

# FC SERIES SETTER (CONTINUOUS OUTPUT TYPE)

DATA SHEET

PNF1

The FC series setter is used for remote setting of a controller or variable constant setting of various types of computing elements.

This instrument uses a solid state indicator and a pushbutton operation system to provide reliable monitoring and operating functions.

## FEATURES

### 1. High reliability

This instrument is designed with few mechanical parts. It is mainly composed of electronic parts such as a solid state indicator which was formerly consisted of mechanical parts.

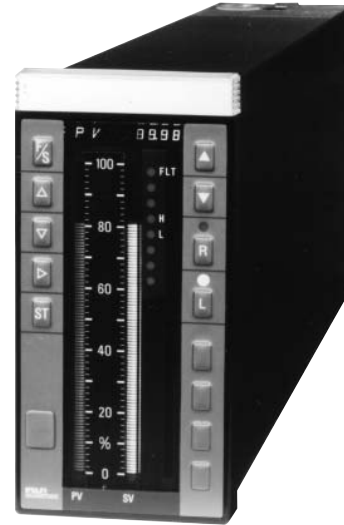
### 2. International standards

This instrument is compact in size, conforming to international standards IEC. It operates on 24V DC power to deliver 1 to 5V DC signals as recommended by IEC standards.

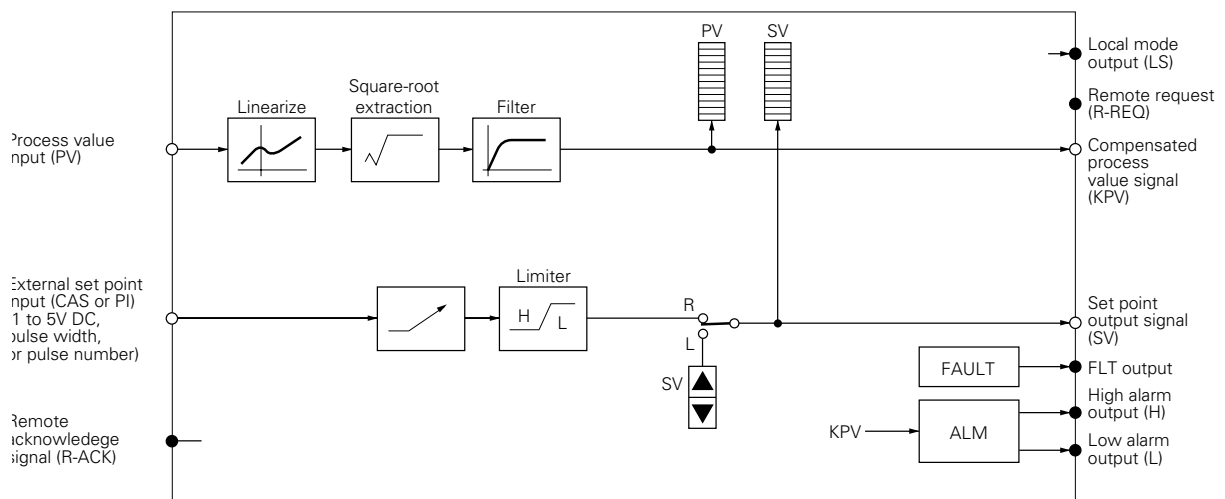
100 and 200V AC power are also available for convenience of operation.

### 3. Front panel operation

Process values and set points can be read accurately with digital indications on panel front. Various parameter settings and setting operations are also possible from the front panel of the instrument.



## FUNCTIONAL DIAGRAM



## SPECIFICATIONS

### 1. Input signal

#### (1) Process value input signal:

One input selectable from the following

Voltage input signal	I <sub>+</sub> I <sub>0</sub> I <sub>-</sub>	1 to 5V DC	Input resistance, 1MΩ or more	Allow. error ±0.2%/FS*
current input signal		4 to 20mA DC	24V ±2V DC can be supplied to transmitter only when AC power is used	Allow. error ±0.2%/FS

Note: \* FS: Full scale

#### (2) Analog input signal: 1 point

External set point input signal	CAS	1 to 5V DC	Input resistance, 1MΩ or more Allow. error ±0.2%/FS
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#### (3) Digital input signal: 1 point

Remote acknowledge signal	R-ACK	Contact input (photo-coupler insulation)	ON 0V, OFF 24V (input current, approx. 11mA/24V DC)
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#### (4) Pulse width or pulse number input signal: 1 set (either one)

Pulse width input signal	PI <sub>+</sub> PI <sub>-</sub>	Contact input (photo-coupler insulation)	ON 0V, OFF 24V (input current, approx. 11mA/24 DC)
Pulse number input signal			ON 0V, OFF 24V (approx. 11mA/24V DC) max. input frequency 500Hz

### 2. Output signal

#### (1) Analog output signal: 2 points

Compensated process value signal	KPV	1 to 5V DC	Output resistance, 1Ω or less Allow. error ±0.2%/FS
Set point output signal	SV		

#### (2) Digital output signal: 5 points

Fault output	FLT	Open-collector output (photo-coupler insulation)	Rated output, 30V x 0.1A DC, max.
Local mode output	LS		
Remote request signal	R-REQ		
High alarm output	H		
Low alarm output	L		

### 3. Indication, setting, operating functions

#### (1) Bargraph indication

	PV indicator	SV indicator
Indication method	LED (red)	LED (green)
No. of segments	101 + 2	101 + 2
Range	0 to 100%, linear	0 to 100%, linear
Resolution	1 %/FS	1%/FS
Scale length	100mm	100mm
Indicating mode	0 to 100% bargraph indication, 0 to 100% reverse bargraph indication, dot indication, -50 to +50% deviation indication	

#### (2) Operation mode indication

Indicating method:

LED (green)  
Green: L(local), R(remote)

#### (3) Numerical value indication, setting

Indication method:

LED (red), name in 3 digits + numerical value in 5 digits (negative code included)

Contents of indication:

Process value (industrial value), set point (industrial value), high/low alarm, etc.  
Indication contents are selectable by  $\boxed{F/S}$ ,  $\boxed{\triangle}$ ,  $\boxed{\nabla}$  keys on front panel.

Setting method: By using  $\boxed{F/S}$ ,  $\boxed{\triangle}$ ,  $\boxed{\nabla}$ ,  $\boxed{\triangleright}$ ,  $\boxed{ST}$  keys on front panel

#### (4) Setting functions

Fixed value setting method:

By using of  $\boxed{\blacktriangle}$ ,  $\boxed{\blacktriangledown}$  pushbuttons on front panel.  
Setting speed, approx. 40 sec/FS

Remote setting method:

By use of external set point signal (voltage or pulse width input)  
Tracking speed setting range; 0 to 900 sec/FS

#### (5) Operation mode changeover

By using of R/L pushbutton on front panel

R → L changeover		Balanceless bumpless
R ← L changeover	Voltage signal*	Balance bumpless
	Pulse width signal	Balanceless bumpless

Note: \* Balanceless bumpless by setting tracking speed

#### (6) Alarm functions

High/low alarm settable in industrial values for process value input signal.

### 4. Power failure processing functions

Power failure detection:

Setting output held at power failure detection.

During power failure:

Data backed up by capacitor up to 5 minutes. Initial value of set point stored in non-volatile memory (10 years expected at ambient temperature of 50°C or less).

Power failure recovery:

Initial or continuous start mode can be set within 5 minutes of power failure. Recovery from power failure lasting longer than 5 minutes is initial. \*\*  
Note: \*\* Operation mode set at initial can be registered  
L: Local mode or R: Remote mode

### 5. Self-diagnosis functions

Input signal abnormality:

FLT lamp lights, FLT output contact "ON"

Indication of abnormal contents:

Cause of abnormality indicated in numerical values on front panel.

### 6. Transmission functions

#### (1) Transmission items

Supervisory items:

PNF → host  
Process variable, set point, operation mode, alarm information, fault information, various limiter values, constants, etc.

Setting operation items:

Host → PNF  
Set point, operation mode, various limiter values, constants, etc.

#### (2) Transmission setting inhibit

Parameter setting enable/inhibit can be designated by transmission from the host. Designation is done by keys on the front panel key.

(3) Communication interface

(a) T-link: Private interface

Transmission speed: 500Kbps  
 No. of units connectable: 32 max.  
 Transmission distance: 1km max.  
 Transmission form: Multi-drop  
 Control method: I/O transmission and message

(b) RS-422A/485: Universal interface

Transmission speed: 2400, 4800, 9600 or 19200bps  
 configurable  
 No. of units connectable: 31 max.  
 Transmission distance: 1km max.  
 Transmission form: Multi-drop  
 Control method: Polling/selecting

(c) CC data line: Private interface

Transmission speed: 19.2Kbps  
 No. of units connectable: 15 max.  
 Transmission distance: 500m max.  
 Transmission form: Multi-drop  
 Control method: Polling/selecting

## CODE SYMBOLS

1 2 3 4 5 6 7 8 9 10										Description
P	N	F	1					5	0	Process value input signal 1 to 5V DC 4 to 20mA DC
				A						
				B						Setting method L type R-L type
					A					
					B					Power supply 24V DC (20 to 30V DC) 100V AC (85 to 132V/47 to 63Hz AC) 200V AC (187 to 264V/47 to 63Hz AC)
						1				
						2				
								3		Transmission functions Y --- None T --- T-link R --- RS-422A S --- RS-485 C --- CC data line
									Y	
									T	
									R	
									S	
									C	

## 7. Other functions

Data protective function by pass code

## 8. Operating conditions

Power supply: Select from 3 types  
 24V DC (20 to 30V DC)  
 100V AC (85 to 132V/47 to 63Hz AC)  
 200V AC (187 to 264V/47 to 63Hz AC)

Power consumption:  
 Approx. 11W (DC)  
 Approx. 20VA (AC)

Dielectric strength:  
 1500V AC, 1 min.

Insulation resistance:  
 500V DC, 100MΩ or more

Ambient temperature:  
 0 to 50°C

Ambient humidity:  
 90% RH or less

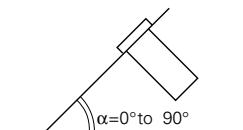
Enclosure: Steel case

Rating plate (Name plate):  
 100 (H) x 70 (W) mm, white acryl

Dimensions: 144 (H) x 72 (W) x 391 (D) mm, IEC  
 (DIN) standard

Mass (weight): Approx. 2.9kg

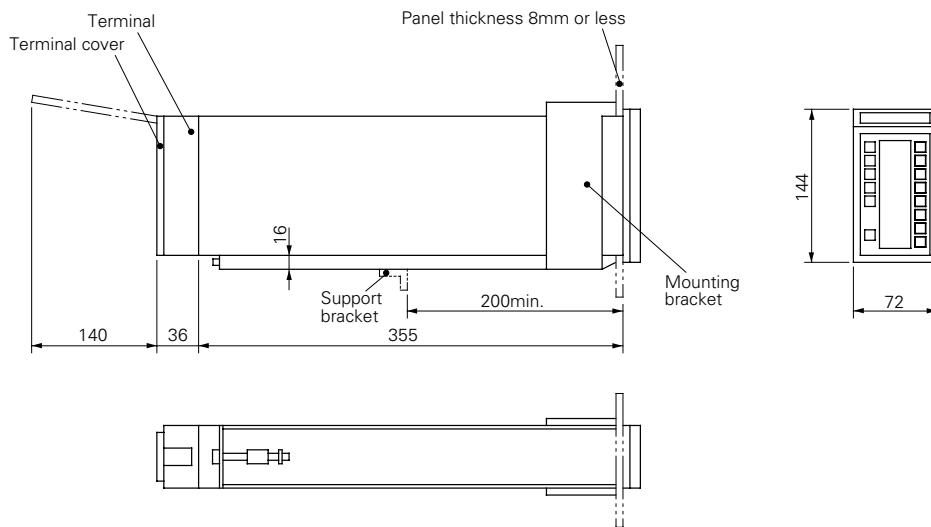
Mounting method:  
 Flush indoor mounting; vertical mounting.  
 Mountable on tilted surface angle "α"



Finish color: Munsell N 1.5 for both front panel and case

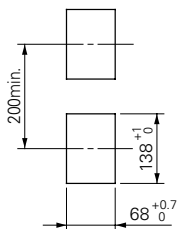
Scope of delivery: Setter and mounting bracket

### OUTLINE DIAGRAM (Unit:mm)

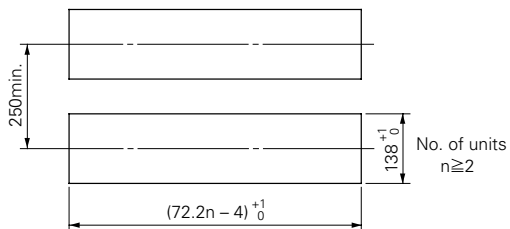


### Panel cutout

When mounting 1 unit

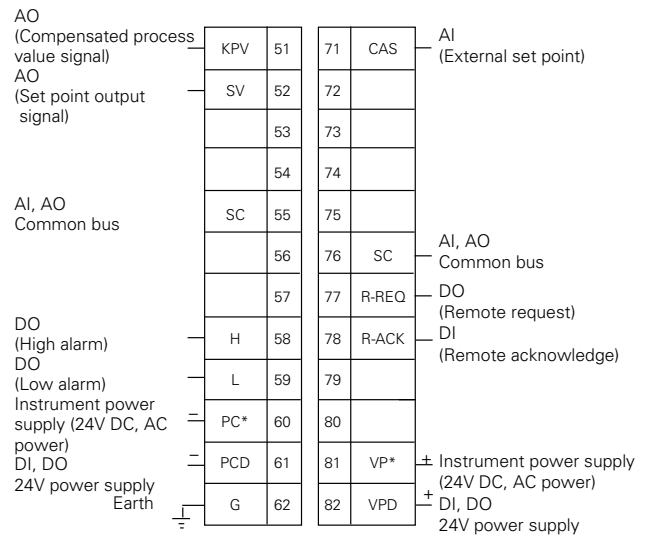
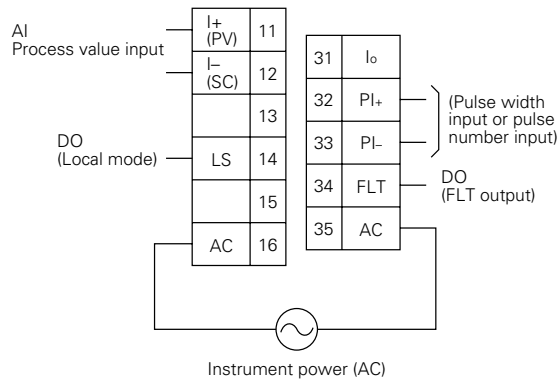


When mounting "n" units



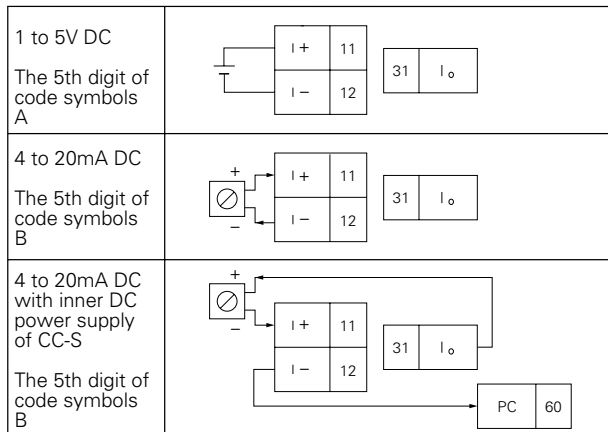
# CONNECTION DIAGRAM

Block terminals (M4 screw)

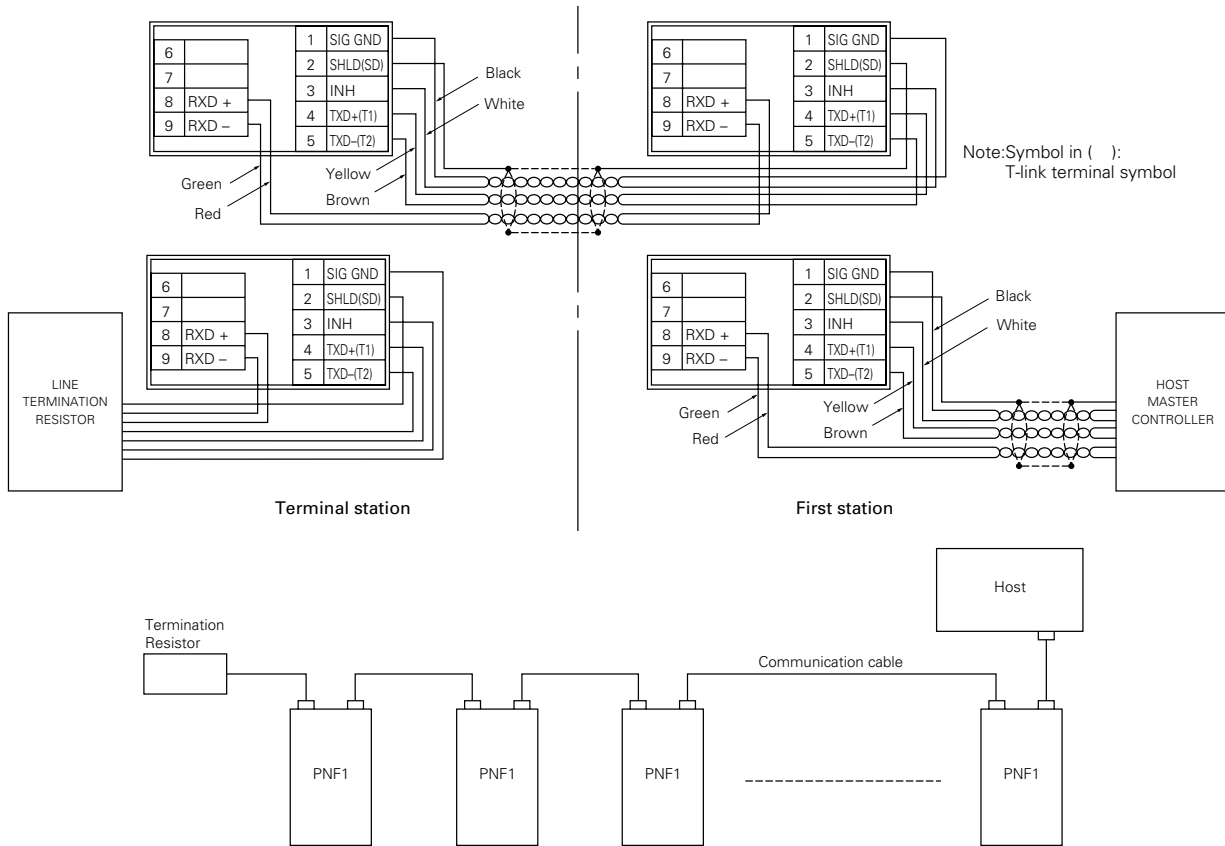


Note: \* Symbols for AC instrument power are VPO, PCO, approx. 24V DC (0.1A max.) output.

## Connection for process value input terminals



# COMMUNICATION CONNECTOR



⚠ Caution on Safety

\*Before using this product, be sure to read its instruction manual in advance.

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