

# Fast-Installations-Tester FIT series

**SCHOMANDL**

HF-Messtechnik aus der Kathrein-Gruppe

## Features

### FIT and FIT set for GSM 900

- Forward and reverse power
- Accurate VSWR
- Red LED for antenna short-circuits
- Storage of min./max. values
- Ohmmeter for fault finding
- Fast converting DC voltmeter

### FIT

- FIT 70: 70 MHz–1000 MHz
- FIT 400: 400 MHz–1000 MHz
- FIT 1700: 1700 MHz–2000 MHz

### FIT-Handy-Tester

- Emitted RF power measurements via antenna with FIT Handytester for GSM 900 and GSM/DCS 1800

### FIT set for GSM 900

- RF-head (emitted RF power) for the GSM band from 890 MHz to 915 MHz
- RF-head (through-line) for power and VSWR from 400 MHz to 1000 MHz
- Supplied with extensive accessories in a suitable transportation box



## Applications

The FIT Series are hand-held, low-cost instruments for quick tests of digital (cellular) and analog radio communications systems. They are service-testers and Point-of-Sale testers for mobile phones which allow fast Go/NoGo decisions at the first level of diagnosis before they are returned to the manufacturer's maintenance center.

SCHOMANDL offers different FIT models depending on the application and required frequency range. The **FIT 400** is our best priced model and covers 400 MHz to 1000 MHz. This frequency band allows to check most of the international analog and cellular mobile networks such as GSM 900, AMPS, D-AMPS, TACS, NMT 450/900.

The **FIT 70** covers the same public mobile networks but already starts at 70 MHz.

The lower frequency band is used for private mobile radio – PMR, at police and fire departments, taxis, customs etc. The

**FIT 1700** is designed to check mobile radios from 1700 MHz to 2000 MHz in GSM/DCS/PCS -1800/1900 networks. The separate RF-head is inserted without long interconnection cables between the transmitter output of the mobile radio and the

antenna cable, thus avoiding additional measuring errors. Now just read-off the forward & reverse RF power in Watt or dBm and the VSWR from the high-contrast LCD. These are useful parameters to determine the quality of the systems components and the workmanship of the installation. The FIT Series identify automatically whether a continuous analog RF signal or bursts from a cellular system are applied.

The **FIT Handy-Tester** is designed for GSM 900 MHz and GSM/DCS 1800 MHz digital cellular systems. The FIT Handy-Tester measures the emitted RF power of cellular mobile phones via integrated antennas on the RF-heads in a defined 7 cm distance.

The **FIT Set for GSM 900** is an application-oriented tester which has been selected for the GSM 900 mobile network specially. The FIT basic instrument, the through line RF-head (400 MHz to 1000 MHz), the second RF-head with integrated antenna (890 MHz to 915 MHz) and extensive supplied accessories are fitted in a suitable transportation box.



**ACTERNA**<sup>TM</sup>  
The Keepers of Communications

## Specification FIT 70

Frequency range: ..... 70 MHz to 1000 MHz

### RF power measurement (CW or bursts):

Measuring range:

70 MHz to 88 MHz: ..... 500 mW to 50 W

88 MHz to 180 MHz: ..... 250 mW to 50 W

180 MHz to 400 MHz: ..... 100 mW to 50 W

400 MHz to 1000 MHz: ..... 20 mW to 50 W

Resolution: ..... 0.1 dB

Accuracy:

70 MHz to 88 MHz: ..... P=10 W:  $\leq \pm 1.5$  dB

88 MHz to 180 MHz: ..... P= 5 W:  $\leq \pm 1.5$  dB

180 MHz to 400 MHz: ..... P=2.5 W:  $\leq \pm 1.5$  dB

400 MHz to 1000 MHz: ..... P= 1 W:  $\leq \pm 1.0$  dB

Power offset-setting (in 0.1 dB): .....  $\pm 12.7$  dB

Display: ..... numeric Watt/dBm, min./max.

### VSWR measurement:

Measuring range: ..... 1.2 to 10; > 10

Resolution: VSWR 1.0 to 3.0: ..... 0.1

VSWR 3.0 to 5.0: ..... 0.2

VSWR 5.0 to 10.0: ..... 0.5

Display: ..... numeric, min./max., bargraph

Indication of antenna short-circuit: ..... Red LED

### Voltage measurement:

DC measuring range: ..... 0 to 30 V

Resolution ..... 30 mV

Display: ..... numeric, min./max., bargraph

### Resistance measurement:

Measuring range: ..... 0.3  $\Omega$  to 1 k $\Omega$

Resolution: ..... 0.1  $\Omega$ /1  $\Omega$

Display: ..... numeric, bargraph

Beeper: ..... active  $\leq 8$   $\Omega$

### General data:

Connectors: ..... N-sockets at RF-head, sockets for 4 mm banana plugs for DC,  $\Omega$ , GND

Display: ..... 2-line LCD with backlight

Power requirements: ..... 4  $\times$  Mignon batteries 1.5 V, size AA or 4  $\times$  rechargeable accus 1.5 V, size AA

Power consumption (w.o. backlight): .....  $\leq 95$  mA

Operating temperature: ..... +5 to +45  $^{\circ}$ C

Electrical safety: ..... EN 61010

EMC: ..... CE-mark

Dimensions:

Basic instrument: ..... 197 mm  $\times$  97 mm  $\times$  40 mm

RF-head: ..... 120 mm  $\times$  75 mm  $\times$  30 mm

Weight:

Basic instrument incl. batt.: ..... approx. 0.55 kg

RF-head: ..... approx. 0.60 kg

### Supplied accessories:

Basic instrument, RF-head, Operating manual

### Ordering information:

Fast-Installations-Tester FIT 70: ..... SL86814000

### Accessories:

Transport box for FIT, adapters: ..... SL86813101

Set of RF-adapters (BNC, TNC, Mini-UHF): ..... SL86813102

## Specification FIT 400

Frequency range: ..... 400 MHz to 1000 MHz

### RF power measurement (CW or bursts):

Measuring range: ..... 20 mW to 50 W

Resolution: .....  $\leq \pm 0.1$  dB

Accuracy (P = 1 W): .....  $\pm 1.0$  dB

Power offsetsetting (in 0.1dB): ..... 12.7 dB

Display: ..... numeric Watt/dBm, min./max.

### VSWR measurement:

Measuring range: ..... 1.2 to 10; > 10

Resolution: VSWR 1.0 to 3.0: ..... 0.1

VSWR 3.0 to 5.0: ..... 0.2

VSWR 5.0 to 10.0: ..... 0.5

Display: ..... numeric, min./max., bargraph

Indication of antenna short-circuit: ..... Red LED

### Voltage measurement:

DC measuring range: ..... 0 to 30 V

Resolution: ..... 30 mV

Display: ..... numeric, min./max., bargraph

### Resistance measurement:

Measuring range: ..... 0.3  $\Omega$  to 1 k $\Omega$

Resolution: ..... 0.1  $\Omega$ /1  $\Omega$

Display: ..... numeric, bargraph

Beeper: ..... active  $\leq 8$   $\Omega$

### General data:

Connectors: ..... N-sockets at RF-head, sockets for 4 mm banana plugs for DC,  $\Omega$ , GND

Display: ..... 2-line LCD with backlight

Power requirements: ..... 4  $\times$  Mignon batteries 1.5 V, size AA or 4  $\times$  rechargeable accus 1.5 V, size AA

Power consumption (w.o. backlight): .....  $\leq 95$  mA

Operating temperature: ..... +5 C to +45  $^{\circ}$ C

Electrical safety: ..... EN 61010

EMC: ..... CE-mark

Dimensions:

Basic instrument: ..... 197 mm  $\times$  97 mm  $\times$  40 mm

RF-head: ..... 120 mm  $\times$  75 mm  $\times$  30 mm

Weight:

Basic instrument incl. batt.: ..... approx. 0.55 kg

RF-head: ..... approx. 0.60 kg

### Supplied accessories:

Basic instrument, RF-head, Operating manual

### Ordering information:

Fast-Installations-Tester FIT 400: ..... SL86813000

### Accessories:

Transport box for FIT, adapters: ..... SL86813101

Set of RF-adapters (BNC, TNC, Mini-UHF) ..... SL86813102

## Specifications FIT 1700

**Frequency range:** ..... 1700 MHz to 2000 MHz

### RF power measurement (CW or bursts):

Measuring range: ..... 2 mW to 5 W

Resolution: .....  $\leq \pm 0.1$  dB

Accuracy (P = 1 W): .....  $\pm 1.0$  dB

Power offset setting (in 0.1 dB): .....  $\pm 12.7$  dB

Display: ..... numeric in Watt or dBm, min/max

### VSWR measurement:

Measuring range: ..... 1.2 to 10; > 10

Resolution: VSWR 1.0 to 3.0: ..... 0.1

VSWR 3.0 to 5.0: ..... 0.2

VSWR 5.0 to 10.0: ..... 0.5

Display: ..... numeric, min./max., bargraph

**Indication of antenna short-circuit:** ..... Red LED

### Voltage measurement:

DC measuring range: ..... 0 to 30 V

Resolution: ..... 30 mV

Display: ..... numeric, min./max., bargraph

### Resistance measurement:

Measuring range: ..... 0.3  $\Omega$  to 1 k $\Omega$

Resolution: ..... 0.1  $\Omega$ /1 $\Omega$

Display: ..... numeric, bargraph

Beeper: ..... active  $\leq 8$   $\Omega$

### General data:

Connectors: ..... N-sockets at RF-head, sockets  
for 4 mm banana plugs for DC,  $\Omega$ , GND

Display: ..... 2-line LCD with backlight

Power requirements: ..... 4  $\times$  Mignon batteries 1.5 V, size AA or  
4  $\times$  rechargeable accus 1.5 V, size AA

Power consumption (w.o. backlight): .....  $\leq 95$  mA

Operating temperature: ..... +5 to +45  $^{\circ}$ C

Electrical safety: ..... EN 61010

EMC: ..... CE-mark

Dimensions:

Basic instrument: ..... 197 mm  $\times$  97 mm  $\times$  40 mm

RF-head: ..... 120 mm  $\times$  75 mm  $\times$  30 mm

Weight:

Basic instrument incl. batt.: ..... approx. 0.55 kg

RF-head: ..... approx. 0.60 kg

### Supplied accessories:

Basic instrument, RF-head, Operating manual

### Ordering information:

Fast-Installations-Tester FIT 1700: ..... SL86815000

### Accessories:

Transport box for FIT, adapters: ..... SL86813101

Set of RF-adapters (BNC, TNC, Mini-UHF) ..... SL86813102

## Specifications FIT Handy-Tester

### RF-head for GSM 900:

**Frequency range:** ..... 890 MHz to 915 MHz

### RF power measurement (CW or bursts):

Measuring range: ..... 5 mW to 5 W

Resolution: ..... 0.1 dB

Accuracy (P = 1 W): .....  $\leq \pm 2.0$  dB

in 7 cm distance to a  $\lambda/4$  reference antenna

RX to antenna: .....  $\lambda/4$ -antenna

Power offset setting (in 0.1 dB): .....  $\pm 12.7$  dB

Display: ..... numeric in Watt or dBm, bargraph

### RF-head for GSM/DCS 1800:

**Frequency range:** ..... 0 MHz to 1780 MHz

### RF power measurement (CW or bursts):

Measuring range: ..... 2 mW to 2 W

Resolution: ..... 0.1 dB

Accuracy (P = 1 W): .....  $\leq \pm 2.0$  dB

in 7 cm distance to a  $\lambda/4$  reference antenna

RX-antenna: ..... planar-antenna

Power offset setting (in 0.1 dB): .....  $\pm 12.7$  dB

Display: ..... numeric in Watt or dBm, bargraph

### Voltage measurement:

DC measuring range: ..... 0 to 30 V

Resolution: ..... 30 mV

Display: ..... numeric, min./max., bargraph

### Resistance measurement:

Measuring range: ..... 0.3  $\Omega$  to 1 k $\Omega$

Resolution: ..... 0.1  $\Omega$ /1  $\Omega$

Display: ..... numeric, bargraph

Beeper: ..... active  $\leq 8$   $\Omega$

### General data:

Connectors: ..... safety sockets for 4 mm banana  
plugs for DC, W, GND

Display: ..... 2-line LCD with backlight

Power requirements: ..... 4  $\times$  Mignon batteries 1.5 V, size AA or  
4  $\times$  rechargeable accus 1.5 V, size AA

Power consumption (w.o. backlight): .....  $\leq 95$  mA

Operating temperature: ..... +5 to +45  $^{\circ}$ C

Electrical safety: ..... EN 61010

EMC: ..... CE-mark

Dimensions:

Basic instrument: ..... 197 mm  $\times$  97 mm  $\times$  40 mm

RF-heads: ..... 83 mm  $\times$  97 mm  $\times$  40 mm

Weight:

Basic instrument incl. batt.: ..... approx. 0.55 kg

RF-heads: ..... approx. 0.30 kg

### Supplied accessories:

Basic instrument, RF-head for GSM 900,

RF-head for GSM 1800, manual, 2 distance pieces

### Ordering information:

FIT Handy to Tester ..... SL86816000

### Accessories:

Transport box for basic instrument,

two RF-heads, distance pieces and manual

SL86816101

# Specifications FIT Set for GSM 900

## RF-head (through line) for power and VSWR:

Frequency range: . . . . . 400 MHz to 1000 MHz

## RF power measurement (CW or bursts):

Measuring range: . . . . . 20 mW to 50 W  
Resolution: . . . . . 0.1 dB  
Accuracy (P = 1 W): . . . . .  $\leq \pm 1.0$  dB  
Power offset-setting (in 0.1 dB): . . . . .  $\pm 12.7$  dB  
Display: . . . . . numeric in Watt or dBm, min./max.

## VSWR measurement:

Measuring range: . . . . . 1.2 to 10; > 10  
Resolution: VSWR 1.0 to 3.0: . . . . . 0.1  
                  VSWR 3.0 to 5.0: . . . . . 0.2  
                  VSWR 5.0 to 10.0: . . . . . 0.5  
Display: . . . . . numeric, min./max., bargraph

Indication of antenna short-circuit: . . Red LED

## RF-head (emitted RF power) for GSM 900:

Frequency range: . . . . . 890 MHz to 915 MHz

## RF power measurement (CW or bursts):

Measuring range: . . . . . 5 mW to 5 W  
Resolution: . . . . . 0.1 dB  
Accuracy (P = 1 W): . . . . .  $\leq \pm 2.0$  dB  
                  in 7 cm distance to a  $\lambda/4$  reference antenna  
RX-antenna: . . . . .  $\lambda/4$ -antenna  
Power offsetsetting (in 0.1 dB): . . . . .  $\pm 12.7$  dB  
Display: . . . . . numeric in Watt or dBm, bargraph

## Basic instrument:

### Voltage measurement:

DC measuring range: . . . . . 0 to 30 V  
Resolution: . . . . . 30 mV  
Display: . . . . . numeric, min./max., bargraph

### Resistance measurement:

Measuring range: . . . . . 0.3  $\Omega$  to 1 k $\Omega$   
Resolution: . . . . . 0.1  $\Omega/1 \Omega$   
Display: . . . . . numeric, bargraph  
Beeper: . . . . . active  $\leq 8 \Omega$

## General data:

Connectors: . . . . . N-sockets at RF-head (through line), safety sockets for 4 mm banana plugs for DC,  $\Omega$ , GND

Display: . . . . . 2-line LCD with backlight

Power requirements:  
4  $\times$  Mignon batteries 1.5 V, size AA or  
4  $\times$  rechargeable accus 1.5 V, size AA

Power consumption (w.o. backlight): . .  $\leq 95$  mA  
Operating temperature: . . . . . +5 to +45  $^{\circ}\text{C}$

Electrical safety: . . . . . EN 61010

EMC: . . . . . CE-mark

## Dimensions:

Basic instrument: . . . . . 197  $\times$  97  $\times$  40 mm  
RF-head (trough line): . . . . . 120  $\times$  75  $\times$  30 mm  
RF-head (emitted power): . . . . . 83  $\times$  97  $\times$  40 mm  
Transportation box: . . . . . 440  $\times$  350  $\times$  200 mm

## Weight:

Basic instrument incl. batt.: . . approx. 0.55 kg  
RF-head (trough line): . . . . . approx. 0.60 kg  
RF-head (emitted power): . . . . . approx. 0.30 kg  
Transportation box, compl.: . . approx. 4.60 kg

## Supplied accessories:

- Basic instrument
- RF-head (trough line) from 400 MHz to 1000 MHz
- RF-head (emitted power) for GSM 900
- Set of RFtoadapters
- Pair of test leads and banana cables
- Pair of alligator clips
- Transportation box
- Distance piece
- Operating Manual

## Ordering information:

Fast-Installations-Tester  
FIT Set for GSM 900 SL86820002

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