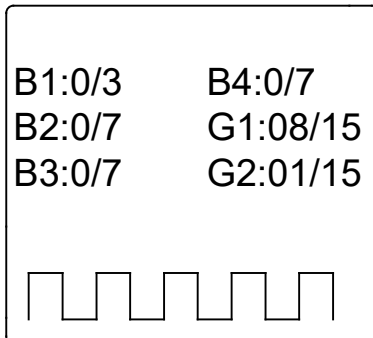


A band adjustment 는 공장 설정 되어 있어 변경을 금지 합니다.

현장 상황에 따라 신호 증폭 G1, 감도 G2를 변경 할 수 있습니다.

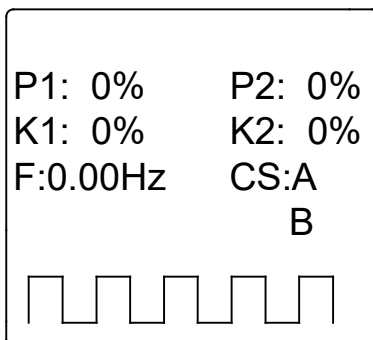
G1 : Gain 0-15 의 입력 배율을 가지고 있습니다.

G2 : Trigger 감도는 0-15 배율을 가지고 있습니다.



B Band, C Band 에 대한 내용은 수정 하지 말고.

F2 키를 눌러 메인 화면으로 이동 합니다.



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