sonepar
Powered by Difference

masibus




# 85XX+

## 24-Channel Scanner/ DAQ Module

Monitor. Protect. Control.
Annunciation. Communication. Data Logging.

mSCAN+ CE Modbus Over RS485 Modbus TCP/IP PROFINET PROFIBUS EtherNet/IP RoHS

The 85XX+ is an upgrade on the most successful model 85XX; additional capabilities have been added by way of multi-serial ports, Ethernet port, Profibus-DP, USB port, scanning speed and alphanumeric display.

**Modular and Expandable**
85XX+ is modular in architecture and Expandable, 5 I/O slots can accommodate a mix of Analog Input, Digital Input, Open collector output, Analog output or Relay output to suit different applications in Power, water, Pipeline and Infrastructure industries. All field inputs are wired by Pre-Fab cables direct into panel terminals.

**Configuration**
85XX+ is configured using the mSCAN+ software which is very user friendly; the unit can also be edited by front keyboard and display. The unit has numeric and alpha-numeric displays for value and tag display, Alarm/Trip and control status are displayed by discrete LEDs on front fascia.

**Communication**
85XX+ comes with one RS485 Port as a standard, a second RS485 Port, Ethernet Port, Profibus DP Port, ProfiNet Port & EtherNet/IP Port are options to enhance the communication capabilities of the unit and use it as an RTU, Alarm controller or protection device for motors, transformers, etc. It has optional USB port for logged data retrieval.

**Alarm/Control**
8 Relay and 24 OC outputs can be freely mapped as alarm/trip or control set point

**Analog Output**
An isolated 4-20mA Re-transmission output option is available for onward transmission to PLC/DCS/Recorder/SCADA. Max 8 output per card is possible.

## Features

- Compact and Rugged
- Alpha-Numeric display for programmable tag no / Engg unit
- EMI/EMC Type test qualified & CE Marked
- 24 Channel Universal Analog Inputs
- 16 Channel Digital Input Module
- 4/ 8 Relay Output Module
- 24 Open Collector Output Module
- Analog Output
- Fast sampling and generation of Alarm/Trip
- User free mapping of Relay to Channels
- Comprehensive alarm/trip logic
- 2X RS485 Serial port
- 1X Ethernet port
- 1X USB port
- 1X Profibus-DP port
- 2X ProfiNet Port
- 2X EtherNet/IP Port
- Modbus RTU over serial and Modnet over Ethernet Protocols
- Windows based free mSCAN+ configuration software
- Data logging option
- Extruded Aluminum Chassis with IP55 front fascia

## Applications

- Substation Monitoring
- Motor/Generator Monitoring and Protection
- Transformer monitoring and protection
- Compressor/Pump/DG set monitoring
- Asset Monitoring
- As a Serial/Ethernet RTU
- Remote I/O module
- Multi Point On/Off control

# USER-FRIENDLY PROGRAMMING AND MONITORING

## mSCAN+ Software

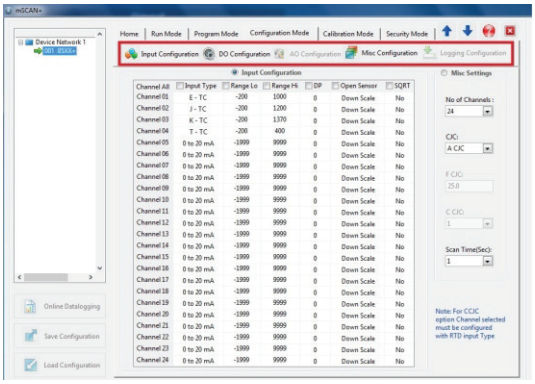
**mSCAN+ Software is used to Monitor**
and Configure the Multichannel Scanner

- Auto device discovery of 85XX+ over RS485 Port
- Run Time Data monitoring
- Configuration through RS485 and Ethernet Port
- Data Log Retrieval (Periodic and Event) in .xlsx and .pdf file formats
- Online Data logging in .xlsx format
- Report Generation
- Alarm/Trip Setpoints
- Time Stamping

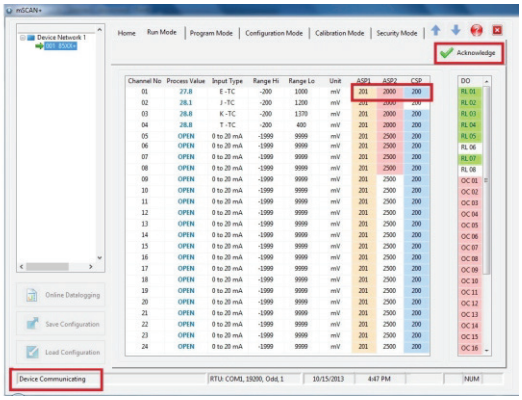
## Easy to Monitor

| Parameters | Front Display | mSCAN+ Software |
|---|---|---|
| Real-time data | √ | √ |
| • Channel No. | √ | √ |
| • Process Value | √ | √ |
| • Zero/Span, Input Type | √ | √ |
| • Alarm Status | √ | √ |
| • Channel wise Process value | √ | √ |

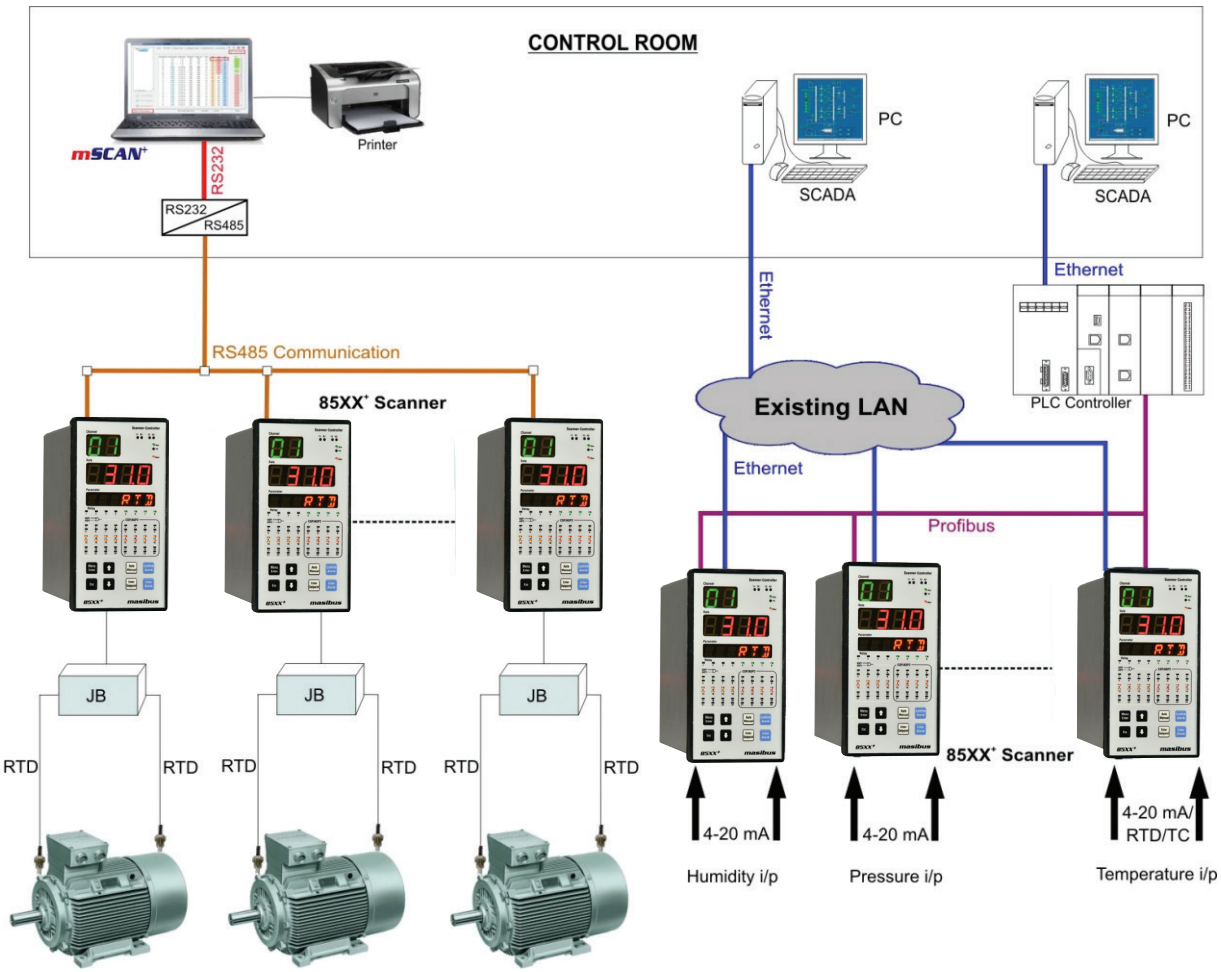
**Programming using mSCAN+ Software**



**Monitoring using mSCAN+ Software**



# APPLICATION



# TECHNICAL SPECIFICATION

## Input

| | |
|---|---|
| Analog Input | |
| No of AI Modules | 1 (8 ch), 2 (16 ch) or 3 (24 ch) |
| Input Type | Thermocouple, RTD, Voltage, Current |
| Input Range | Refer Table -1 |
| Accuracy | 0.1% FS |
| ADC Resolution | 17 bits |
| Display Resolution | 0.1 / 1.0 °C |
| Sampling Rate | T/C & Voltage/Current: 50mSec/Channels<br>RTD: 100mSec/Channels |
| Display Scan Rate | 1 to 99 Sec (Programmable) |
| CJC | Auto/ Manual/ External for T/C type |
| CJC Error | ±2°C (0 to 55°C) |
| Sensor open | All inputs except 0-5V, 0-10V DC |
| Sensor Burnout current | 0.4uA |
| RTD excitation current | 250uA (Approx) |
| NMRR | > 40dB |
| CMRR | > 120dB |
| Temp-co | < 100ppm/°C |
| Input Impedance | > 1MΩ |
| Max Voltage | 20V DC |
| Connector Type | 24 pin Rectangular connector/25 pin D sub Connector |
| PV Value Format for Modbus | Integer/Swap Float |
| Channel to Channel Islolation for Isolated AI Card option | 125VAC/300VDC |

## Digital Input ▲

| | |
|---|---|
| No of DI modules | 1 (16 ch) |
| Response time | 50mSec |
| Rated Input Voltage | 24 V DC |
| Input On Voltage | ≥ 15 V DC |
| Input Off Voltage | ≤ 5 V DC |
| Input Current (At Rated Input Voltage) | Approx 3mA/ Channel |
| Maximum Allowable Input Voltage | 30 V DC |

## Display and Keys

| | |
|---|---|
| Channel number | 2-Digit, 0.56", Green seven segment LED |
| Process Value | 4-Digit, 0.56", Red seven segment LED |
| Engineering Unit | 6-Digit, 0.3", Orange Alphanumeric LED |
| Status LEDs | Manual, Run, Flt, Tx/Rx, Relay status<br>Alarm/Control Status per channel |
| Keys | 2 X 4 for Configuration, Operation and Calibration |

## Output

| | |
|---|---|
| Alarm/Trip/Control Output | |
| Relays | RL: 8 Nos per card<br>RL4: 4 Nos per card<br>RL8: 8 Nos per card |
| RL Module | RL (Form A): C- NO or C-NC<br>(Jumper Selectable) |
| RL4 / RL8 Module | RL4 (Form C): C-NO-NC<br>RL8 (Form C): C-NO-NC |
| Rating | 2A @ 250V AC / 30V DC |
| Connector Type | 25 D-Sub |
| Open Collector (OC) Output | |
| OC Outputs | 24 |
| Type | Sink |
| Rating | 100mA@30V DC |
| OC1 Module | Common pin: Ground only (O/P Logic Isolated) |
| OC2 Module | Common pin: +5V@1A/Ground, jumper selectable for Internal/External Relay drive (O/P Logic non-Isolated)<br>*Default jumper set for Ground |
| Connector Type | 25 D-Sub |
| Analog Output ▲ | |
| Number of outputs | Max upto 8 nos per card (Value: Min, Max, Avg) |
| Output signal | 0/4 to 20 mA (Isolated) |
| Load Resistance | 500Ω max |
| Output accuracy | ± 0.25 % of span |
| Resolution | 16 bits |

## Communication Output

| | |
|---|---|
| **RS485-1 (Standard) & RS485-2** | |
| Protocol | Modbus-RTU Slave |
| Baud Rate | 9600, 19200, 57600 bps |
| Parity | Odd, Even, None |
| Stop Bit | 1, 2 |
| Connector | 2 pin, plug-in terminals |
| **Ethernet (Optional)** | |
| Protocol | Modbus - TCP/IP(Modnet) Slave |
| Baud Rate | 10 Mbps |
| Connector | RJ45 |

## Profibus-DP ▲(Optional)

| | |
|---|---|
| Protocol | Profibus DP V0 Slave |
| Max. In/Out Bytes | 244 IN / 244 OUT Bytes |
| Baud Rate | 1200 to 12 Mbps Auto Detecting |
| Connector | 9-Pin D-type Female |

## PROFINET ▲(Optional)

| | |
|---|---|
| Device Type | Profinet I/O Device |
| Communication Protocol | Profinet |
| Network Topology | MRP (Media Redundancy Protocol), STAR, LINE |
| Network Port | 2 Nos (RJ-45) |
| Max. In/Out Bytes | 256 IN / 256 OUT Bytes* |
| Network Speed | 10/100 Mbps, Auto-negotiation & Auto-crossover |
| Data Transport Layer | Ethernet II, IEEE 802.3 |
| Configuration File | GSDML available |
| Conformance Class | Class C |

## ETHERNET/IP ▲(Optional)

| | |
|---|---|
| Device Type | EtherNet/IP Adapter (Slave) |
| Communication Protocol | EtherNet/IP |
| Network Topology | DLR (Device Level Ring), TREE, LINE |
| Network Port | 2 Nos (RJ-45) |
| Max. In/Out Bytes | 504 IN / 504 OUT Bytes* |
| Network Speed | 10/100 Mbps, Auto-negotiation & Auto-crossover |
| Data Transport Layer | Ethernet II, IEEE 802.3 |
| Configuration File | EDS available |

*Note: Currently, Profinet and Ethernet IP communication support Input (Read) functionality only, Output (Write) functionality will be available in a future.

## USB Port (Optional-only for logged data retrieval through pendrive)

| | |
|---|---|
| No of port | 1 no max |
| Standard | 2.0 |
| Data format | Excel |
| Max. USB pen drive size | Upto 16 GB supported |

## Data Logging

| | |
|---|---|
| Memory Size | 25MB (Periodic), 7MB (Event) |
| Data retrieval | via mSCAN+ Software |
| Min Periodic Log Time | 1 min |
| No of Records | $101888 \times \left[\frac{256}{(2 \times \text{No. of Ch}) + 12}\right]$ |

## Power supply

| | |
|---|---|
| Voltage | 85-265 V AC, 50/60 Hz/ 100-295 V DC<br>18 - 36V DC (Optional) |
| Power Consumption | 9W |

Isolation (Withstanding voltage)
- Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute
- Between primary terminals* and grounding terminal: At least 1500 V AC for 1 minute
- Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute
- Between secondary terminals**: At least 500 V AC for 1 minute

* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate I/O signal and Communication O/P.
Insulation resistance: 20MΩ or more at 500 V DC between power terminals and grounding terminal

## Physical

| | |
|---|---|
| Size (in mm) | 144 (H) X 72 (W) X 165 (D) |
| Panel Cutout (in mm) | 137 (H) X 68.5 (W) |
| Depth behind Panel (in mm) | 155 / 203 (with cable connector) |
| Mounting | Panel Mount (Standard) |
| Weight | 1.25 Kg |
| Enclosure Material | Extruded Aluminum |
| Protection | IP20 (Overall, except terminals),<br>IP55 (Front Fascia) |

## Table 1: Display Range

| Input Type | | Ranges |
|---|---|---|
| Thermocouple | E | -200 °C to 1000 °C |
| | J | -200 °C to 1200 °C |
| | K | -200 °C to 1372 °C |
| | T | -200 °C to 400 °C |
| | B | 450 °C to 1820 °C |
| | R | 0 °C to 1768 °C |
| | S | 0 °C to 1768 °C |
| | N | -200 °C to 1300 °C |
| RTD | Pt100 | -199.9 °C to 850.0 °C |
| | Cu53 | -210.0 °C to 210.0 °C |
| | NI-120 | -70.0 °C to 210.0 °C |
| Voltage/Current | 0/4 -20mA (Ext. 250Ω)<br>0/1-5V<br>-10 to 20 mV DC<br>0 - 100 mV DC<br>0 - 10 V DC | -1999 to 9999 |

# TECHNICAL SPECIFICATION

| Environmental | |
|---|---|
| Operating temperature | -10 to 55 °C |
| Storage temperature | 0 to 80 °C |
| Humidity | 20 to 95 % RH non-condensing |

| Complience applicable only for 85XX+ CE Model |
|---|
| EN 61010-1:2010 (Safety) |
| EN 61000-6-2:2005 (EMI/EMC) |
| EN 61000-6-4:2007 (EMI/EMC) |
| Note: ▲Options are not available in CE compliance Scanner |

| Terminal Board for AI Module (Optional) | |
|---|---|
| Input Connection | MKDS type connector screw up to 2.5mm² conductor |
| O/P Connection | 25 Pin D-type plug in type Connector |
| Size (L X W X H) in mm | 90 X 90 X 75 |
| Mounting | 35 mm DIN Rail |

| Terminal Board for Relay Module (Optional) | |
|---|---|
| Input Connection | 25 Pin D-type plug in type Connector |
| O/P Connection | MKDS type connector screw up to 2.5mm² conductor |
| Size (L X W X H) in mm | 90 X 90 X 75 |
| Mounting | 35 mm DIN Rail |

## Type test

| | |
|---|---|
| Electrostatic Discharge (ESD) | IEC 61000-4-2 (85XX⁺-CE) |
| Radiated Susceptibility | IEC 61000-4-3 (85XX⁺-CE) |
| EFT Test | IEC 61000-4-4 (85XX⁺-CE) |
| Surge Test | IEC 61000-4-5 (85XX⁺-CE) |
| Conducted Susceptibility (Conducted RF) | IEC 61000-4-6 (85XX⁺-CE) |
| Power Frequency Magnetic Field | IEC 61000-4-8 (85XX⁺-CE) |
| Radiated Emission<br>Conducted Emission | As per CISPR-11 (85XX⁺-CE) |
| Voltage Interruption/ Voltage Dips | IEC 61000-4-11 (85XX⁺-CE) |
| IP Test | IEC 60529 (85XX⁺-CE/85XX⁺) |
| Cold Test | IEC 60068-2-1 (85XX⁺-CE/85XX⁺) |
| Dry Heat Test | IEC 60068-2-2 (85XX⁺-CE/85XX⁺) |
| Damp Heat Steady State Test | IEC 60068-2-30 (85XX⁺-CE/85XX⁺) |

## Ordering Code (85XX⁺)

| Model | No of I/O Slots and type | | | | | | | | | | Power Supply | | Communication | | USB port# | | Datalogging | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | | | | | | | | |
| 85XX⁺ | XX | | XX | | XX | | XX | | XX | | XX | | XX | | X | | X | |
| | AI | Analog i/p | N | None | N | None | N | None | N | None | U1 | 85-265 VAC | 1E | 1 x RS485 + 1 x RJ45 | N | No | N | No |
| | AX | Isolated Analog i/p | AI | Analog i/p | AI | Analog i/p | RL | 8 Relay | RL4 | 4 Relay | U2 | 18-36 VDC | 2E | 2 x RS485 + 1 x RJ45 | Y | Yes | Y | Yes |
| | | | AX | Isolated Analog i/p | AX | Isolated Analog i/p | | | RL8 | 8 Relay | | | EE | 1 x RS485 + 2 x RJ45 | | | | |
| | | | | | | | | | OC2 | Open Collector o/p | | | 1P | 1 x RS485 + 1 x Profibus-DP | | | | |
| | | | | | | | | | 1A | 1 no 4-20mA o/p | | | EP | 1 x RS485 + 1 x Ethernet/IP | | | | |
| | | | | | | | | | 2A | 2 nos 4-20mA o/p | | | PN | 1 x RS485 + 1 x Profinet | | | | |
| | | | | | | | | | 4A | 4 nos 4-20mA o/p | | | | | | | | |
| | | | | | | | | | 6A | 6 nos 4-20mA o/p | | | | | | | | |
| | | | | | | | | | 8A | 8 nos 4-20mA o/p | | | | | | | | |
| | | | | | | | | | DI | Digital i/p | | | | | | | | |

## Ordering Code (85XX⁺ with CE compliance)

| Model | CE Compliance | No of I/O Slots and type | | | | | | | | | | Power Supply | | Communication | | Datalogging | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | | | | | | | |
| 85XX⁺ | CE | XX | | XX | | XX | | XX | | XX | | XX | | XX | | XX | |
| | | AI | Analog i/p | N | None | N | None | N | None | N | None | U1 | 85-265 VAC | 1E | 1 x RS485 + 1 x RJ45 | N | No |
| | | | | AI | Analog i/p | AI | Analog i/p | RL | 8 Relay | OC1 | Open Collector o/p | U2 | 18-36 VDC | 2E | 2 x RS485 + 1 x RJ45 | Y | Yes |

Note:
1) Specify X from ordering code.
2) # If USB port is selected, Datalogging option must be selected. USB port will work with Masibus supplied pen drive only.
3) For Analog o/p type; other than 0/4-20mA please contact factory
4) Customer to specify required input type/range from Table-1 at the time of Order placement; else by default all channels will be calibrated for Input RTD Pt100 range
5) We supply 2.5-meter standard prefab cables with 85XX+ for field connections of each Input/Output card
6) In Ethernet/IP and Profinet communication protocols Data logging option is supported. However, USB Port is not available. Data fetching can only be performed via RS485 port using the mSCAN+ software.
7) Isolated and Non-Isolated channels cannot be mixed, Choose either fully Isolated (AX) or fully Non-Isolated (AI) variants in 8/16/24 channel options.
8) EE option includes two redundant Modbus TCP/IP ports.

## Prefab Cables Ordering Code

| Part Code | Description |
|---|---|
| AIC-2.5-DB | 8 points Analog Input cable, 25 Core 2.5 mtrs long with DB25 Connector (8 Ch: 1 Cable, 16 Ch: 2 Cables, 24 Ch: 3 Cables Required) |
| RLC-2.5 | 8 Relay output cable, 25 Core 2.5 mtrs long |
| OCC-2.5 | 24 OC output cable, 25 Core 2.5 mtrs long |
| DI-2.5 | 16 DI output cable, 25 Core 2.5 mtrs long |

## Terminal Board Ordering Code (Extra Cost)

| Part Code | Description |
|---|---|
| m-85XX⁺-FIB-AI | 8 channel Field Interface Board for Analog Input (For 8 Ch: 1 Module, 16 Ch: 2 Modules, 24 Ch: 3 Modules Required) |
| m-85XX⁺-FIB-RL | 8 channel Field Interface Board for Relay output |

## Prefab Cables for Field Interface Board Ordering Code (Extra Cost)

| Part Code | Description |
|---|---|
| m-AIC-2.5-D25M-D25M | 8 points Analog Input cable, 25 Core 2.5 mtrs long with DB25 connector at both ends (8 Ch: 1 Cable, 16 Ch: 2 Cables, 24 Ch: 3 Cables Required) |
| m-RLC-2.5-D25F-D25M | 8 Relay output cable, 25 Core 2.5 mtrs long with DB25 connector at both ends |
| m-RLC-2.5-D25F | 8 Relay output cable, 25 Core 2.5 mtrs long with one end DB25 connector and other end pig tails |

## Busbar Temperature Sensor (Extra Cost)

| | |
|---|---|
| BSSRTD1-Busbar-LX | Busbar Temperature Sensor (PT100) |

## Din Rail Mouning Kit (Extra Cost)

| | |
|---|---|
| S-85XX+-DinRail-Kit | Din Rail Mounting Kit |

Sonepar India Private Limited
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382016, Gujarat, India.
Tel: +91 79 23287275-77
E-mail: sales.masibus@soneparindia.com, Web: www.masibus.com

All specifications are subject to change without notice due to continuous improvements.
Doc. Ref. 85XX⁺/R10F/1026